# WASTEWATER TREATMENT STUDY OF ETHOXYLATED ALCOHOL SURFACTANTS (AE)

## ANALYTICAL TEST RESULTS

Client: The Soap and Detergent Association
475 Park Avenue South
New York, New York 10016

INDUSTRIAL TESTING LABORATORIES inc.

2350 Seventh Blvd. • St. Louis, Missouri 63104

INDUSTRIAL TESTING LABORATORIES inc.

Chemists
Engineers
Metallurgists

2350 Seventh Blvd. • St. Louis, Missouri 63104 | 314/771-7111

Report No. 84-5-360 January 15, 1985

Examination of thirty-one (31) water samples submitted.

The Soap and Detergent Association
475 Park Avenue South
New York, New York 10016

Attn: Mr. Richard I. Sedlak
Assistant Technical
Director

TEST PROCEDURE: SDA Nonionic Method 583G
Determination of Ethoxylated Alcohol Surfactants
in Wastewater by Liquid Chromatography

Source: Enid Oklahoma Wastewater Treatment Plant

Analysts: William A. Rorie
William J. Lowry
Jeffrey W. Siria

Respectfully submitted,
INDUSTRIAL TESTING LABORATORIES, INC.

Allan M. Siegel
Allan M. Siegel, P.E.
Director

AMS/ps/hj

| Location Number | Sample Description | ITL Lab. No. | Sample Volume, ml | CTAS, mg/l | AE Conc., mg/l* (Assumed EO Value) | EO Value | AE Conc., mg/l** (Experimental EO Value) | EO Value |
|---|---|---|---|---|---|---|---|---|
| 1A-1 | Raw Influent | 50197 | 1,000 | 1.59 | 1.11 | 9 | ---- | ---- |
| 1A-1B | Raw Influent | 50197 | 1,000 | 1.64 | 1.03 | 9 | ---- | ---- |
| 1A-2 | Raw Influent | 50198 | 1,000 | 1.58 | 1.22 | 9 | ---- | ---- |
| 1A-2B | Raw Influent | 50198 | 1,000 | 1.51 | 1.13 | 9 | ---- | ---- |
| 1A-3 | Raw Influent | 50199 | 1,000 | 1.71 | 1.34 | 9 | ---- | ---- |
| 1A-3B | Raw Influent | 50199 | 1,000 | 1.68 | 1.25 | 9 | ---- | ---- |
| 1C | Raw Influent - Composite | 50200 | 1,000 | 1.41 | 1.05 | 9 | 0.93 | 7.4 |
| 1C-B | Raw Influent - Composite | 50200 | 1,000 | 1.47 | 1.04 | 9 | 0.91 | 7.4 |
| 1D | Raw Influent | 50201 | 1,000 | 4.14 | 3.3 | 9 | ---- | ---- |
| 1D-B | Raw Influent | 50201 | 1,000 | 4.06 | 3.29 | 9 | ---- | ---- |

| Location Number | Sample Description | ITL Lab. No. | Sample Volume, ml | CTAS, mg/l | AE Conc., mg/l* (Assumed EO Value) | EO Value | AE Conc., mg/l** (Experimental EO Value) | EO Value |
|---|---|---|---|---|---|---|---|---|
| 1E | Raw Influent Spiked with 2.00 mg/l AE | 50202 | 1,000 | 5.92 | 4.76 | 9 | ---- | ---- |
| 1E-B | Raw Influent Spiked with 2.00 mg/l AE | 50202 | 1,000 | 5.81 | 4.69 | 9 | ---- | ---- |
| 2A-1 | S Plant Primary Effluent | 50203 | 1,000 | 1.03 | 0.47 | 3 | ---- | ---- |
| 2A-1B | S Plant Primary Effluent | 50203 | 1,000 | 1.09 | 0.43 | 3 | ---- | ---- |
| 2A-2 | S Plant Primary Effluent | 50204 | 1,000 | 0.87 | 0.48 | 3 | ---- | ---- |
| 2A-2B | S Plant Primary Effluent | 50204 | 1,000 | 0.81 | 0.50 | 3 | ---- | ---- |
| 2A-3 | S Plant Primary Effluent | 50205 | 1,000 | 0.83 | 0.31 | 3 | ---- | ---- |
| 2A-3B | S Plant Primary Effluent | 50205 | 1,000 | 0.82 | 0.30 | 3 | ---- | ---- |
| 2C | S Plant Primary Effluent Composite | 50206 | 1,000 | 0.85 | 0.40 | 3 | 0.68 | 8.0 |
| 2C-B | S Plant Primary Effluent Composite | 50206 | 1,000 | 0.88 | 0.41 | 3 | 0.69 | 8.0 |

| Location Number | Sample Description | ITL Lab. No. | Sample Volume, ml | CTAS, mg/l | AE Conc., mg/l* (Assumed EO Value) | EO Value | AE Conc., mg/l** (Experimental EO Value) | EO Value |
|---|---|---|---|---|---|---|---|---|
| 3A-1 | N Plant Primary Effluent | 50207 | 1,000 | 0.81 | 0.26 | 3 | ---- | ---- |
| 3A-1B | N Plant Primary Effluent | 50207 | 1,000 | 0.84 | 0.25 | 3 | ---- | ---- |
| 3A-2 | N Plant Primary Effluent | 50208 | 1,000 | 0.76 | 0.28 | 3 | ---- | ---- |
| 3A-2B | N Plant Primary Effluent | 50208 | 1,000 | 0.72 | 0.27 | 3 | ---- | ---- |
| 3A-3 | N Plant Primary Effluent | 50209 | 1,000 | 0.75 | 0.24 | 3 | ---- | ---- |
| 3A-3B | N Plant Primary Effluent | 50209 | 1,000 | 0.76 | 0.23 | 3 | ---- | ---- |
| 3C | N Plant Primary Effluent Composite | 50210 | 1,000 | 0.80 | 0.30 | 3 | 0.48 | 7.5 |
| 3C-B | N Plant Primary Effluent Composite | 50210 | 1,000 | 0.75 | 0.29 | 3 | 0.47 | 7.5 |
| 4A-1 | S Plant Final Effluent | 50211 | 5,000 | 0.14 | 0.04 | 3 | ---- | ---- |
| 4A-1B | S Plant Final Effluent | 50211 | 5,000 | 0.14 | 0.03 | 3 | ---- | ---- |

| Location Number | Sample Description | ITL Lab. No. | Sample Volume, ml | CTAS, mg/l | AE Conc., mg/l* (Assumed EO Value) | EO Value | AE Conc., mg/l** (Experimental EO Value) | EO Value |
|---|---|---|---|---|---|---|---|---|
| 4A-2 | S Plant Final Effluent | 50212 | 5,000 | 0.15 | 0.03 | 3 | ---- | ---- |
| 4A-2B | S Plant Final Effluent | 50212 | 5,000 | 0.16 | 0.02 | 3 | ---- | ---- |
| 4A-3 | S Plant Final Effluent | 50213 | 5,000 | 0.25 | 0.04 | 3 | ---- | ---- |
| 4A-3B | S Plant Final Effluent | 50213 | 5,000 | 0.23 | 0.04 | 3 | ---- | ---- |
| 4C | S Plant Final Effluent Composite | 50214 | 5,000 | 0.17 | 0.03 | 3 | 0.05 | 7.7 |
| 4C-B | S Plant Final Effluent Composite | 50214 | 5,000 | 0.18 | 0.03 | 3 | 0.05 | 7.7 |
| 4D | S Plant Final Effluent | 50215 | 5,000 | 0.30 | 0.05 | 3 | ---- | ---- |
| 4D-B | S Plant Final Effluent | 50215 | 5,000 | 0.32 | 0.05 | 3 | ---- | ---- |

| Location Number | Sample Description | ITL Lab. No. | Sample Volume, ml | CTAS, mg/l | AE Conc., mg/l* (Assumed EO Value) | EO Value | AE Conc., mg/l** (Experimental EO Value) | EO Value |
|---|---|---|---|---|---|---|---|---|
| 4E | S Plant Final Effluent spiked with .5 mg/l AE | 50216 | 4,000 | 0.67 | 0.21*+ | 3 | ---- | ---- |
| 4E-B | S Plant Final Effluent spiked with .5 mg/l AE | 50216 | 4,000 | 0.69 | 0.21*+ | 3 | ---- | ---- |
| 5A-1 | N Plant Final Effluent | 50217 | 5,000 | 0.12 | 0.02 | 3 | ---- | ---- |
| 5A-1B | N Plant Final Effluent | 50217 | 5,000 | 0.11 | 0.02 | 3 | ---- | ---- |
| 5A-2 | N Plant Final Effluent | 50218 | 5,000 | 0.15 | 0.02 | 3 | ---- | ---- |
| 5A-2B | N Plant Final Effluent | 50218 | 5,000 | 0.15 | 0.02 | 3 | ---- | ---- |
| 5A-3 | N Plant Final Effluent | 50219 | 5,000 | 0.14 | 0.02 | 3 | ---- | ---- |
| 5A-3B | N Plant Final Effluent | 50219 | 5,000 | 0.12 | 0.02 | 3 | ---- | ---- |
| 5C | N Plant Final Effluent Composite | 50220 | 5,000 | 0.13 | 0.02 | 3 | 0.03 | 7.2 |
| 5C-B | N Plant Final Effluent Composite | 50220 | 5,000 | 0.14 | 0.02 | 3 | 0.03 | 7.2 |

*+ Due to the negligible AE Conc. detected in sample 4D, the assumed EO Value of 3 represents a significant error as the AE spike was determined to have an average EO of 10.1.

| Location Number | Sample Description | ITL Lab. No. | Sample Volume, ml | CTAS, mg/l | AE Conc., mg/l* (Assumed EO Value) | EO Value | AE Conc., mg/l** (Experimental EO Value) | EO Value |
|---|---|---|---|---|---|---|---|---|
| 14A-1 | Primary Influent | 50247 | 1,000 | 1.22 | 0.73 | 9 | —— | —— |
| 14A-1B | Primary Influent | 50247 | 1,000 | 1.17 | 0.69 | 9 | —— | —— |
| 14A-2 | Primary Influent | 50248 | 1,000 | 1.46 | 1.14 | 9 | —— | —— |
| 14A-2B | Primary Influent | 50248 | 1,000 | 1.39 | 1.07 | 9 | —— | —— |
| 14A-3 | Primary Influent | 50249 | 1,000 | 1.20 | 0.97 | 9 | —— | —— |
| 14A-3B | Primary Influent | 50249 | 1,000 | 1.23 | 0.94 | 9 | —— | —— |
| 15A | Distilled Water Blank | 50250 | 2,000 | ***0.05 | 0.01 | 9 | —— | —— |
| 15A-1 | Distilled Water Blank | 50250 | 2,000 | ***0.05 | 0.01 | 9 | —— | —— |
| 15B | Distilled Water Blank Spiked with 0.5 mg/l AE | 50251 | 2,000 | 0.48 | 0.44 | 10.1 | —— | —— |
| 15B-1 | Distilled Water Blank Spiked with 0.5 mg/l AE | 50251 | 2,000 | 0.46 | 0.38 | 10.1 | —— | —— |

* Calculation based upon reverse phase alkyl chain separation and assumed ethoxyl value (9 for influents, 3 for effluents).

** Calculation based upon reverse phase alkyl chain separation followed by normal phase ethoxyl separation.

*** Less than.

INDUSTRIAL TESTING LABORATORIES, INC.
ALCOHOL ETHOXYLATE ANALYSIS
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| | |
|---|---|
| SAMPLE ID | 1A-1 |
| SAMPLE TYPE | INFLUENT |
| SAMPLE VOLUME | 1000 MILLILITERS |
| ISTD AMOUNT | 100 MICROGRAMS |
| FINAL VOLUME | 250 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 592 * |
| ALCOHOL ETHOXYLATE CONC. = | 1.11 MG/L |

CALCULATIONS

| ALKYL CHAIN | AVG. EO | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 9 | 20.935 : 12.86 | (172 + 396 ):298 | 100 | 377.2 |
| 12 | 9 | 11.023 : 12.86 | (186 + 396 ):298 | 100 | 203.5 |
| 13 | 9 | 7.926 : 12.86 | (200 + 396 ):298 | 100 | 148 |
| 14 | 9 | 9.27 : 12.86 | (214 + 396 ):298 | 100 | 179.4 |
| 15 | 9 | 6.275 : 12.86 | (228 + 396 ):298 | 100 | 124.2 |
| 16 | 9 | 2.078 : 12.86 | (242 + 396 ):298 | 100 | 42.1 |
| 18 | 9 | 1.549 : 12.86 | (270 + 396 ):298 | 100 | 32.7 |
| | | | | | 1107.1 |

TOTAL MICROGRAMS ALCOHOL ETHOXYLATE = 1107.1

* FROM ASSUMED EO VALUE 9 . NOTE THAT THIS ASSUMED VALUE MAY NOT BE IN AGREEMENT WITH THE EXPERIMENTAL VALUE CALCULATED FROM THE AVAILABLE DATA.

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ALCOHOL ETHOXYLATE ANALYSIS
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| | |
|---|---|
| SAMPLE ID | 1A-1B |
| SAMPLE TYPE | INFLUENT |
| SAMPLE VOLUME | 1000 MILLILITERS |
| ISTD AMOUNT | 100 MICROGRAMS |
| FINAL VOLUME | 250 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 592 * |
| ALCOHOL ETHOXYLATE CONC. = | 1.03 MG/L |

CALCULATIONS

| ALKYL CHAIN | AVG. EO | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 9 | 20,661 : 18,608 | (172 + 396 ):298 | 100 | 351.8 |
| 12 | 9 | 10,367 : 18,608 | (186 + 396 ):298 | 100 | 180.9 |
| 13 | 9 | 7,977 : 18,608 | (200 + 396 ):298 | 100 | 140.8 |
| 14 | 9 | 9,456 : 18,608 | (214 + 396 ):298 | 100 | 172.9 |
| 15 | 9 | 6,294 : 18,608 | (228 + 396 ):298 | 100 | 117.8 |
| 16 | 9 | 2,036 : 18,608 | (242 + 396 ):298 | 100 | 38.9 |
| 18 | 9 | 1,531 : 18,608 | (270 + 396 ):298 | 100 | 31.6 |
| TOTAL MICROGRAMS ALCOHOL ETHOXYLATE = | | | | | 1034.7 |

* FROM ASSUMED EO VALUE 9 . NOTE THAT THIS ASSUMED VALUE MAY NOT BE IN AGREEMENT WITH THE EXPERIMENTAL VALUE CALCULATED FROM THE AVAILABLE DATA.

LIST: ZERO = 0, 3.5

LIST: LIST
PEAK CAPACITY: 1151

ZERO = 0, 3.6
ATT 2↑ = 9
CHT SP = 0.5
PK WD = 0.16
THRSH = 5
AR REJ = 1000000000

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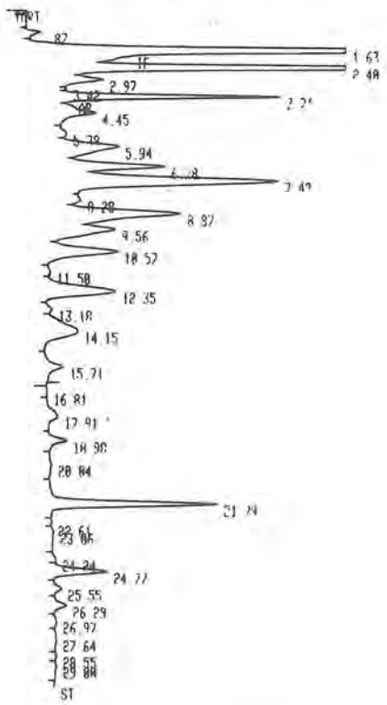



RUN # 54 NOV/27/84 14:11:24

ISTD

| RT | AREA | TYPE | CAL # | AMOUNT |
|---|---|---|---|---|
| 7.42 | 5.4227E+07 | SPR | 1 | 436.290 |
| 8.87 | 2.8551E+07 | BR | 2 | 229.680 |
| 10.57 | 2.0271E+07 | BB | 3 | 162.430 |
| 12.35 | 2.4011E+07 | BB | 4 | 192.400 |
| 14.15 | 1.6252E+07 | BB | 5 | 132.210 |
| 15.71 | 5381700 | BB | 6 | 43.885 |
| 18.98 | 4013200 | BB | 7 | 32.401 |
| 21.79 | 3.3310E+07 | SPR | 8S | 100.000 |

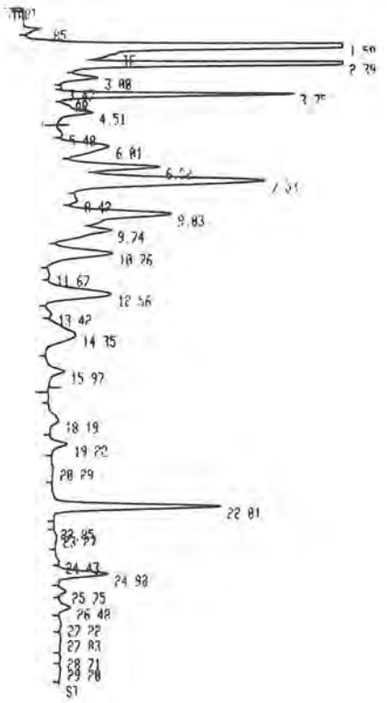
TOTAL AREA= 1.8602E+08
ISTD AMT= 1.0000E+02
MUL FACTOR= 1.0000E+00

RUN # 54 NOV/27/84 14:11:24

AREA%

| | RT | AREA | TYPE | AR/HT | AREA% |
|---|---|---|---|---|---|
| | 4.45 | 7887000 | BB | 0.319 | 3.045 |
| | 5.39 | 697900 | BR | 0.239 | 0.269 |
| | 5.94 | 1.5763E+07 | BR | 0.400 | 6.086 |
| | 6.78 | 1.5317E+07 | BR | 0.248 | 5.913 |
| 11 | 7.42 | 5.4227E+07 | SPR | 0.367 | 20.935 |
| | 8.28 | 1080400 | BR | 0.249 | 0.417 |
| 12 | 8.87 | 2.8551E+07 | BR | 0.367 | 11.023 |
| | 9.56 | 9508500 | BR | 0.343 | 3.671 |
| 13 | 10.57 | 2.0271E+07 | BB | 0.484 | 7.826 |
| | 11.58 | 373040 | BP | 0.274 | 0.144 |
| 14 | 12.35 | 2.4011E+07 | BB | 0.455 | 9.270 |
| | 13.18 | 644290 | BP | 0.238 | 0.249 |
| 15 | 14.15 | 1.6252E+07 | BB | 0.678 | 6.275 |
| 16 | 15.71 | 5381700 | BR | 0.394 | 2.078 |
| | 16.81 | 97879 | MD | 0.250 | 0.038 |
| | 17.91 | 3817700 | BR | 0.497 | 1.474 |
| 17 | 18.98 | 4013200 | BR | 0.299 | 1.549 |
| | 20.04 | 679830 | BP | 0.476 | 0.263 |
| — | 21.79 | 3.3310E+07 | SPR | 0.258 | 12.869 |
| | 22.61 | 45814 | BB | 0.213 | 0.018 |
| | 23.06 | 574000 | BR | 0.427 | 0.222 |
| | 24.24 | 169590 | BP | 0.191 | 0.066 |
| | 24.77 | 1.1000E+07 | BB | 0.272 | 4.247 |
| | 25.55 | 1348900 | BR | 0.257 | 0.521 |
| | 26.29 | 2657200 | BR | 0.288 | 1.026 |
| | 26.97 | 456048 | BB | 0.327 | 0.176 |
| | 27.64 | 415760 | BR | 0.589 | 0.161 |
| | 28.55 | 149450 | BP | 0.210 | 0.058 |
| | 29.00 | 321970 | BB | 0.350 | 0.124 |

TOTAL AREA= 2.5902E+08
MUL FACTOR= 1.0000E+00




RUN # 68 NOV/28/84 14:37:49

ISTD

| RT | AREA | TYPE | CAL # | AMOUNT |
|---|---|---|---|---|
| 7.53 | 5.0558E+07 | BR | 1 | 406.920 |
| 9.03 | 2.5368E+07 | BB | 2 | 204.080 |
| 10.76 | 1.9276E+07 | BB | 3 | 154.520 |
| 12.56 | 2.3148E+07 | BR | 4 | 185.490 |
| 14.35 | 1.5482E+07 | BB | 5 | 125.330 |
| 15.97 | 4981400 | BB | 6 | 39.895 |
| 19.22 | 3867500 | BB | 7 | 31.236 |
| 22.81 | 3.3298E+07 | SPR | 8S | 100.000 |

TOTAL AREA= 1.7589E+08
ISTD AMT= 1.0000E+02
MUL FACTOR= 1.0000E+00

LIST: ZERO = 0, 40.0

RUN # 68 NOV/28/84 14:37:49

AREA%

| | RT | AREA | TYPE | AR/HT | AREA% |
|---|---|---|---|---|---|
| | 4.51 | 8013500 | BB | 0.311 | 3.225 |
| | 5.48 | 522040 | PP | 0.247 | 0.213 |
| | 6.81 | 1.5838E+07 | BB | 0.453 | 6.472 |
| | 6.92 | 1.3978E+07 | BB | 0.243 | 5.718 |
| 11 | 7.53 | 5.0558E+07 | BB | 0.366 | 20.661 |
| | 8.42 | 1332900 | BR | 0.227 | 0.545 |
| 12 | 9.03 | 2.5368E+07 | BB | 0.354 | 10.367 |
| | 9.74 | 7723900 | BB | 0.315 | 3.177 |
| 13 | 10.76 | 1.9276E+07 | BB | 0.413 | 7.877 |
| | 11.67 | 409850 | BR | 0.226 | 0.168 |
| 14 | 12.56 | 2.3148E+07 | BB | 0.465 | 9.456 |
| | 13.42 | 543480 | BP | 0.239 | 0.222 |
| 15 | 14.35 | 1.5482E+07 | BB | 0.283 | 6.294 |
| 16 | 15.97 | 4981400 | BB | 0.374 | 2.036 |
| | 18.19 | 3593800 | PB | 0.497 | 1.469 |
| 17 | 19.22 | 3867500 | BB | 0.297 | 1.581 |
| | 20.29 | 663940 | BB | 0.482 | 0.271 |
| — | 22.81 | 3.3298E+07 | SPR | 0.256 | 13.609 |
| | 22.85 | 38971 | BB | 0.194 | 0.016 |
| | 23.27 | 491170 | BB | 0.356 | 0.201 |
| | 24.98 | 1.0571E+07 | BB | 0.226 | 4.320 |
| | 25.75 | 1274200 | BB | 0.247 | 0.521 |
| | 26.48 | 2531800 | BB | 0.283 | 1.035 |
| | 27.22 | 444440 | BB | 0.332 | 0.182 |
| | 27.83 | 340290 | BB | 0.471 | 0.139 |
| | 28.71 | 138940 | BB | 0.215 | 0.057 |
| | 29.20 | 312180 | BB | 0.322 | 0.128 |

TOTAL AREA= 2.4470E+08
MUL FACTOR= 1.0000E+00

LIST: ZERO = 0, 0.7

LIST: LIST
PEAK CAPACITY: 1151

ZERO = 0, 0.7
ATT 2↑ = 9
CHT SP = 0.5
PK WD = 0.16
THRSH = 5
AR REJ = 1000000000

1A-1B
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INDUSTRIAL TESTING LABORATORIES, INC.
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| | |
|---|---|
| SAMPLE ID | 1A-2 |
| SAMPLE TYPE | INFLUENT |
| SAMPLE VOLUME | 1000 MILLILITERS |
| ISTD AMOUNT | 100 MICROGRAMS |
| FINAL VOLUME | 250 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 594 * |
| ALCOHOL ETHOXYLATE CONC. = | 1.22 MG/L |

CALCULATIONS

| ALKYL CHAIN | AVG. EO | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 9 | 15,847 : 12,418 | (172 + 396 ):298 | 100 | 286.4 |
| 12 | 9 | 17,977 : 12,418 | (186 + 396 ):298 | 100 | 343.7 |
| 13 | 9 | 8,718 : 12,418 | (200 + 396 ):298 | 100 | 170.7 |
| 14 | 9 | 12,917 : 12,418 | (214 + 396 ):298 | 100 | 258.9 |
| 15 | 9 | 1,013 : 12,418 | (228 + 396 ):298 | 100 | 20.8 |
| 16 | 9 | 3,782 : 12,418 | (242 + 396 ):298 | 100 | 79.3 |
| 18 | 9 | 2,747 : 12,418 | (270 + 396 ):298 | 100 | 60.1 |
| TOTAL MICROGRAMS ALCOHOL ETHOXYLATE = | | | | | 1219.9 |

* FROM ASSUMED EO VALUE 9 . NOTE THAT THIS ASSUMED VALUE MAY NOT BE IN AGREEMENT WITH THE EXPERIMENTAL VALUE CALCULATED FROM THE AVAILABLE DATA.

INDUSTRIAL TESTING LABORATORIES, INC.
ALCOHOL ETHOXYLATE ANALYSIS
REPORT NUMBER 84-5-360, PAGE 5

| | |
|---|---|
| SAMPLE ID | 1A-2B |
| SAMPLE TYPE | INFLUENT |
| SAMPLE VOLUME | 1000 MILLILITERS |
| ISTD AMOUNT | 100 MICROGRAMS |
| FINAL VOLUME | 250 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 595 * |
| ALCOHOL ETHOXYLATE CONC. = | 1.13 MG/L |

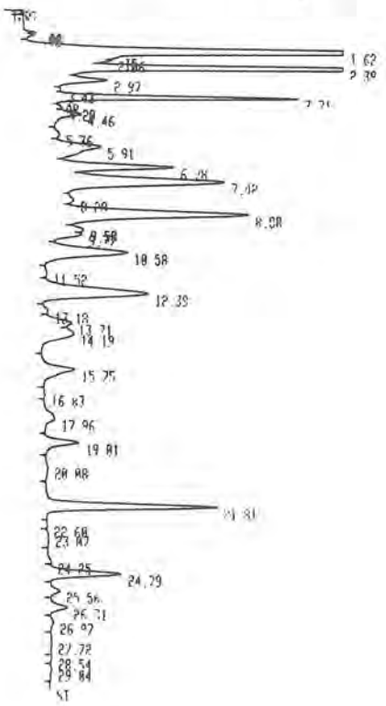
CALCULATIONS

| ALKYL CHAIN | AVG. EO | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 9 | 14,596 : 13,218 | (172 + 396 ):298 | 100 | 255.9 |
| 12 | 9 | 17,689 : 13,218 | (186 + 396 ):298 | 100 | 317.8 |
| 13 | 9 | 8,66 : 13,218 | (200 + 396 ):298 | 100 | 159.9 |
| 14 | 9 | 13,095 : 13,218 | (214 + 396 ):298 | 100 | 246.6 |
| 15 | 9 | 1,001 : 13,218 | (228 + 396 ):298 | 100 | 19.3 |
| 16 | 9 | 3,967 : 13,218 | (242 + 396 ):298 | 100 | 78.1 |
| 18 | 9 | 2,803 : 13,218 | (270 + 396 ):298 | 100 | 57.6 |
| TOTAL MICROGRAMS ALCOHOL ETHOXYLATE = | | | | | 1134.6 |

* FROM ASSUMED EO VALUE 9 . NOTE THAT THIS ASSUMED VALUE MAY NOT BE IN AGREEMENT WITH THE EXPERIMENTAL VALUE CALCULATED FROM THE AVAILABLE DATA.

```
LIST: ZERO =  0, 0.0

LIST: LIST
PEAK CAPACITY: 1151

ZERO   =  0, 0.0
ATT 2^ =  9
CHT SP =  0.5
PK WD  =  0.16
THRSH  =  5
AR REJ =  1000000000
```

1A-2
Page 6L

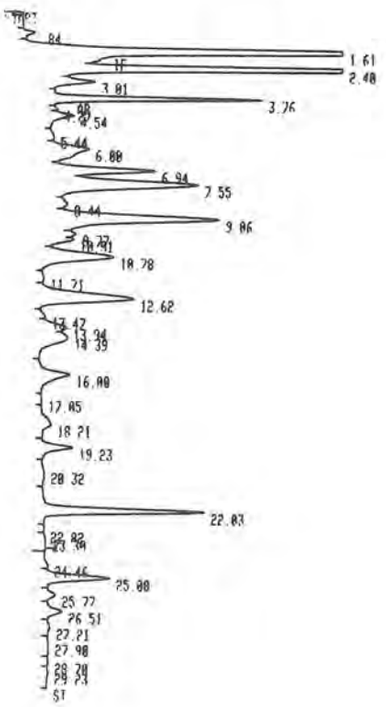



```
RUN #   56                NOV/27/84  15:42:58

ISTD
   RT          AREA  TYPE   CAL #        AMOUNT
  7.42  4.1600E+07    BB       1       331.210
  8.88  4.8728E+07    BB       2       797.780
 10.58  2.3629E+07    BB       3       187.370
 12.39  3.5011E+07    BB       4       277.620
 14.19     2744700    BB       5        32.895
 15.75  1.0252E+07    BB       6        81.222
 19.81     7445200    BB       7        59.484
 21.81  3.3661E+07   SPB      8S       100.000

TOTAL AREA= 2.0302E+08
  ISTD AMT= 1.0000E+02
MUL FACTOR= 1.0000E+00
```

```
RUN #   56                NOV/27/84  15:42:59

AREA%
   RT          AREA  TYPE   AR/HT        AREA%
  4.20         30485    BV   0.117        0.030
  4.46       3459000    BB   0.238        1.276
  5.36        528390    BB   0.231        0.195
  5.91  1.2742E+07    BB   0.402        4.701
  6.78  1.8858E+07    BB   0.242        6.957
  7.42  4.1600E+07    BB   0.362       15.347
  8.28        796020    BB   0.221        0.294
  8.88  4.8728E+07    BB   0.355       17.977
  9.58        732370    BB   0.171        0.270
  9.27        662150 D  BB   0.169        0.244
 10.58  2.3629E+07    BB   0.397        8.718
 11.52        326080    BB   0.286        0.120
 12.39  3.5011E+07    BB   0.436       12.917
 13.18        313790    BB   0.183        0.116
 13.71       2205800    BB   0.250        0.814
 14.19       2744700    BB   0.255        1.013
 15.75  1.0252E+07    BB   0.410        3.782
 16.83        198980    BB   0.293        0.073
 17.96       4089700    BB   0.493        1.479
 19.81       7445200    BB   0.285        2.747
 20.88        875280    BB   0.530        0.323
 21.81  3.3661E+07   SPB   0.255       12.418
 22.60         72683    BB   0.222        0.027
 23.02        335390    BB   0.290        0.124
 24.29  1.4835E+07    BB   0.271        5.473
 25.56       1826200    BB   0.262        0.674
 26.31       3730000    BB   0.292        1.376
 26.97        652280    BB   0.317        0.241
 27.72        371510    BB   0.506        0.137
 28.54        125630    BB   0.240        0.046
 29.84        248140    BB   0.307        0.092

TOTAL AREA= 2.7106E+08
MUL FACTOR= 1.0000E+00
```

```
LIST: LIST
PEAK CAPACITY: 1151

ZERO   =  0, 0.6
ATT 2^ =  9
CHT SP =  0.5
PK WD  =  0.16
THRSH  =  5
AR REJ =  1000000000
```

1A-2B
Page 6R




```
RUN #   69                NOV/28/84  17:15:14

ISTD
   RT          AREA  TYPE   CAL #        AMOUNT
  7.55  3.5086E+07    BB       1       295.950
  9.06  4.2520E+07    BB       2       358.490
 10.78  2.0816E+07    BB       3       174.880
 12.62  3.1477E+07    BB       4       264.440
 14.39     2406000    BB       5        20.520
 16.80     9536100    BB       6        80.042
 19.23     6736900    BB       7        57.025
 22.03  3.1772E+07   SPB      8S       100.000

TOTAL AREA= 1.8035E+08
  ISTD AMT= 1.0000E+02
MUL FACTOR= 1.0000E+00
```

```
LIST: ZERO =  0, 0.4

LIST: LIST
PEAK CAPACITY: 1151

ZERO   =  0, 0.3
ATT 2^ =  9
CHT SP =  0.5
PK WD  =  0.16
THRSH  =  5
AR REJ =  1000000000
```

```
RUN #   69                NOV/28/84  17:15:14

AREA%
   RT          AREA  TYPE   AR/HT        AREA%
  4.27         68884    BB   0.120        0.029
  4.54       3061300    BB   0.215        1.274
  5.44        311290    BB   0.229        0.130
  6.00  1.1773E+07    BB   0.448        4.898
  6.94  1.5876E+07    BB   0.245        6.605
  7.55  3.5086E+07    BB   0.364       14.596
  8.44        808660    BB   0.236        0.336
  9.06  4.2520E+07    BB   0.360       17.689
  9.77        574690    BB   0.161        0.239
 10.01        920190 D  BB   0.190        0.383
 10.78  2.0816E+07    BB   0.405        8.660
 11.71        321810    BB   0.288        0.134
 12.62  3.1477E+07    BB   0.440       13.095
 13.42        130810    BB   0.165        0.054
 13.94       1922500    BB   0.252        0.800
 14.39       2406000    BB   0.271        1.001
 16.00       9536100    BB   0.414        3.967
 17.05        116120    BB   0.263        0.048
 18.21       3623300    BB   0.502        1.507
 19.23       6736900    BB   0.288        2.803
 20.32        778420    BB   0.522        0.324
 22.03  3.1772E+07   SPB   0.255       13.218
 22.82         63074    BB   0.207        0.026
 23.30        278070    BB   0.259        0.116
 25.00  1.3318E+07    BB   0.277        5.541
 25.77       1551800    BB   0.250        0.646
 26.51       3271200    BB   0.289        1.361
 27.21        560070    BB   0.345        0.233
 27.98        343810    BB   0.464        0.143
 28.70        121650    BB   0.243        0.051
 29.23        227430    BB   0.332        0.095

TOTAL AREA= 2.4037E+08
MUL FACTOR= 1.0000E+00
```

INDUSTRIAL TESTING LABORATORIES, INC.
ALCOHOL ETHOXYLATE ANALYSIS
REPORT NUMBER 84-5-360, PAGE 7

| | |
|---|---|
| SAMPLE ID | 1A-B |
| SAMPLE TYPE | INFLUENT |
| SAMPLE VOLUME | 1000 MILLILITERS |
| ISTD AMOUNT | 100 MICROGRAMS |
| FINAL VOLUME | 250 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 594 * |
| ALCOHOL ETHOXYLATE CONC. = | 1.34 MG/L |

CALCULATIONS

| ALKYL CHAIN | AVG. EO | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 9 | 17,798 : 11,44 | (172 + 396 ):298 | 100 | 360.5 |
| 12 | 9 | 15,627 : 11,44 | (186 + 396 ):298 | 100 | 324.4 |
| 13 | 9 | 8,18 : 11,44 | (200 + 396 ):298 | 100 | 178.9 |
| 14 | 9 | 11,506 : 11,44 | (214 + 396 ):298 | 100 | 250.8 |
| 15 | 9 | 4,871 : 11,44 | (228 + 396 ):298 | 100 | 103.9 |
| 16 | 9 | 3,415 : 11,44 | (242 + 396 ):298 | 100 | 77.7 |
| 18 | 9 | 2,281 : 11,44 | (270 + 396 ):298 | 100 | 54.3 |
| TOTAL MICROGRAMS ALCOHOL ETHOXYLATE = | | | | | 1344.9 |

* FROM ASSUMED EO VALUE 9 . NOTE THAT THIS ASSUMED VALUE MAY NOT BE IN AGREEMENT WITH THE EXPERIMENTAL VALUE CALCULATED FROM THE AVAILABLE DATA.

| | |
|---|---|
| SAMPLE ID | 1A-3B |
| SAMPLE TYPE | INFLUENT |
| SAMPLE VOLUME | 1000 MILLILITERS |
| ISTD AMOUNT | 100 MICROGRAMS |
| FINAL VOLUME | 250 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 595 * |
| ALCOHOL ETHOXYLATE CONC. = | 1.25 MG/L |

CALCULATIONS

| ALKYL CHAIN | AVG. EO | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 9 | 17.366 : 12.223 | (172 + 396 ):298 | 100 | 827.8 |
| 12 | 9 | 15.222 : 12.223 | (186 + 396 ):298 | 100 | 295.7 |
| 13 | 9 | 8.126 : 12.223 | (200 + 396 ):298 | 100 | 161.7 |
| 14 | 9 | 11.716 : 12.223 | (214 + 396 ):298 | 100 | 238.5 |
| 15 | 9 | 4.695 : 12.223 | (228 + 396 ):298 | 100 | 97.8 |
| 16 | 9 | 3.448 : 12.223 | (242 + 396 ):298 | 100 | 73.4 |
| 18 | 9 | 2.351 : 12.223 | (270 + 396 ):298 | 100 | 52.3 |
| TOTAL MICROGRAMS ALCOHOL ETHOXYLATE = | | | | | 1246.7 |

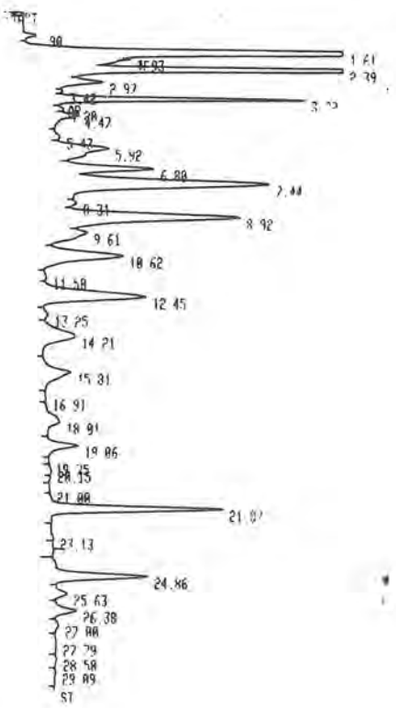
* FROM ASSUMED EO VALUE 9 . NOTE THAT THIS ASSUMED VALUE MAY NOT BE IN AGREEMENT WITH THE EXPERIMENTAL VALUE CALCULATED FROM THE AVAILABLE DATA.

LIST: ZERO = 0, 4.1

LIST: LIST
PEAK CAPACITY: 1151

ZERO = 0, 4.1
ATT 2↑ = 9
CHT SP = 0.5
PK WD = 0.16
THRSH = 5
AR REJ = 1000000000

1A-3
Page 9L




RUN # 58 NOV/27/84 17:13:44

ISTD

| RT | AREA | TYPE | CAL# | AMOUNT |
|---|---|---|---|---|
| 7.44 | 5.2710E+07 | SPR | 1 | 416.950 |
| 8.92 | 4.6280E+07 | BB | 2 | 365.910 |
| 10.62 | 2.4225E+07 | BB | 3 | 190.850 |
| 12.45 | 3.4875E+07 | BB | 4 | 268.450 |
| 14.21 | 1.3835E+07 | BB | 5 | 110.650 |
| 15.81 | 1.0114E+07 | BB | 6 | 79.610 |
| 19.86 | 6756700 | BB | 7 | 53.633 |
| 21.87 | 3.3881E+07 | SPR | PS | 100.000 |

TOTAL AREA= 2.2188E+08
ISTD AMT= 1.0000E+02
MUL FACTOR= 1.0000E+00

RUN # 58 NOV/27/84 17:13:44

AREA%

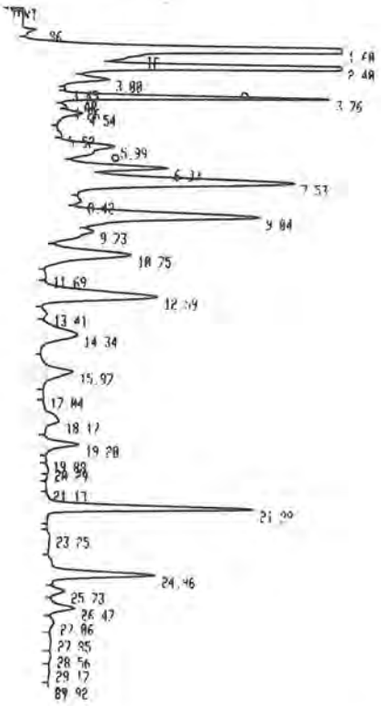
| | RT | AREA | TYPE | AR/HT | AREA% |
|---|---|---|---|---|---|
| | 4.20 | 209640 | BB | 0.126 | 0.071 |
| | 4.47 | 270980 | BB | 0.203 | 0.917 |
| | 5.43 | 292040 | BB | 0.153 | 0.099 |
| | 5.92 | 1.4642E+07 | BB | 0.485 | 4.944 |
| | 6.80 | 1.4015E+07 | BB | 0.238 | 4.732 |
| 11 | 7.44 | 5.2710E+07 | SPR | 0.362 | 17.798 |
| | 8.31 | 670670 | BB | 0.191 | 0.227 |
| 12 | 8.92 | 4.6280E+07 | BB | 0.359 | 15.627 |
| | 9.61 | 5451500 | BB | 0.442 | 1.841 |
| 13 | 10.62 | 2.4225E+07 | BB | 0.420 | 8.180 |
| | 11.58 | 726910 | BB | 0.274 | 0.894 |
| 14 | 12.45 | 3.4875E+07 | BB | 0.433 | 11.586 |
| | 13.25 | 721840 | BB | 0.257 | 0.244 |
| 15 | 14.21 | 1.3835E+07 | BB | 0.569 | 4.671 |
| 16 | 15.81 | 1.0114E+07 | BB | 0.492 | 3.415 |
| | 16.91 | 139470 | BB | 0.257 | 0.047 |
| | 18.91 | 5106700 | BB | 0.505 | 1.724 |
| 17 | 19.86 | 6756700 | BB | 0.297 | 2.281 |
| | 13.75 | 38064 | BB | 0.150 | 0.013 |
| | 20.15 | 172950 | BB | 0.206 | 0.058 |
| | 21.00 | 112030 | PB | 0.227 | 0.038 |
| — | 21.87 | 3.3881E+07 | SPR | 0.254 | 11.440 |
| | 24.86 | 2.0787E+07 | PB | 0.290 | 7.019 |
| | 25.63 | 2365600 | BB | 0.263 | 0.799 |
| | 26.38 | 4828800 | BB | 0.293 | 1.631 |
| | 27.00 | 863630 | BB | 0.307 | 0.292 |
| | 27.79 | 408580 | BB | 0.428 | 0.138 |
| | 28.58 | 272160 | BB | 0.271 | 0.092 |
| | 29.09 | 208270 | BB | 0.316 | 0.070 |

TOTAL AREA= 2.9616E+08
MUL FACTOR= 1.0000E+00

LIST: LIST
PEAK CAPACITY: 1151

ZERO = 0, 8.3
ATT 2↑ = 9
CHT SP = 0.5
PK WD = 0.16
THRSH = 5
AR REJ = 1000000000

1A-33
Page 9R




RUN # 70 NOV/28/84 18:03:49

ISTD

| RT | AREA | TYPE | CAL# | AMOUNT |
|---|---|---|---|---|
| 7.53 | 5.7267E+07 | SPR | 1 | 328.580 |
| 9.04 | 5.0486E+07 | BB | 2 | 733.590 |
| 10.75 | 2.6953E+07 | BB | 3 | 177.460 |
| 12.59 | 3.8857E+07 | BB | 4 | 255.830 |
| 14.34 | 1.5573E+07 | BB | 5 | 104.090 |
| 15.97 | 1.1435E+07 | BB | 6 | 75.218 |
| 19.28 | 7796000 | BB | 7 | 51.717 |
| 21.99 | 4.0540E+07 | SPR | PS | 100.000 |

TOTAL AREA= 2.4891E+08
ISTD AMT= 1.0000E+02
MUL FACTOR= 1.0000E+00

LIST: LIST
PEAK CAPACITY: 1151

ZERO = 0, 42.3
ATT 2↑ = 9
CHT SP = 0.5
PK WD = 0.16

ESCAPE

RUN # 70 NOV/28/84 19:03:49

AREA%

| | RT | AREA | TYPE | AR/HT | AREA% |
|---|---|---|---|---|---|
| | 4.26 | 169900 | BB | 0.123 | 0.051 |
| | 4.54 | 3161600 | BB | 0.213 | 0.953 |
| | 5.52 | 112870 | BB | 0.091 | 0.034 |
| | 5.99 | 1.6981E+07 | BB | 0.443 | 5.120 |
| | 6.93 | 1.4497E+07 | BB | 0.237 | 4.371 |
| 11 | 7.53 | 5.7267E+07 | SPR | 0.361 | 17.266 |
| | 8.42 | 939320 | BB | 0.222 | 0.283 |
| 12 | 9.04 | 5.0486E+07 | BB | 0.362 | 15.222 |
| | 9.73 | 4711300 | BB | 0.407 | 1.421 |
| 13 | 10.75 | 2.6953E+07 | BB | 0.430 | 8.126 |
| | 11.69 | 314070 | BB | 0.269 | 0.095 |
| 14 | 12.59 | 3.8857E+07 | BB | 0.439 | 11.716 |
| | 13.41 | 778870 | BB | 0.259 | 0.235 |
| 15 | 14.34 | 1.5573E+07 | BB | 0.574 | 4.695 |
| 16 | 15.97 | 1.1435E+07 | BB | 0.473 | 3.448 |
| | 17.04 | 115380 | BB | 0.232 | 0.035 |
| | 18.17 | 5976900 | BB | 0.515 | 1.802 |
| 17 | 19.28 | 7796000 | BB | 0.297 | 2.351 |
| | 19.86 | 51609 | BB | 0.164 | 0.016 |
| | 20.29 | 198270 | BB | 0.285 | 0.060 |
| | 21.13 | 115480 | PB | 0.240 | 0.035 |
| — | 21.99 | 4.0540E+07 | SPR | 0.253 | 12.227 |
| | 23.25 | 852840 | PB | 0.552 | 0.259 |
| | 24.96 | 2.3903E+07 | BP | 0.295 | 7.207 |
| | 25.73 | 2517000 | BB | 0.247 | 0.759 |
| | 26.42 | 5400400 | BB | 0.298 | 1.628 |
| | 27.86 | 965060 | BB | 0.345 | 0.291 |
| | 27.85 | 395620 | BB | 0.381 | 0.119 |
| | 28.56 | 303110 | BB | 0.226 | 0.091 |
| | 29.17 | 243780 | BB | 0.334 | 0.074 |
| | 29.92 | 53808 | BH | 0.140 | 0.016 |

TOTAL AREA= 3.3167E+08
MUL FACTOR= 1.0000E+00

INDUSTRIAL TESTING LABORATORIES, INC.
ALCOHOL ETHOXYLATE ANALYSIS
REPORT NUMBER 84-5-360, PAGE 10

| | |
|---|---|
| SAMPLE ID | 1C |
| SAMPLE TYPE | INFLUENT |
| SAMPLE VOLUME | 1000 MILLILITERS |
| ISTD AMOUNT | 100 MICROGRAMS |
| FINAL VOLUME | 250 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 525 ** |
| ALCOHOL ETHOXYLATE CONC. = | .93 MG/L |

CALCULATIONS

| ALKYL CHAIN | AVG. EO ** | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 7.4 | 16,881 : 13,934 | (172 + 325.947 ):298 | 100 | 246.1 |
| 12 | 7.4 | 14,002 : 13,934 | (186 + 325.947 ):298 | 100 | 209.9 |
| 13 | 7.4 | 7,901 : 13,934 | (200 + 325.947 ):298 | 100 | 121.7 |
| 14 | 7.4 | 10,539 : 13,934 | (214 + 325.947 ):298 | 100 | 166.6 |
| 15 | 7.4 | 5,623 : 13,934 | (228 + 325.947 ):298 | 100 | 91.2 |
| 16 | 7.4 | 2,796 : 13,934 | (242 + 325.947 ):298 | 100 | 46.5 |
| 18 | 7.4 | 2,494 : 13,934 | (270 + 325.947 ):298 | 100 | 43.5 |
| | | | | | --- |
| TOTAL MICROGRAMS ALCOHOL ETHOXYLATE = | | | | | 925.5 |

** FROM EXPERIMENTAL EO VALUE. DUE TO INTERFERENCES FROM THE PHENYL ISOCYANATE, REVERSE PHASE FRACTIONATION WAS NECESSARY FOR ACCURATE EO ISOMER IDENTIFICATION BY NORMAL PHASE LIQUID CHROMATOGRAPHY.

INDUSTRIAL TESTING LABORATORIES, INC.
ALCOHOL ETHOXYLATE ANALYSIS
REPORT NUMBER 84-5-360, PAGE 11

| | |
|---|---|
| SAMPLE ID | 1C-B |
| SAMPLE TYPE | INFLUENT |
| SAMPLE VOLUME | 1000 MILLILITERS |
| ISTD AMOUNT | 100 MICROGRAMS |
| FINAL VOLUME | 250 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 524 ** |
| ALCOHOL ETHOXYLATE CONC. = | .91 MG/L |

CALCULATIONS

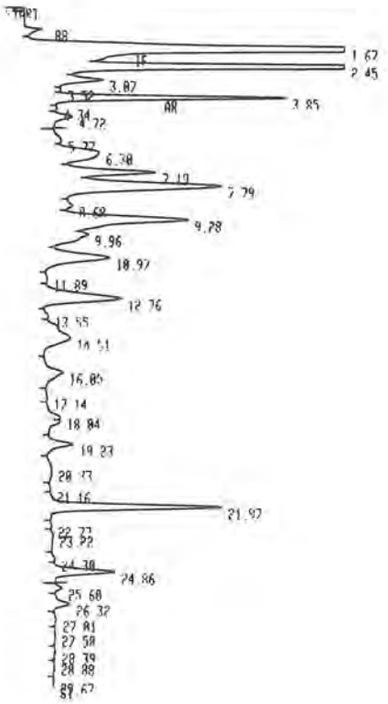
| ALKYL CHAIN | AVG. EO ** | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 7.4 | 17,181 : 14,103 | (172 + 325.947 ):298 | 100 | 246.8 |
| 12 | 7.4 | 14,153 : 14,103 | (186 + 325.947 ):298 | 100 | 209.6 |
| 13 | 7.4 | 7,987 : 14,103 | (200 + 325.947 ):298 | 100 | 120.8 |
| 14 | 7.4 | 10,517 : 14,103 | (214 + 325.947 ):298 | 100 | 164.3 |
| 15 | 7.4 | 5,698 : 14,103 | (228 + 325.947 ):298 | 100 | 91.3 |
| 16 | 7.4 | 2,601 : 14,103 | (242 + 325.947 ):298 | 100 | 42.7 |
| 18 | 7.4 | 2,232 : 14,103 | (270 + 325.947 ):298 | 100 | 38.5 |
| | | | | | 914 |

TOTAL MICROGRAMS ALCOHOL ETHOXYLATE =

** FROM EXPERIMENTAL EO VALUE. DUE TO INTERFERENCES FROM THE PHENYL ISOCYANATE,
REVERSE PHASE FRACTIONATION WAS NECESSARY FOR ACCURATE EO ISOMER IDENTIFICATIO
BY NORMAL PHASE LIQUID CHROMATOGRAPHY.

```
LIST: ZERO =  0. 5.1

LIST: LIST
PEAK CAPACITY: 1151

ZERO   =  0. 3.7
ATT 2↑ =  9
CHT SP =  0.5
PK WD  =  0.16
THRSH  =  5
AR REJ =  1000000000
```

1C
Page 124




```
RUN #  123                DEC/14/84  11:22:00

ISTD
   RT          AREA TYPE  CAL#        AMOUNT
 7.19  1.4343E+07   BB     1          118.400
 9.28  3.2625E+07   BB     2          269.180
10.97  1.8410E+07   BB     3          151.950
12.76  2.4556E+07   BB     4          201.880
14.51  1.3101E+07   BB     5          108.340
16.05     6514800   BB     6           53.510
19.23     5811700   PB     7           48.140
21.97  3.2467E+07   SPB    8S         198.000

TOTAL AREA= 1.4783E+08
  ISTD AMT= 1.0000E+02
MUL FACTOR= 1.0000E+00
```

```
RUN #  123                DEC/14/84  11:22:00

AREA%
   RT          AREA TYPE  AR/HT       AREA%
 4.34        148580   BB    0.128      0.864
 4.72       3512000   BB    0.254      1.587
 5.77        751910   PB    0.313      0.323
 6.38  1.4817E+07   BB    0.526      6.359
 7.19  1.4343E+07   BB    0.242      6.156
 7.79  3.9333E+07   BB    0.360     16.881 —
 8.68        987130   BB    0.226      0.424
 9.28  3.2625E+07   BB    0.367     14.002 —
 9.96        4362500  BB    0.419      1.872
10.97  1.8410E+07   BB    0.403      7.901 —
11.89        260660   BB    0.266      0.112
12.76  2.4556E+07   BB    0.417     10.539 —
13.55        332290   BB    0.203      0.143
14.51  1.3101E+07   BB    0.698      5.623 —
16.05        6514800  BB    0.469      2.796 —
17.14        216240   BB    0.362      0.093
19.23        5811700  PB    0.296      2.494 —
20.33        1845800  BB    0.625      0.792
21.16        63410    BB    0.207      0.027
21.97  3.2467E+07   SPB   0.245     13.934 —
22.77        140470   BB    0.239      0.060
23.22        519790   BB    0.361      0.223
24.30        73294    BB    0.876      0.032
24.86  1.2192E+07   BB    0.261      5.233
25.60        1141100  PB    0.224      0.490
26.32        3316600  BB    0.273      1.423
27.01        536040   BB    0.346      0.230
27.58        244080   BB    0.486      0.105
28.39        183610   PB    0.275      0.079
28.88        140500   BB    0.312      0.060
29.67         55814 I BP    0.186      0.024

TOTAL AREA= 2.3300E+08
MUL FACTOR= 1.0000E+00
```

```
LIST: ZERO =  0. 4.6

LIST: LIST
PEAK CAPACITY: 1151

ZERO   =  0. 4.6
ATT 2↑ =  9
CHT SP =  0.5
PK WD  =  0.16
THRSH  =  5
AR REJ =  1000000000
```

1C-B
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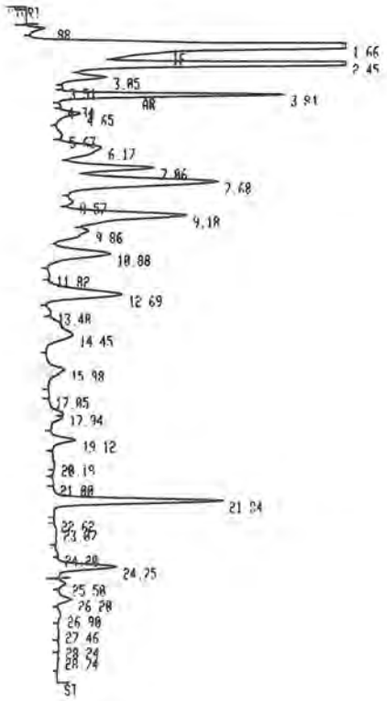



```
RUN #  124                DEC/14/84  11:59:37

ISTD
   RT          AREA TYPE  CAL#        AMOUNT
 7.06  1.4414E+07   BB     1          119.340
 9.18  3.2483E+07   BB     2          268.820
10.88  1.8216E+07   BB     3          150.210
12.69  2.4139E+07   BB     4          199.850
14.45  1.3077E+07   BB     5          108.480
15.98     5970300   BB     6           49.180
19.12     5123100   PB     7           42.565
21.84  3.2369E+07   SPB    8S         198.000

TOTAL AREA= 1.4579E+08
  ISTD AMT= 1.0000E+02
MUL FACTOR= 1.0000E+00
```

```
RUN #  124                DEC/14/84  11:59:37

AREA%
   RT          AREA TYPE  AR/HT       AREA%
 4.34        134980   BB    0.120      0.059
 4.65       4160300   BB    0.247      1.817
 5.63        708860   BB    0.274      0.309
 6.17  1.4520E+07   BB    0.491      6.339
 7.06  1.4414E+07   BB    0.246      6.288
 7.68  3.9318E+07   BB    0.365     17.131 —
 8.57        984740   BB    0.228      0.429
 9.18  3.2483E+07   BB    0.371     14.153 —
 9.86        4556400  BB    0.423      1.985
10.88  1.8216E+07   BB    0.405      7.937 —
11.82        267180   BB    0.270      0.116
12.69  2.4139E+07   BB    0.419     10.517 —
13.48        359140   BB    0.214      0.157
14.45  1.3077E+07   BB    0.685      5.698 —
15.98        5970300  BB    0.451      2.601 —
17.05        99865    BB    0.250      0.044
19.12        5123100  PB    0.278      2.232 —
20.18        230300   BB    0.317      0.100
21.00        83225    PB    0.207      0.036
21.84  3.2369E+07   SPB   0.247     14.103 —
22.62        53792    BB    0.198      0.023
23.07        555250   BB    0.381      0.242
24.75  1.2397E+07   BB    0.273      5.401
25.58        1213000  PB    0.228      0.529
26.28        2794400  BB    0.270      1.218
26.98        771130   BB    0.358      0.336
27.46        179460   BB    0.375      0.078
28.24        180770   BB    0.271      0.079
28.74        158660   BB    0.345      0.069

TOTAL AREA= 2.2952E+08
MUL FACTOR= 1.0000E+00
```

INDUSTRIAL TESTING LABORATORIES, INC.
ALCOHOL ETHOXYLATE ANALYSIS
REPORT NUMBER 84-5-360, PAGE 13

| | |
|---|---|
| SAMPLE ID | 1C |
| SAMPLE TYPE | INFLUENT |
| SAMPLE VOLUME | 1000 MILLILITERS |
| ISTD AMOUNT | 100 MICROGRAMS |
| FINAL VOLUME | 250 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 595 * |
| ALCOHOL ETHOXYLATE CONC. = | 1.05 MG/L |

CALCULATIONS

| ALKYL CHAIN | AVG. EO | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 9 | 16.881 : 13.934 | (172 + 396 ):298 | 100 | 280.7 |
| 12 | 9 | 14.002 : 13.934 | (186 + 396 ):298 | 100 | 238.6 |
| 13 | 9 | 7.901 : 13.934 | (200 + 396 ):298 | 100 | 137.9 |
| 14 | 9 | 10.539 : 13.934 | (214 + 396 ):298 | 100 | 188.2 |
| 15 | 9 | 5.623 : 13.934 | (228 + 396 ):298 | 100 | 102.7 |
| 16 | 9 | 2.796 : 13.934 | (242 + 396 ):298 | 100 | 52.2 |
| 18 | 9 | 2.494 : 13.934 | (270 + 396 ):298 | 100 | 48.6 |
| TOTAL MICROGRAMS ALCOHOL ETHOXYLATE = | | | | | 1048.9 |

* FROM ASSUMED EO VALUE 9 . NOTE THAT THIS ASSUMED VALUE MAY NOT BE IN AGREEMENT WITH THE EXPERIMENTAL VALUE CALCULATED FROM THE AVAILABLE DATA.

INDUSTRIAL TESTING LABORATORIES, INC.
ALCOHOL ETHOXYLATE ANALYSIS
REPORT NUMBER 84-5-360, PAGE 14

| | |
|---|---|
| SAMPLE ID | 1C-B |
| SAMPLE TYPE | INFLUENT |
| SAMPLE VOLUME | 1000 MILLILITERS |
| ISTD AMOUNT | 100 MICROGRAMS |
| FINAL VOLUME | 250 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 594 * |
| ALCOHOL ETHOXYLATE CONC. = | 1.04 MG/L |

CALCULATIONS

| ALKYL CHAIN | AVG. EO | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 9 | 17,131 : 14,103 | (172 + 396 ):298 | 100 | 281.5 |
| 12 | 9 | 14,153 : 14,103 | (186 + 396 ):298 | 100 | 238.3 |
| 13 | 9 | 7,937 : 14,103 | (200 + 396 ):298 | 100 | 136.8 |
| 14 | 9 | 10,517 : 14,103 | (214 + 396 ):298 | 100 | 185.6 |
| 15 | 9 | 5,698 : 14,103 | (228 + 396 ):298 | 100 | 102.9 |
| 16 | 9 | 2,601 : 14,103 | (242 + 396 ):298 | 100 | 48 |
| 18 | 9 | 2,232 : 14,103 | (270 + 396 ):298 | 100 | 43 |
| TOTAL MICROGRAMS ALCOHOL ETHOXYLATE = | | | | | 1036.1 |

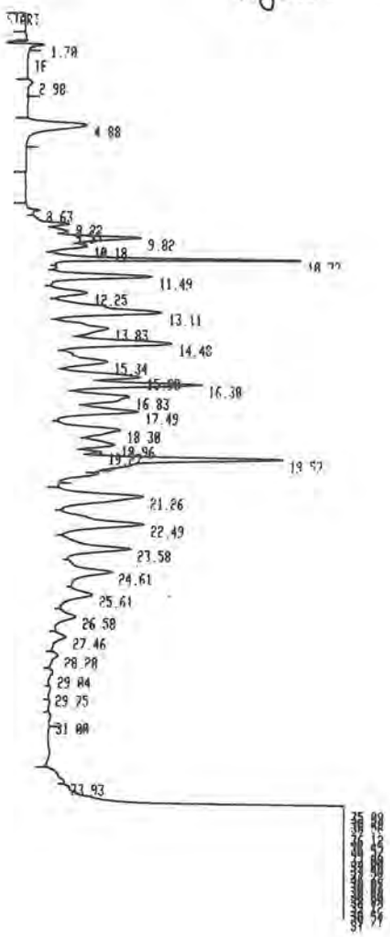
* FROM ASSUMED EO VALUE 9 . NOTE THAT THIS ASSUMED VALUE MAY NOT BE IN AGREEMENT WITH THE EXPERIMENTAL VALUE CALCULATED FROM THE AVAILABLE DATA.

LIST: LIST
PEAK CAPACITY: 1159

ZERO = 0, 2.4
ATT 2↑ = 7
CHT SP = 0.5
PK WD = 0.16
THRSH = 6
AR REJ = 1000

Fractioned
IC
10µl/100µl

Page 15L




RUN # 161 DEC/28/84 17:25:24

AREA%

| RT | AREA | TYPE | AR/HT | AREA% | |
|---|---|---|---|---|---|
| 1.30 | 1509000 | PB | 0.168 | 0.707 | |
| 2.98 | 205810 | BR | 0.225 | 0.096 | |
| 4.88 | 4327900 | BR | 0.368 | 2.029 | |
| 9.22 | 318900 | BB | 0.080 | 0.150 | |
| 9.55 | 235190 | BR | 0.148 | 0.110 | |
| 9.82 | 2395000 | BR | 0.172 | 1.127 | – 2 |
| 10.18 | 501490 | BR | 0.155 | 0.235 | – |
| 10.72 | 5548500 | SPR | 0.116 | 2.601 | |
| 11.49 | 4519400 | VB | 0.236 | 2.118 | – 3 |
| 12.25 | 1689700 | BR | 0.260 | 0.792 | |
| 13.11 | 7748200 | BR | 0.380 | 3.632 | – 4 |
| 13.83 | 2954500 | BB | 0.383 | 1.385 | |
| 14.48 | 5638000 | BR | 0.291 | 2.643 | – 5 |
| 15.34 | 2861600 | BP | 0.340 | 1.341 | |
| 15.98 | 2459200 | BR | 0.246 | 1.153 | – 6 |
| 16.30 | 4099800 | BR | 0.189 | 1.922 | |
| 16.83 | 3319500 | BR | 0.342 | 1.556 | |
| 17.49 | 3324100 | BR | 0.264 | 1.558 | – 7 |
| 18.30 | 2837700 | BB | 0.311 | 1.330 | |
| 18.96 | 1553200 | BP | 0.264 | 0.728 | – 8 |
| 19.27 | 325080 | BR | 0.113 | 0.152 | |
| 19.57 | 8959700 | BP | 0.241 | 4.200 | X |
| 21.26 | 6676700 | PB | 0.412 | 3.130 | – 10 |
| 22.49 | 6420800 | BB | 0.405 | 3.010 | – 11 |
| 23.58 | 4309000 | BB | 0.343 | 2.020 | – 12 |
| 24.61 | 2852800 | BR | 0.348 | 1.337 | – 13 |
| 25.61 | 1808600 | BB | 0.350 | 0.848 | – 14 |
| 26.58 | 1186200 | BR | 0.337 | 0.556 | – 15 |
| 27.46 | 785100 | BB | 0.324 | 0.368 | – 16 |
| 28.28 | 443370 | BR | 0.316 | 0.208 | – 17 |
| 29.04 | 251190 | BB | 0.296 | 0.118 | – 18 |
| 29.75 | 176580 | BR | 0.315 | 0.083 | – 19 |
| 31.00 | 101630 | PR | 0.226 | 0.048 | – 20 |
| 33.93 | 385080 | PP | 0.710 | 0.181 | |
| 35.39 | 273240 | DSPB | 0.875 | 0.128 | |
| 35.56 | 280390 | DSPR | 0.122 | 0.131 | |
| 35.73 | 1.0102E+08 | SPP | 58.698 | 47.351 | |
| 36.12 | 380180 | SPP | 0.169 | 0.178 | |
| 36.45 | 468860 | SPB | 0.136 | 0.220 | |
| 36.57 | 1348500 | SPR | 0.158 | 0.632 | |
| 37.00 | 1788500 | SPB | 0.208 | 0.838 | |
| 37.30 | 310190 | SPR | 0.064 | 0.145 | |
| 37.58 | 465830 | SPB | 0.114 | 0.218 | |
| 37.73 | 1872200 | SPB | 0.155 | 0.878 | |
| 38.05 | 877230 | SPR | 0.111 | 0.411 | |
| 38.21 | 121230 | DSPR | 0.059 | 0.057 | |
| 38.42 | 451650 | DSPB | 0.110 | 0.212 | |
| 38.60 | 1456400 | SPR | 0.174 | 0.683 | |
| 38.85 | 1435200 | SPB | 0.086 | 0.673 | |
| 39.12 | 4606900 | SPP | 0.281 | 2.159 | |
| 39.54 | 393880 | SPH | 0.069 | 0.185 | |
| 39.71 | 3067300 | SPB | 0.213 | 1.438 | |

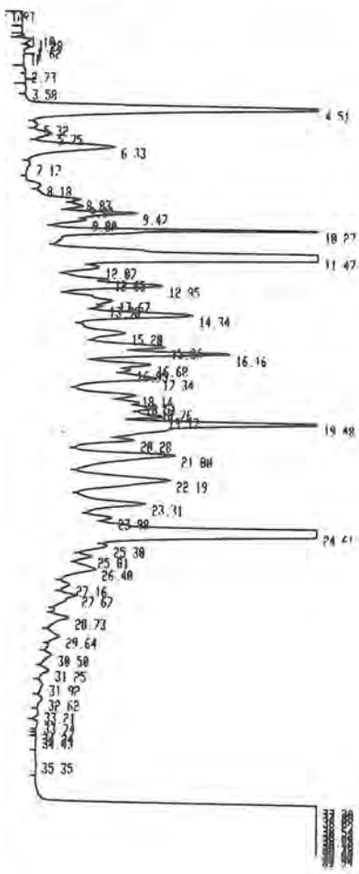
TOTAL AREA= 2.1335E+08
MUL FACTOR= 1.0000E+00

LIST: LIST
PEAK CAPACITY: 1159

ZERO = 0, 2.5
ATT 2↑ = 9
CHT SP = 0.5
PK WD = 0.16
THRSH = 6
AR REJ = 1000

Unfractioned
IC
10µl/100µl

Page 15R




RUN # 169 JAN/03/85 11:43:47

AREA%

| RT | AREA | TYPE | AR/HT | AREA% | |
|---|---|---|---|---|---|
| 1.10 | 1253600 | D BP | 0.205 | 0.148 | |
| 1.28 | 2824300 | PV | 0.329 | 0.333 | |
| 1.62 | 1699100 | VB | 0.284 | 0.200 | |
| 2.73 | 46718 | PB | 0.089 | 0.006 | |
| 3.58 | 238270 | PB | 0.234 | 0.028 | |
| 4.51 | 8.4611E+07 | SPP | 9.311 | 9.988 | |
| 5.32 | 541260 | BB | 0.196 | 0.064 | |
| 5.75 | 3497100 | BB | 0.256 | 0.413 | |
| 6.33 | 2.5135E+07 | BB | 0.370 | 2.965 | |
| 7.12 | 424560 | BR | 0.208 | 0.050 | |
| 8.18 | 311720 | BR | 0.061 | 0.037 | |
| 8.83 | 232400 | BR | 0.017 | 0.027 | |
| 9.14 | 2114900 | BR | 0.180 | 0.250 | |
| 9.47 | 9313000 | RB | 0.176 | 1.099 | |
| 9.80 | 1091600 | D BB | 0.160 | 0.129 | |
| 10.27 | 3.7421E+07 | SPP | 0.158 | 4.414 | |
| 11.47 | 1.7254E+08 | †SPB | 0.363 | 20.352 | |
| 12.07 | 3077300 | BB | 0.212 | 0.363 | |
| 12.65 | 856530 | RR | 0.078 | 0.101 | |
| 12.95 | 1.5186E+07 | BB | 0.242 | 1.792 | |
| 13.67 | 5685800 | BB | 0.313 | 0.671 | |
| 13.90 | 349560 | D BB | 0.116 | 0.041 | |
| 14.34 | 2.4947E+07 | BB | 0.286 | 2.943 | |
| 15.20 | 8822600 | BR | 0.288 | 1.041 | |
| 15.86 | 8507100 | BB | 0.231 | 1.003 | |
| 16.16 | 1.7481E+07 | SPR | 0.188 | 2.062 | |
| 16.68 | 6479100 | SPR | 0.201 | 0.764 | |
| 16.95 | 558220 | SPB | 0.102 | 0.066 | |
| 17.34 | 1.1345E+07 | SPR | 0.258 | 1.338 | |
| 18.14 | 4401500 | BR | 0.176 | 0.519 | |
| 18.51 | 1088200 | BB | 0.168 | 0.128 | |
| 18.76 | 2041000 | BP | 0.144 | 0.241 | |
| 19.17 | 3922600 | BB | 0.161 | 0.463 | |
| 19.48 | 4.8721E+07 | SPR | 0.278 | 5.747 | |
| 20.28 | 3301800 | SPB | 0.139 | 0.390 | |
| 21.80 | 3.3824E+07 | BR | 0.489 | 3.990 | |
| 22.19 | 3.6468E+07 | BR | 0.471 | 4.302 | |
| 23.31 | 1.6937E+07 | BR | 0.326 | 1.998 | |
| 23.98 | 2267400 | BB | 0.179 | 0.267 | |
| 24.61 | 1.8194E+08 | †SPR | 0.404 | 21.461 | |
| 25.30 | 2046400 | BB | 0.229 | 0.241 | |
| 25.81 | 2181900 | BR | 0.190 | 0.257 | |
| 26.40 | 7527000 | BB | 0.355 | 0.888 | |
| 27.16 | 1679700 | BB | 0.230 | 0.198 | |
| 27.67 | 5207100 | BB | 0.363 | 0.614 | |
| 28.73 | 4444500 | PR | 0.303 | 0.524 | |
| 29.64 | 2854800 | BB | 0.304 | 0.337 | |
| 30.50 | 1911500 | PR | 0.302 | 0.226 | |
| 31.25 | 1882000 | BB | 0.263 | 0.222 | |
| 31.92 | 1092500 | BB | 0.328 | 0.129 | |
| 32.62 | 990300 | BR | 0.273 | 0.117 | |
| 33.21 | 818950 | BR | 0.362 | 0.097 | |
| 33.74 | 691380 | BB | 0.234 | 0.082 | |
| 34.24 | 76418 | D VB | 0.091 | 0.009 | |
| 34.43 | 270550 | BB | 0.259 | 0.032 | |
| 35.35 | 510940 | BB | 0.770 | 0.060 | |
| 37.88 | 1107200 | SPR | 0.063 | 0.131 | |
| 38.00 | 4324800 | DSPR | 0.129 | 0.510 | |
| 38.54 | 1.5237E+07 | SPB | 0.239 | 1.797 | |
| 38.73 | 785240 | DSPR | 0.052 | 0.093 | |
| 38.95 | 1626800 | DSPB | 0.078 | 0.192 | |
| 39.19 | 2551600 | SPR | 0.105 | 0.301 | |
| 39.38 | 2125900 | DSPB | 0.084 | 0.251 | |
| 39.62 | 1666900 | SPR | 0.080 | 0.197 | |
| 39.78 | 837630 | DSPB | 0.064 | 0.099 | |
| 39.94 | 1923300 | ISPH | 0.084 | 0.227 | |

TOTAL AREA= 8.4780E+08
MUL FACTOR= 1.0000E+00

INDUSTRIAL TESTING LABORATORIES, INC.
ALCOHOL ETHOXYLATE ANALYSIS
REPORT NUMBER 84-5-360, PAGE 16

| | |
|---|---|
| SAMPLE ID | 1D |
| SAMPLE TYPE | INFLUENT |
| SAMPLE VOLUME | 1000 MILLILITERS |
| ISTD AMOUNT | 300 MICROGRAMS |
| FINAL VOLUME | 750 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 593 * |
| ALCOHOL ETHOXYLATE CONC. = | 3.3 MG/L |

CALCULATIONS

| ALKYL CHAIN | AVG. EO | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 9 | 28,584 : 15,794 | (172 + 396 ):298 | 300 | 1258.2 |
| 12 | 9 | 8,828 : 15,794 | (186 + 396 ):298 | 300 | 398.2 |
| 13 | 9 | 5,865 : 15,794 | (200 + 396 ):298 | 300 | 270.9 |
| 14 | 9 | 14,199 : 15,794 | (214 + 396 ):298 | 300 | 671.2 |
| 15 | 9 | 11,464 : 15,794 | (228 + 396 ):298 | 300 | 554.4 |
| 16 | 9 | 1,444 : 15,794 | (242 + 396 ):298 | 300 | 71.4 |
| 18 | 9 | 1,388 : 15,794 | (270 + 396 ):298 | 300 | 71.5 |
| | | | | | 3295.8 |

TOTAL MICROGRAMS ALCOHOL ETHOXYLATE =

* FROM ASSUMED EO VALUE 9 . NOTE THAT THIS ASSUMED VALUE MAY NOT BE IN AGREEMENT WITH THE EXPERIMENTAL VALUE CALCULATED FROM THE AVAILABLE DATA.

INDUSTRIAL TESTING LABORATORIES, INC.
ALCOHOL ETHOXYLATE ANALYSIS
REPORT NUMBER 84-5-360, PAGE 17

| | |
|---|---|
| SAMPLE ID | 1D-B |
| SAMPLE TYPE | INFLUENT |
| SAMPLE VOLUME | 1000 MILLILITERS |
| ISTD AMOUNT | 300 MICROGRAMS |
| FINAL VOLUME | 750 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 593 * |
| ALCOHOL ETHOXYLATE CONC. = | 3.29 MG/L |

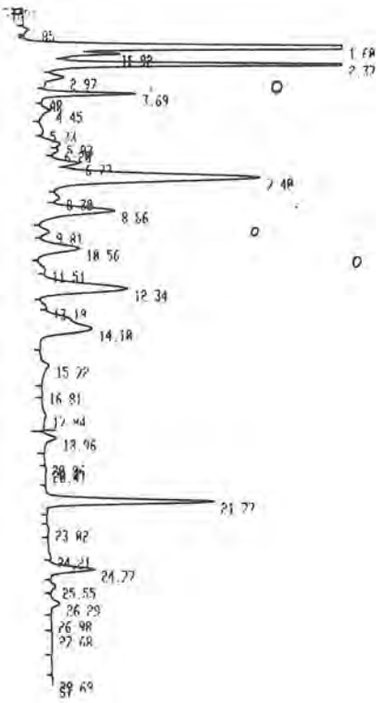
CALCULATIONS

| ALKYL CHAIN | AVG. EO | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 9 | 28,492 : 15.8 | (172 + 396 ):298 | 300 | 1253.7 |
| 12 | 9 | 8,848 : 15.8 | (186 + 396 ):298 | 300 | 398.9 |
| 13 | 9 | 5,843 : 15.8 | (200 + 396 ):298 | 300 | 269.8 |
| 14 | 9 | 14,207 : 15.8 | (214 + 396 ):298 | 300 | 671.3 |
| 15 | 9 | 11,45 : 15,8 | (228 + 396 ):298 | 300 | 553.5 |
| 16 | 9 | 1,389 : 15,8 | (242 + 396 ):298 | 300 | 68.6 |
| 18 | 9 | 1,388 : 15,8 | (270 + 396 ):298 | 300 | 71.6 |
| TOTAL MICROGRAMS ALCOHOL ETHOXYLATE = | | | | | 3287.4 |

* FROM ASSUMED EO VALUE 9 . NOTE THAT THIS ASSUMED VALUE MAY NOT BE IN AGREEMENT WITH THE EXPERIMENTAL VALUE CALCULATED FROM THE AVAILABLE DATA.

```
LIST: ZERO =  0, 0.0

LIST: LIST
PEAK CAPACITY= 1151

ZERO   =  0, 0.0
ATT 2^ =  9
CNT SP =  0.5
PK WD  =  0.16
THRSH  =  5
AR REJ =  1000000000
```

10-1
Page 18L

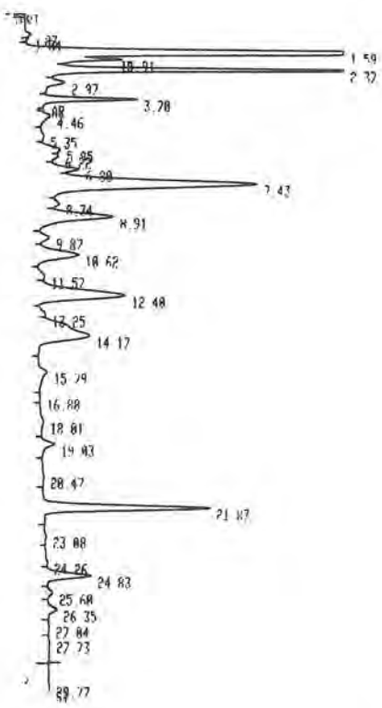



```
RUN #   52                NOV/27/84  12:42:26

ISTO
   RT          AREA TYPE   CAL#        AMOUNT
  7.40  5.9027E+07  SPB     1          485.030
  8.86  1.8245E+07  BB      2          149.730
 10.56  1.2122E+07  BB      3           99.121
 12.34  2.9346E+07  BB      4          239.960
 14.18  2.3692E+07  BB      5          196.680
 15.72     2983900  BB      6           24.378
 18.96     2865500  BB      7           23.608
 21.77  3.2643E+07  SPB     85         100.000

TOTAL AREA= 1.8098E+08
  ISTD AMT= 1.0000E+02
MUL FACTOR= 1.0000E+00
```

```
RUN #   52                NOV/27/84  12:42:26

AREA%
   RT          AREA TYPE   AR/HT       AREA%
  4.45       2021500  BB     0.298       0.970
  5.33        639810  BB     0.317       0.310
  5.93       1486100  BB     0.240       0.719
  6.20        346360  BB     0.168       0.168
  6.72       2722680  BB     0.192       1.317
- 7.40  5.9027E+07  SPB     0.382      28.584
  8.30        983030  BB     0.226       0.476
- 8.66  1.8245E+07  BB      0.354       8.828
  9.81       1932680  BB     0.268       0.935
-10.56  1.2122E+07  BB      0.386       5.865
  11.51       688620  BB     0.289       0.333
- 12.34  2.9346E+07  BB     0.442      14.199
  13.19        257540  BB     0.286       0.125
-14.18  2.3692E+07  BB      0.623      11.464
- 15.72     2983900  BB     0.468       1.444
  16.81       97065  BB      0.253       0.047
  17.94       929740  BB     0.424       0.450
- 18.96     2865500  BB      0.291       1.386
  20.06       19722  BB      0.091       0.010
  20.41       187240  BB     0.233       0.091
-21.77  3.2643E+07  SPB     0.250      15.794
  23.82       220750  PB     0.231       0.107
  24.21       29819  BB      0.041       0.014
  24.77       949320  BB     0.277       4.593
  25.55       940730  BB     0.255       0.455
  26.29       1955100  BB     0.286      0.946
  26.98       154060  BB     0.270       0.075
  27.68       354710  BB     0.443       0.172
  29.69       241830  I VH   0.370       0.117

TOTAL AREA= 2.0668E+08
MUL FACTOR= 1.0000E+00
```

```
LIST: ZERO =  0, 4.2

LIST: LIST
PEAK CAPACITY= 1151

ZERO   =  0, 4.2
ATT 2^ =  9
CNT SP =  0.5
PK WD  =  0.16
THRSH  =  5
AR REJ =  1000000000
```

10-1B
7.5pl/750pl
Page 18R




```
RUN #   50                NOV/27/84  11:25:44

ISTO
   RT          AREA TYPE   CAL#        AMOUNT
  7.43  5.8193E+07  SPB     1          483.280
  8.91  1.8071E+07  BB      2          150.000
 10.62  1.1934E+07  BB      3           98.711
 12.48  2.9017E+07  BB      4          240.000
 14.17  2.3386E+07  BB      5          196.370
 15.79     2835800  BB      6           23.435
 19.03     2834200  BB      7           23.619
 21.83  3.2271E+07  SPB     85         100.000

TOTAL AREA= 1.7854E+08
  ISTD AMT= 1.0000E+02
MUL FACTOR= 1.0000E+00
```

```
RUN #   50                NOV/27/84  11:25:44

AREA%
   RT          AREA TYPE   AR/HT       AREA%
  4.46       1926000  VB     0.291       0.968
  5.35        657790  BB     0.332       0.322
  5.95       1428400  BB     0.255       0.699
  6.22        344400  BB     0.168       0.169
  6.80       2560600  BB     0.196       1.254
- 7.43  5.8193E+07  SPB     0.382      28.492
  8.34        996750  BB     0.228       0.488
- 8.91  1.8071E+07  BB      0.357       8.849
  9.87       1875800  BB     0.367       0.918
-10.62  1.1934E+07  BB      0.389       5.843
  11.57       693920  BB     0.291       0.340
-12.48  2.9017E+07  BB      0.445      14.207
  13.25        246190  BB     0.281       0.121
-14.17  2.3386E+07  BB      0.625      11.450
-15.79     2835800  BB     0.457       1.389
  16.88        94041  BB     0.246       0.046
  18.01       1064880  BB     0.462       0.521
- 19.03     2834200  BB     0.291       1.388
  20.47        459590  BB     0.428       0.225
- 21.83  3.2271E+07  SPB     0.250      15.808
  23.08        209320  BB     0.227       0.103
  24.26        61237  BB      0.078       0.030
  24.83       9408380  BB     0.277       4.607
  25.68        968030  BB     0.257       0.474
  26.35       1945080  BB     0.284       0.952
  27.04        158780  BB     0.265       0.078
  27.73        325410  BB     0.403       0.159
  29.77        234290  I BH   0.341       0.115

TOTAL AREA= 2.0424E+08
MUL FACTOR= 1.0000E+00
```

INDUSTRIAL TESTING LABORATORIES, INC.
ALCOHOL ETHOXYLATE ANALYSIS
REPORT NUMBER 84-5-360, PAGE 19

| | |
|---|---|
| SAMPLE ID | 1E |
| SAMPLE TYPE | INFLUENT SPIKE |
| SAMPLE VOLUME | 1000 MILLILITERS |
| ISTD AMOUNT | 400 MICROGRAMS |
| FINAL VOLUME | 1000 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 596 * |
| ALCOHOL ETHOXYLATE CONC. = | 4.76 MG/L |

CALCULATIONS

| ALKYL CHAIN | AVG. EO | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 9 | 16,958 : 14,527 | (172 + 396 ):298 | 400 | 1082.1 |
| 12 | 9 | 15,998 : 14,527 | (186 + 396 ):298 | 400 | 1042.1 |
| 13 | 9 | 7,713 : 14,527 | (200 + 396 ):298 | 400 | 516.4 |
| 14 | 9 | 16,794 : 14,527 | (214 + 396 ):298 | 400 | 1150.9 |
| 15 | 9 | 9,171 : 14,527 | (228 + 396 ):298 | 400 | 642.9 |
| 16 | 9 | 3,787 : 14,527 | (242 + 396 ):298 | 400 | 271.4 |
| 18 | 9 | .769 : 14,527 | (270 + 396 ):298 | 400 | 57.5 |
| TOTAL MICROGRAMS ALCOHOL ETHOXYLATE = | | | | | 4763.2 |

* FROM ASSUMED EO VALUE 9 . NOTE THAT THIS ASSUMED VALUE MAY NOT BE IN AGREEMENT WITH THE EXPERIMENTAL VALUE CALCULATED FROM THE AVAILABLE DATA.

INDUSTRIAL TESTING LABORATORIES, INC.
ALCOHOL ETHOXYLATE ANALYSIS
REPORT NUMBER 84-5-360, PAGE 20

| | |
|---|---|
| SAMPLE ID | 1E-B |
| SAMPLE TYPE | INFLUENT SPIKE |
| SAMPLE VOLUME | 1000 MILLILITERS |
| ISTD AMOUNT | 400 MICROGRAMS |
| FINAL VOLUME | 1000 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 596 * |
| ALCOHOL ETHOXYLATE CONC. = | 4.69 MG/L |

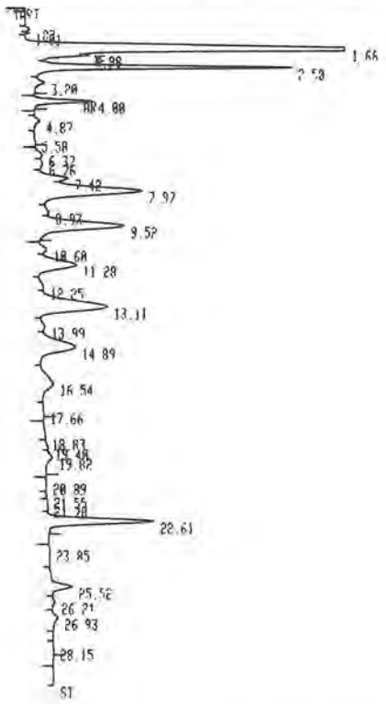
CALCULATIONS

| ALKYL CHAIN | AVG. EO | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 9 | 18,644 : 15,473 | (172 + 396 ):298 | 400 | 1116.9 |
| 12 | 9 | 16,064 : 15,473 | (186 + 396 ):298 | 400 | 986.1 |
| 13 | 9 | 8,04 : 15,473 | (200 + 396 ):298 | 400 | 505.4 |
| 14 | 9 | 18,907 : 15,473 | (214 + 396 ):298 | 400 | 1087.8 |
| 15 | 9 | 9,414 : 15,473 | (228 + 396 ):298 | 400 | 619.6 |
| 16 | 9 | 3,699 : 15,473 | (242 + 396 ):298 | 400 | 248.9 |
| 18 | 9 | 1,807 : 15,473 | (270 + 396 ):298 | 400 | 126.9 |
| TOTAL MICROGRAMS ALCOHOL ETHOXYLATE = | | | | | 4691.6 |

* FROM ASSUMED EO VALUE 9 . NOTE THAT THIS ASSUMED VALUE MAY NOT BE IN AGREEMENT WITH THE EXPERIMENTAL VALUE CALCULATED FROM THE AVAILABLE DATA.

```
LIST: ZERO =  0, 6.1

LIST: LIST
PEAK CAPACITY: 1151

ZERO   =  0, 2.5
ATT 2† =  9
CHT SP =  0.5
PK WD  =  0.16
THRSH  =  5
AR REJ =  1000000000
```

1E-1
Page 21L

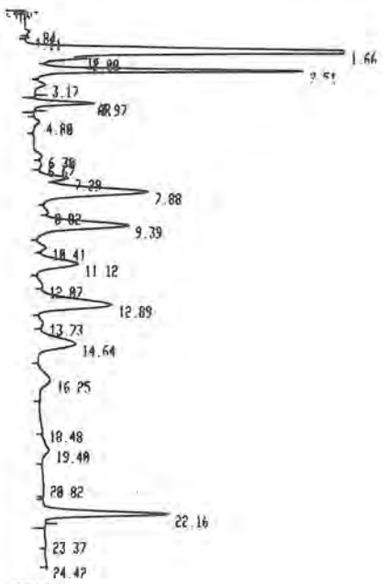



```
RUN #  145                DEC/18/84  10:51:34

ISTD
   RT          AREA  TYPE  CAL#        AMOUNT
  7.42       2033600    BR     1      4391.700
  8.93        381550    BR     2       649.430
 10.60        995550    PB     3      2136.400
 12.25        333250    BB     4       715.130
 14.89     1.3904E+07    BR     5     30290.000
 16.54       5741900    BR     6     12711.000
 19.40         84538    BB     7       182.790
 21.78        124380    BB    8S       190.000

TOTAL AREA= 2.3519E+07
  ISTD AMT= 1.0000E+02
MUL FACTOR= 1.0000E+00
```

```
RUN #  145                DEC/18/84  10:51:34

AREA%
   RT          AREA  TYPE   AR/HT       AREA%
  3.00       2953100    PB   0.178       5.246
  4.87       1090900    VB   0.256       0.720
  5.58         55941    BR   0.233       0.037
  6.32        512040    PR   0.220       0.338
  6.76        421610    BB   0.249       0.278
  7.42       2033600    BR   0.181       1.341
  7.97    2.5789E+07    BB   0.376      16.958 —
  8.93        381550    BR   0.202       0.199
  9.52    2.4163E+07    BR   0.398      15.938 —
 10.60        995550    PR   0.248       0.657
 11.28    1.1694E+07    BB   0.425       7.713 —
 12.25        333250    BR   0.282       0.220
 13.11    2.5461E+07    BB   0.499      16.794 —
 13.99        545990    BR   0.298       0.360
 14.89    1.3904E+07    BB   0.537       9.171 —
 16.54       5741900    BB   0.663       3.787 —
 17.66         91143    BB   0.335       0.060
 18.83        306800    PB   0.351       0.202
 19.40         84538    BB   0.158       0.056
 19.82       1165300    BB   0.294       0.769 —
 20.89        124380    BR   0.310       0.115
 21.55         53212    BR   0.113       0.035
 21.78        124380    BB   0.236       0.082
 22.61    2.2823E+07    BB   0.269      14.527 —
 23.85        210910    BB   0.347       0.139
 25.52       4621900    BB   0.293       3.049
 26.21        458660    BB   0.249       0.303
 26.93       1313500    BR   0.320       0.866
 28.15         62830    PR   0.252       0.041

TOTAL AREA= 1.5160E+08
MUL FACTOR= 1.0000E+00
```

```
LIST: ZERO =  0, -1.1

LIST: LIST
PEAK CAPACITY: 1151

ZERO   =  0, 2.5
ATT 2† =  9
CHT SP =  0.5
PK WD  =  0.16
THRSH  =  5
AR REJ =  1000000000
```

1E-1B
Page 21R




```
STOP
```

```
RUN #  143                DEC/17/84  17:44:45

ISTD
   RT          AREA  TYPE  CAL#        AMOUNT
  7.29       2797400    BB     1      31.361
  8.82        343310    BB     2       3.847
 11.12    1.2422E+07    BB     3     139.200
 12.89    2.6122E+07    BB     4     291.660
 14.64    1.4544E+07    BB     5     164.870
 16.25       5715400    BB     6      63.758
 19.40       2792000    BB     7      31.409
 22.16    2.3985E+07    PB    8S     190.000

TOTAL AREA= 8.8641E+07
  ISTD AMT= 1.0000E+02
MUL FACTOR= 1.0000E+00
```

```
RUN #  143                DEC/17/84  17:44:45

AREA%
   RT          AREA  TYPE   AR/HT       AREA%
  3.97       7970500    PB   0.173       5.159
  4.88       1128400    VR   0.250       0.730
  6.67        332960    BR   0.202       0.216
  7.29       2797400    BB   0.193       1.811
  7.88    2.8885E+07    BB   0.379      18.644 —
  8.82        343310    BB   0.202       0.222
  9.39    2.4819E+07    BB   0.372      16.064 —
 10.41       1354800    BR   0.255       0.877
 11.12    1.2422E+07    BB   0.488       8.040 —
 12.07        410350    BB   0.279       0.266
 12.89    2.6122E+07    BB   0.471      16.907 —
 13.73        656150    BR   0.283       0.425
 14.64    1.4544E+07    BR   0.521       9.414 —
 16.25       5715400    BB   0.629       3.699 —
 19.40       2792000    BB   0.581       1.807 —
 20.82        197910    BR   0.360       0.128
 22.16    2.3985E+07    PB   0.248      15.473 —
 23.37        132440    PB   0.206       0.086
 24.42         51901    BB   0.166       0.034

TOTAL AREA= 1.5458E+08
MUL FACTOR= 1.0000E+00
```

INDUSTRIAL TESTING LABORATORIES, INC.
ALCOHOL ETHOXYLATE ANALYSIS
REPORT NUMBER 84-5-360, PAGE 22

| | |
|---|---|
| SAMPLE ID | 2A-1 |
| SAMPLE TYPE | EFFLUENT |
| SAMPLE VOLUME | 1000 MILLILITERS |
| ISTD AMOUNT | 100 MICROGRAMS |
| FINAL VOLUME | 250 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 335 * |
| ALCOHOL ETHOXYLATE CONC. = | .47 MG/L |

CALCULATIONS

| ALKYL CHAIN | AVG. EO | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 3 | 20,221 : 15,089 | (172 + 132 ):298 | 100 | 166.8 |
| 12 | 3 | 6,487 : 15,089 | (186 + 132 ):298 | 100 | 56 |
| 13 | 3 | 3,364 : 15,089 | (200 + 132 ):298 | 100 | 30.3 |
| 14 | 3 | 7,191 : 15,089 | (214 + 132 ):298 | 100 | 67.5 |
| 15 | 3 | 4,065 : 15,089 | (228 + 132 ):298 | 100 | 39.7 |
| 16 | 3 | 5,382 : 15,089 | (242 + 132 ):298 | 100 | 53.1 |
| 18 | 3 | 5,619 : 15,089 | (270 + 132 ):298 | 100 | 61.3 |
| | | | | | 474.7 |

TOTAL MICROGRAMS ALCOHOL ETHOXYLATE =

* FROM ASSUMED EO VALUE 3 . NOTE THAT THIS ASSUMED VALUE MAY NOT BE IN AGREEMENT WITH THE EXPERIMENTAL VALUE CALCULATED FROM THE AVAILABLE DATA.

INDUSTRIAL TESTING LABORATORIES, INC.
ALCOHOL ETHOXYLATE ANALYSIS
REPORT NUMBER 84-5-360, PAGE 23

| | |
|---|---|
| SAMPLE ID | 2A-1B |
| SAMPLE TYPE | EFFLUENT |
| SAMPLE VOLUME | 1000 MILLILITERS |
| ISTD AMOUNT | 100 MICROGRAMS |
| FINAL VOLUME | 250 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 336 * |
| ALCOHOL ETHOXYLATE CONC. = | .43 MG/L |

CALCULATIONS

| ALKYL CHAIN | AVG. EO | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 3 | 19.705 : 16.24 | (172 + 132 ):298 | 100 | 150.5 |
| 12 | 3 | 6.199 : 16.24 | (186 + 132 ):298 | 100 | 49.9 |
| 13 | 3 | 3.417 : 16.24 | (200 + 132 ):298 | 100 | 28.5 |
| 14 | 3 | 6.821 : 16.24 | (214 + 132 ):298 | 100 | 59.8 |
| 15 | 3 | 4.112 : 16.24 | (228 + 132 ):298 | 100 | 37.2 |
| 16 | 3 | 5.9 : 16.24 | (242 + 132 ):298 | 100 | 49.8 |
| 17 | 3 | 5.662 : 16.24 | (270 + 132 ):298 | 100 | 57.2 |
| | | | | | 432 |

TOTAL MICROGRAMS ALCOHOL ETHOXYLATE =

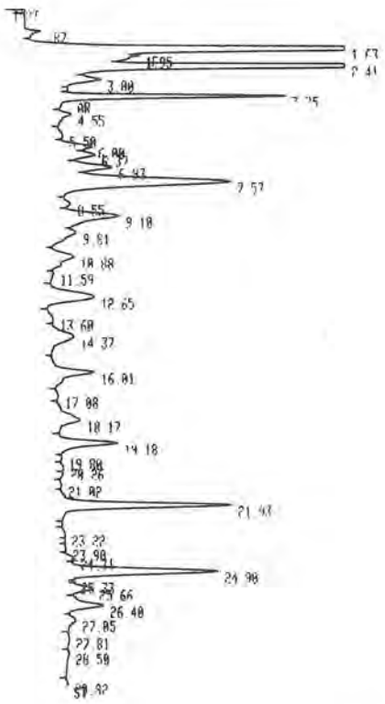
* FROM ASSUMED EO VALUE 3 . NOTE THAT THIS ASSUMED VALUE MAY NOT BE IN AGREEMENT WITH THE EXPERIMENTAL VALUE CALCULATED FROM THE AVAILABLE DATA.

LIST ZERO = 0, 7.2

LIST: LIST
PEAK CAPACITY: 1151

ZERO = 0, 4.3
ATT 2↑ = 9
CHT SP = 0.5
PK WD = 0.16
THRSH = 5
AR REJ = 1000000000

2A-1
Page 24L




RUN # 63 NOV/28/84 11:07:58

ISTD

| RT | AREA | TYPE | CAL# | AMOUNT |
|---|---|---|---|---|
| 7.57 | 4.5527E+07 | BB | 1 | 368.330 |
| 9.18 | 1.4606E+07 | BB | 2 | 115.550 |
| 10.88 | 7574700 | BB | 3 | 59.709 |
| 12.65 | 1.6189E+07 | BB | 4 | 127.619 |
| 14.37 | 9151500 | BB | 5 | 73.235 |
| 16.01 | 1.1780E+07 | BB | 6 | 92.772 |
| 19.18 | 1.2650E+07 | BB | 7 | 100.470 |
| 21.93 | 3.3861E+07 | SPB | 8S | 100.000 |

TOTAL AREA= 1.5134E+08
ISTD AMT= 1.0000E+02
MUL FACTOR= 1.0000E+00

RUN # 63 NOV/28/84 11:07:58

AREA%

| | RT | AREA | TYPE | AR/HT | AREA% |
|---|---|---|---|---|---|
| | 4.55 | 2642000 | BB | 0.267 | 1.174 |
| | 5.50 | 535960 | BB | 0.270 | 0.238 |
| | 6.00 | 2672300 | BB | 0.218 | 1.187 |
| | 6.37 | 2663700 | BB | 0.216 | 1.183 |
| | 6.93 | 6333600 | BB | 0.255 | 2.813 |
| 11 | 7.57 | 4.5527E+07 | BB | 0.382 | 20.221 |
| | 8.55 | 884650 | BB | 0.221 | 0.393 |
| 12 | 9.18 | 1.4606E+07 | BB | 0.372 | 6.487 |
| | 9.81 | 3006800 | BB | 0.387 | 1.336 |
| 13 | 10.88 | 7574700 | BB | 0.456 | 3.364 |
| | 11.59 | 213700 | BB | 0.285 | 0.095 |
| 14 | 12.65 | 1.6189E+07 | BB | 0.463 | 7.191 |
| | 13.60 | 616660 | BB | 0.295 | 0.274 |
| 15 | 14.37 | 9151500 | BB | 0.535 | 4.065 |
| 16 | 16.01 | 1.1780E+07 | BB | 0.373 | 5.232 |
| | 17.08 | 546910 | BB | 0.311 | 0.243 |
| | 18.17 | 8342500 | BB | 0.489 | 3.705 |
| 17 | 19.18 | 1.2650E+07 | BB | 0.285 | 5.619 |
| | 19.80 | 119750 | BB | 0.164 | 0.053 |
| | 20.26 | 305590 | BB | 0.206 | 0.136 |
| | 21.02 | 157720 | PB | 0.222 | 0.070 |
| — | 21.93 | 3.3861E+07 | SPB | 0.258 | 15.039 |
| | 23.22 | 147850 | PB | 0.206 | 0.065 |
| | 23.90 | 93275 | PB | 0.204 | 0.041 |
| | 24.31 | 544610 | BB | 0.178 | 0.242 |
| | 24.98 | 3.8294E+07 | SPB | 0.270 | 13.455 |
| | 25.33 | 18000 | BB | 0.077 | 0.008 |
| | 25.66 | 3663000 | BB | 0.248 | 1.627 |
| | 26.40 | 7564300 | BB | 0.303 | 3.360 |
| | 27.05 | 1532000 | BB | 0.304 | 0.681 |
| | 27.81 | 347260 | BB | 0.334 | 0.154 |
| | 28.50 | 264200 | BB | 0.231 | 0.117 |
| | 29.82 | 299720 | I BH | 0.208 | 0.133 |

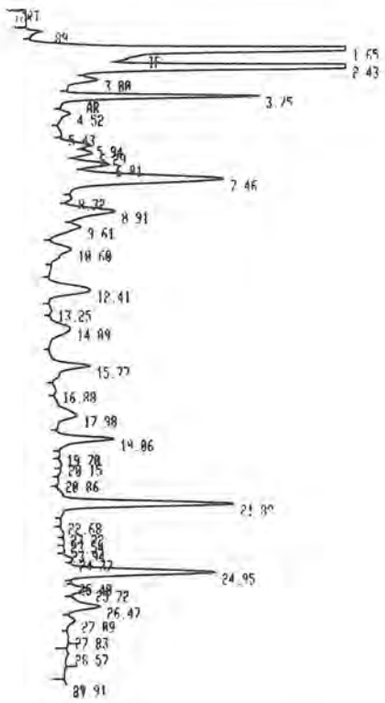
TOTAL AREA= 2.2515E+08
MUL FACTOR= 1.0000E+00

LIST: ZERO = 0, 5.2

LIST: LIST
PEAK CAPACITY: 1151

ZERO = 0, 4.2
ATT 2↑ = 9
CHT SP = 0.5
PK WD = 0.16
THRSH = 5
AR REJ = 1000000000

2A-1B
Page 24R




RUN # 64 NOV/28/84 11:48:16

ISTD

| RT | AREA | TYPE | CAL# | AMOUNT |
|---|---|---|---|---|
| 7.46 | 4.3861E+07 | BB | 1 | 325.190 |
| 8.91 | 1.3546E+07 | BB | 2 | 102.250 |
| 10.60 | 7466800 | BB | 3 | 56.164 |
| 12.41 | 1.4905E+07 | BB | 4 | 112.110 |
| 14.09 | 8985700 | BB | 5 | 68.612 |
| 15.77 | 1.1581E+07 | BB | 6 | 87.827 |
| 19.86 | 1.2375E+07 | BB | 7 | 93.783 |
| 21.89 | 3.5488E+07 | SPB | 8S | 100.000 |

TOTAL AREA= 1.4741E+08
ISTD AMT= 1.0000E+02
MUL FACTOR= 1.0000E+00

RUN # 64 NOV/28/84 11:48:16

AREA%

| | RT | AREA | TYPE | AR/HT | AREA% |
|---|---|---|---|---|---|
| | 4.52 | 2276500 | BB | 0.268 | 1.042 |
| | 5.43 | 427880 | BB | 0.249 | 0.196 |
| | 5.94 | 2382600 | BB | 0.219 | 1.090 |
| | 6.29 | 2235200 | BB | 0.212 | 1.023 |
| | 6.81 | 5666500 | BB | 0.242 | 2.593 |
| 11 | 7.46 | 4.3861E+07 | BB | 0.381 | 19.705 |
| | 8.32 | 568970 | BB | 0.201 | 0.260 |
| 12 | 8.91 | 1.3546E+07 | BB | 0.371 | 6.199 |
| | 9.61 | 3982700 | BB | 0.338 | 1.823 |
| 13 | 10.60 | 7466800 | BB | 0.468 | 3.417 |
| 14 | 12.41 | 1.4905E+07 | PB | 0.463 | 6.821 |
| | 13.25 | 347170 | BB | 0.259 | 0.159 |
| 15 | 14.09 | 8985700 | BB | 0.555 | 4.112 |
| 16 | 15.77 | 1.1581E+07 | BB | 0.386 | 5.300 |
| | 16.88 | 549740 | BB | 0.321 | 0.252 |
| | 17.98 | 8420600 | BB | 0.511 | 3.853 |
| 17 | 19.86 | 1.2375E+07 | BB | 0.290 | 5.663 |
| | 19.78 | 113230 | BB | 0.165 | 0.052 |
| | 20.15 | 282010 | BB | 0.202 | 0.129 |
| | 20.86 | 176340 | PB | 0.218 | 0.081 |
| — | 21.89 | 3.5488E+07 | SPB | 0.263 | 16.248 |
| | 22.68 | 86774 | BB | 0.195 | 0.040 |
| | 23.22 | 299340 | BB | 0.252 | 0.137 |
| | 23.54 | 55894 | BB | 0.158 | 0.026 |
| | 23.94 | 96121 | BB | 0.223 | 0.044 |
| | 24.37 | 534200 | BB | 0.181 | 0.245 |
| | 24.95 | 2.9842E+07 | SPB | 0.268 | 13.656 |
| | 25.48 | 20646 | BB | 0.086 | 0.010 |
| | 25.72 | 3411400 | BB | 0.254 | 1.561 |
| | 26.47 | 7319700 | BB | 0.314 | 3.350 |
| | 27.09 | 1449900 | BB | 0.280 | 0.664 |
| | 27.83 | 186170 | BB | 0.176 | 0.058 |
| | 28.57 | 211010 | BB | 0.166 | 0.097 |
| | 29.91 | 234450 | I BH | 0.165 | 0.107 |

TOTAL AREA= 2.1853E+08
MUL FACTOR= 1.0000E+00

INDUSTRIAL TESTING LABORATORIES, INC.
ALCOHOL ETHOXYLATE ANALYSIS
REPORT NUMBER 84-5-360, PAGE 25

| | |
|---|---|
| SAMPLE ID | 2A-2 |
| SAMPLE TYPE | EFFLUENT |
| SAMPLE VOLUME | 1000 MILLILITERS |
| ISTD AMOUNT | 100 MICROGRAMS |
| FINAL VOLUME | 250 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 341 * |
| ALCOHOL ETHOXYLATE CONC. = | .48 MG/L |

CALCULATIONS

| ALKYL CHAIN | AVG. EO | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 3 | 14,292 : 14,856 | (172 + 132 ):298 | 100 | 119.3 |
| 12 | 3 | 9,236 : 14,856 | (186 + 132 ):298 | 100 | 80.7 |
| 13 | 3 | 3,282 : 14,856 | (200 + 132 ):298 | 100 | 29.9 |
| 14 | 3 | 6,991 : 14,856 | (214 + 132 ):298 | 100 | 66.4 |
| 15 | 3 | 3,77 : 14,856 | (228 + 132 ):298 | 100 | 37.3 |
| 16 | 3 | 5,607 : 14,856 | (242 + 132 ):298 | 100 | 57.6 |
| 18 | 3 | 7,737 : 14,856 | (270 + 132 ):298 | 100 | 85.4 |
| | | | | | 476.6 |

TOTAL MICROGRAMS ALCOHOL ETHOXYLATE = 476.6

* FROM ASSUMED EO VALUE 3 , NOTE THAT THIS ASSUMED VALUE MAY NOT BE IN AGREEMENT WITH THE EXPERIMENTAL VALUE CALCULATED FROM THE AVAILABLE DATA.

INDUSTRIAL TESTING LABORATORIES, INC.
ALCOHOL ETHOXYLATE ANALYSIS
REPORT NUMBER 84-5-360, PAGE 26

| | |
|---|---|
| SAMPLE ID | 2A-2B |
| SAMPLE TYPE | EFFLUENT |
| SAMPLE VOLUME | 1000 MILLILITERS |
| ISTD AMOUNT | 100 MICROGRAMS |
| FINAL VOLUME | 250 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 343 * |
| ALCOHOL ETHOXYLATE CONC. = | .5 MG/L |

CALCULATIONS

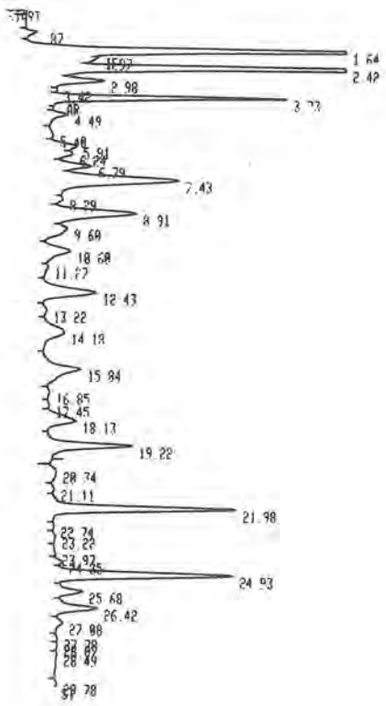
| ALKYL CHAIN | AVG. EO | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 3 | 13.59 : 14.595 | (172 + 132 ):298 | 100 | 115.5 |
| 12 | 3 | 8.779 : 14.595 | (186 + 132 ):298 | 100 | 78 |
| 13 | 3 | 3.061 : 14.595 | (200 + 132 ):298 | 100 | 28.4 |
| 14 | 3 | 6.972 : 14.595 | (214 + 132 ):298 | 100 | 66.5 |
| 15 | 3 | 4.99 : 14.595 | (228 + 132 ):298 | 100 | 50.2 |
| 16 | 3 | 7.985 : 14.595 | (242 + 132 ):298 | 100 | 88.5 |
| 18 | 3 | 5.859 : 14.595 | (270 + 132 ):298 | 100 | 77.1 |
| TOTAL MICROGRAMS ALCOHOL ETHOXYLATE = | | | | | 499.2 |

* FROM ASSUMED EO VALUE 3 . NOTE THAT THIS ASSUMED VALUE MAY NOT BE IN AGREEMENT WITH THE EXPERIMENTAL VALUE CALCULATED FROM THE AVAILABLE DATA.

```
LIST: ZERO =  0, 5.9

LIST: LIST
PEAK CAPACITY: 1151

ZERO   =  0, 3.8
ATT 2^ =  9
CHT SP =  0.5
PK WD  =  0.16
THRSH  =  5
AR REJ =  1000000000
```

2A-2

Page 27L

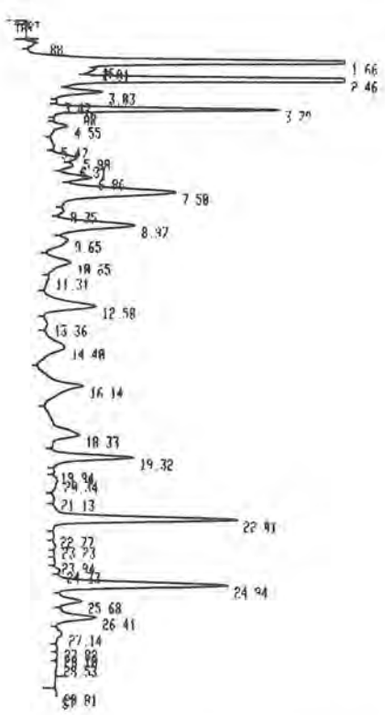



```
RUN #   65              NOV/28/84  12:26:05

ISTD
   RT          AREA  TYPE   CAL#       AMOUNT
 7.43  3.3794E+07    BB      1       257.940
 8.91  2.1839E+07    BB      2       166.550
10.68     7641300    BB      3        58.064
12.43  1.6531E+07    BB      4       125.620
14.18     8914200    BB      5        68.766
15.84  1.3257E+07    BB      6       100.640
19.22  1.8293E+07    BB      7       140.050
21.98  3.5127E+07   SPB     8S       100.000

TOTAL AREA= 1.5540E+08
  ISTD AMT= 1.0000E+02
MUL FACTOR= 1.0000E+00
```

```
LIST: ZERO =  0, 2.6

LIST: LIST
PEAK CAPACITY: 1151

ZERO   =  0, 2.6
ATT 2^ =  9
CHT SP =  0.5
PK WD  =  0.16
THRSH  =  5
AR REJ =  1000000000
```

2A-2R

Page 27R




```
RUN #   66              NOV/28/84  13:03:33

ISTD
   RT          AREA  TYPE   CAL#       AMOUNT
 7.50  3.2875E+07    BB      1       249.550
 8.97  2.1237E+07    BB      2       161.130
10.65     7405100    BB      3        55.983
12.58  1.6623E+07    BB      4       125.670
14.48  1.2071E+07    BB      5        92.643
16.14  1.9317E+07    BB      6       145.910
19.32  1.6592E+07    BB      7       126.390
22.01  3.5306E+07   SPB     8S       100.000

TOTAL AREA= 1.6143E+08
  ISTD AMT= 1.0000E+02
MUL FACTOR= 1.0000E+00
```

```
RUN #   65              NOV/28/84  12:26:05

AREA%
   RT          AREA  TYPE   AR/HT      AREA%
 4.49     2827900    VB    0.228      1.196
 5.40      414570    BP    0.266      0.175
 5.91     2407200    BB    0.248      1.018
 6.24     1081100    BB    0.282      0.457
 6.79     4921900    BB    0.236      2.082
 7.43  3.3794E+07    BP    0.396     14.292
 8.29      614360    BB    0.210      0.260
 8.91  2.1839E+07    BB    0.361      9.236
 9.60     3854900    BB    0.437      1.630
10.60     7641300    BB    0.408      3.232
11.27      276180    BB    0.226      0.117
12.43  1.6531E+07    BB    0.406      6.991
13.22      625610    BB    0.275      0.265
14.18     8914200    BB    0.558      3.770
15.84  1.3257E+07    BB    0.479      5.607
16.85      426520    BB    0.266      0.180
17.45      180810    BB    0.220      0.077
18.13     9147100    BB    0.428      3.869
19.22  1.8293E+07    BB    0.287      7.737
20.34     2139800    PB    0.466      0.905
21.11      372870    BB    0.219      0.157
21.98  3.5127E+07   SPB    0.248     14.856
22.74      149380    BB    0.282      0.063
23.22      394720    BB    0.268      0.167
23.97       68482    BB    0.188      0.029
24.35      667660    BB    0.182      0.282
24.93  3.5380E+07   SPB    0.265     14.963
25.68     4482800    BB    0.256      1.896
26.42     8581700    BB    0.283      3.629
27.08     1339100    BB    0.292      0.566
27.78      145210    BB    0.188      0.061
28.07       77051    BB    0.151      0.033
28.49       93597    BB    0.143      0.040
29.78      384450 I  BP    0.224      0.163

TOTAL AREA= 2.3645E+08
MUL FACTOR= 1.0000E+00
```

```
RUN #   66              NOV/28/84  13:03:33

AREA%
   RT          AREA  TYPE   AR/HT      AREA%
 4.55     2726800    VB    0.230      1.127
 5.47      426690    BP    0.274      0.176
 5.98     2395300    BB    0.243      0.990
 6.31     1011500    BB    0.282      0.418
 6.86     4831400    BB    0.232      1.997
 7.50  3.2875E+07    BB    0.387     13.590
 8.35      580320    BB    0.289      0.240
 8.97  2.1237E+07    BB    0.360      8.779
 9.65     3773300    BB    0.431      1.560
10.65     7405100    BB    0.489      3.061
11.31      204450    BB    0.199      0.085
12.58  1.6623E+07    BB    0.417      6.872
13.36      604650    BB    0.272      0.250
14.48  1.2071E+07    BB    0.664      4.990
16.14  1.9317E+07    BB    0.588      7.985
18.33  1.2213E+07    BB    0.548      5.049
19.32  1.6592E+07    BB    0.266      6.859
19.94       74034    BB    0.142      0.031
20.34     1508600    BB    0.417      0.624
21.13      324640    BB    0.283      0.134
22.01  3.5306E+07   SPB    0.248     14.595
22.27      147060    BB    0.199      0.061
23.23      212680    BB    0.196      0.088
23.94      123290    PP    0.198      0.051
24.33      449940    BB    0.174      0.186
24.94  3.4491E+07   SPB    0.264     14.258
25.68     4118500    BB    0.249      1.703
26.41     8259000    BB    0.281      3.414
27.14     1339600    BB    0.385      0.554
27.82      125630    BB    0.178      0.052
28.10       70369    BB    0.153      0.029
28.53      101730    BB    0.145      0.042
29.81      366990 I  BH    0.223      0.152

TOTAL AREA= 2.4191E+08
MUL FACTOR= 1.0000E+00
```

INDUSTRIAL TESTING LABORATORIES, INC.
ALCOHOL ETHOXYLATE ANALYSIS
REPORT NUMBER 84-S-360, PAGE 28

| | |
|---|---|
| SAMPLE ID | 2A-3 |
| SAMPLE TYPE | EFFLUENT |
| SAMPLE VOLUME | 1000 MILLILITERS |
| ISTD AMOUNT | 100 MICROGRAMS |
| FINAL VOLUME | 250 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 329 * |
| ALCOHOL ETHOXYLATE CONC. = | .31 MG/L |

CALCULATIONS

| ALKYL CHAIN | AVG. EO | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 3 | 21,559 : 21,647 | (172 + 132 ):298 | 100 | 123.5 |
| 12 | 3 | 9,942 : 21,647 | (186 + 132 ):298 | 100 | 53.6 |
| 13 | 3 | 3,694 : 21,647 | (200 + 132 ):298 | 100 | 23.1 |
| 14 | 3 | 5,323 : 21,647 | (214 + 132 ):298 | 100 | 34.7 |
| 15 | 3 | 2,752 : 21,647 | (228 + 132 ):298 | 100 | 18.7 |
| 16 | 3 | 2,915 : 21,647 | (242 + 132 ):298 | 100 | 19.8 |
| 18 | 3 | 4,165 : 21,647 | (270 + 132 ):298 | 100 | 31.6 |
| | | | | | 305 |

TOTAL MICROGRAMS ALCOHOL ETHOXYLATE =

* FROM ASSUMED EO VALUE 3 . NOTE THAT THIS ASSUMED VALUE MAY NOT BE IN AGREEMENT WITH THE EXPERIMENTAL VALUE CALCULATED FROM THE AVAILABLE DATA.

INDUSTRIAL TESTING LABORATORIES, INC.
ALCOHOL ETHOXYLATE ANALYSIS
REPORT NUMBER 84-5-360, PAGE 29

| | |
|---|---|
| SAMPLE ID | 2A-3B |
| SAMPLE TYPE | EFFLUENT |
| SAMPLE VOLUME | 1000 MILLILITERS |
| ISTD AMOUNT | 100 MICROGRAMS |
| FINAL VOLUME | 250 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 328 * |
| ALCOHOL ETHOXYLATE CONC. = | .3 MG/L |

CALCULATIONS

| ALKYL CHAIN | AVG. EO | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 3 | 21,539 : 22,022 | (172 + 132 ):298 | 100 | 121.8 |
| 12 | 3 | 9,059 : 22,022 | (186 + 132 ):298 | 100 | 53.4 |
| 13 | 3 | 3,845 : 22,022 | (200 + 132 ):298 | 100 | 22.4 |
| 14 | 3 | 5,249 : 22,022 | (214 + 132 ):298 | 100 | 33.6 |
| 15 | 3 | 2,692 : 22,022 | (228 + 132 ):298 | 100 | 18 |
| 16 | 3 | 2,756 : 22,022 | (242 + 132 ):298 | 100 | 19.1 |
| 18 | 3 | 4,145 : 22,022 | (270 + 132 ):298 | 100 | 30.9 |
| | | | | | 298.7 |

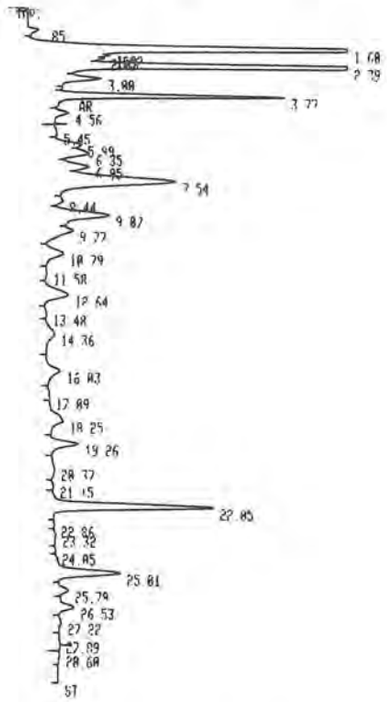
TOTAL MICROGRAMS ALCOHOL ETHOXYLATE =

* FROM ASSUMED EO VALUE 3 . NOTE THAT THIS ASSUMED VALUE MAY NOT BE IN AGREEMENT WITH THE EXPERIMENTAL VALUE CALCULATED FROM THE AVAILABLE DATA.

LIST: LIST
PEAK CAPACITY: 1151

ZERO = 0, 1.9
ATT 2† = 9
CHT SP = 0.5
PK WD = 0.16
THRSH = 5
AR REJ = 1000000000

2A-3
Page 30L




RUN # 72 NOV/29/84 11:19:34

ISTD

| RT | AREA | TYPE | CAL# | AMOUNT |
|---|---|---|---|---|
| 7.54 | 3.1611E+07 | BB | 1 | 256.910 |
| 9.07 | 1.3111E+07 | BB | 2 | 118.650 |
| 10.79 | 5415800 | BB | 3 | 45.544 |
| 12.64 | 7804800 | BB | 4 | 55.634 |
| 14.36 | 4034500 | BB | 5 | 34.444 |
| 16.03 | 4128000 | BB | 6 | 34.684 |
| 19.26 | 6106700 | BB | 7 | 51.743 |
| 22.85 | 3.1740E+07 | SPB | 8S | 100.000 |

TOTAL AREA= 1.0395E+08
ISTD AMT= 1.0000E+02
MUL FACTOR= 1.0000E+00

RUN # 72 NOV/29/84 11:19:34

AREA%

| | RT | AREA | TYPE | AR/HT | AREA% |
|---|---|---|---|---|---|
| | 4.56 | 2134700 | BB | 0.213 | 1.456 |
| | 5.45 | 406970 | PB | 0.287 | 0.278 |
| | 5.99 | 1504900 | BB | 0.197 | 1.026 |
| | 6.35 | 3394400 | BB | 0.246 | 2.315 |
| | 6.85 | 3271400 | BB | 0.234 | 2.231 |
| 11 | 7.54 | 3.1611E+07 | BB | 0.385 | 21.559 |
| | 8.44 | 802310 | BB | 0.231 | 0.547 |
| 12 | 9.07 | 1.3111E+07 | BB | 0.343 | 8.942 |
| | 9.77 | 3055800 | BB | 0.307 | 2.084 |
| 13 | 10.79 | 5415800 | BB | 0.485 | 3.694 |
| | 11.58 | 319630 | BB | 0.338 | 0.218 |
| 14 | 12.64 | 7804800 | BB | 0.433 | 5.323 |
| | 13.48 | 206860 | BB | 0.273 | 0.141 |
| 15 | 14.36 | 4034500 | BB | 0.595 | 2.752 |
| 16 | 16.03 | 4128000 | BB | 0.410 | 2.815 |
| | 17.09 | 190130 | BB | 0.332 | 0.130 |
| | 18.25 | 5314300 | BB | 0.535 | 3.624 |
| 17 | 19.26 | 6106700 | BB | 0.290 | 4.165 |
| | 20.37 | 1295400 | BB | 0.584 | 0.883 |
| | 21.15 | 218720 | BB | 0.236 | 0.149 |
| — | 22.85 | 3.1740E+07 | SPB | 0.256 | 21.647 |
| | 22.86 | 64907 | BP | 0.287 | 0.044 |
| | 23.32 | 400890 | BB | 0.342 | 0.273 |
| | 24.85 | 56276 | BB | 0.175 | 0.038 |
| | 25.81 | 1.4313E+07 | BB | 0.297 | 9.761 |
| | 25.79 | 1712000 | BB | 0.244 | 1.168 |
| | 26.53 | 3296200 | BB | 0.291 | 2.248 |
| | 27.22 | 536520 | BB | 0.315 | 0.366 |
| | 27.89 | 59963 | BB | 0.213 | 0.041 |
| | 28.68 | 119480 | BB | 0.247 | 0.082 |

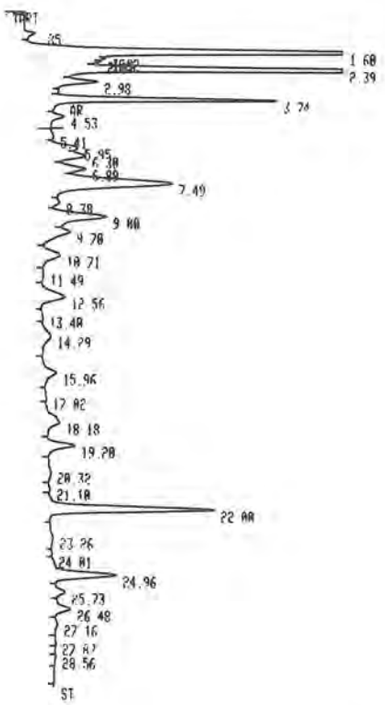
TOTAL AREA= 1.4663E+08
MUL FACTOR= 1.0000E+00

LIST: ZERO = 0, 1.0

LIST: LIST
PEAK CAPACITY: 1151

ZERO = 0, 0.9
ATT 2† = 9
CHT SP = 0.5
PK WD = 0.16
THRSH = 5
AR REJ = 1000000000

2A-3B
Page 30R




RUN # 73 NOV/29/84 12:07:41

ISTD

| RT | AREA | TYPE | CAL# | AMOUNT |
|---|---|---|---|---|
| 7.49 | 3.1731E+07 | BB | 1 | 262.130 |
| 9.00 | 1.3346E+07 | BB | 2 | 110.200 |
| 10.71 | 5369900 | BB | 3 | 44.188 |
| 12.56 | 7723700 | BB | 4 | 63.546 |
| 14.29 | 3965800 | BB | 5 | 33.124 |
| 15.96 | 4060700 | BB | 6 | 33.388 |
| 19.20 | 6105900 | BB | 7 | 50.616 |
| 22.00 | 3.2442E+07 | SPB | 8S | 100.000 |

TOTAL AREA= 1.0475E+08
ISTD AMT= 1.0000E+02
MUL FACTOR= 1.0000E+00

RUN # 73 NOV/29/84 12:07:41

AREA%

| | RT | AREA | TYPE | AR/HT | AREA% |
|---|---|---|---|---|---|
| | 4.53 | 2079300 | BB | 0.231 | 1.411 |
| | 5.41 | 431630 | PB | 0.279 | 0.293 |
| | 5.95 | 1508400 | BB | 0.203 | 1.023 |
| | 6.38 | 3225800 | BB | 0.240 | 2.190 |
| | 6.89 | 3385100 | BB | 0.234 | 2.298 |
| 11 | 7.49 | 3.1731E+07 | BB | 0.385 | 21.539 |
| | 8.38 | 756950 | BB | 0.226 | 0.514 |
| 12 | 9.00 | 1.3346E+07 | BP | 0.348 | 9.059 |
| | 9.70 | 3233300 | BB | 0.312 | 2.195 |
| 13 | 10.71 | 5369900 | BB | 0.485 | 3.645 |
| | 11.49 | 304740 | BB | 0.351 | 0.207 |
| 14 | 12.56 | 7723700 | BB | 0.436 | 5.243 |
| | 13.40 | 201380 | PB | 0.270 | 0.137 |
| 15 | 14.29 | 3965800 | BB | 0.599 | 2.692 |
| 16 | 15.96 | 4060700 | BB | 0.413 | 2.756 |
| | 17.02 | 193380 | BB | 0.336 | 0.131 |
| | 18.18 | 5272900 | BB | 0.536 | 3.579 |
| 17 | 19.20 | 6105900 | BB | 0.298 | 4.145 |
| | 20.32 | 1090500 | BB | 0.569 | 0.740 |
| | 21.10 | 217020 | BB | 0.236 | 0.147 |
| — | 22.00 | 3.2442E+07 | SPB | 0.255 | 22.022 |
| | 23.26 | 678320 | BB | 0.405 | 0.460 |
| | 24.01 | 49712 | BB | 0.177 | 0.034 |
| | 24.96 | 1.4039E+07 | BB | 0.293 | 9.530 |
| | 25.73 | 1745300 | BB | 0.250 | 1.185 |
| | 26.48 | 3330000 | BP | 0.295 | 2.260 |
| | 27.16 | 534380 | BB | 0.314 | 0.363 |
| | 27.87 | 61506 | BB | 0.226 | 0.042 |
| | 28.56 | 154630 | VB | 0.273 | 0.105 |

TOTAL AREA= 1.4732E+08
MUL FACTOR= 1.0000E+00

INDUSTRIAL TESTING LABORATORIES, INC.
ALCOHOL ETHOXYLATE ANALYSIS
REPORT NUMBER 84-5-360, PAGE 31

| | |
|---|---|
| SAMPLE ID | 2C |
| SAMPLE TYPE | EFFLUENT |
| SAMPLE VOLUME | 1000 MILLILITERS |
| ISTD AMOUNT | 100 MICROGRAMS |
| FINAL VOLUME | 250 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 552 ** |
| ALCOHOL ETHOXYLATE CONC. = | .68 MG/L |

CALCULATIONS

| ALKYL CHAIN | AVG. EO ** | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 8 | 14.912 : 17.226 | (172 + 353.693 ):298 | 100 | 185.7 |
| 12 | 8 | 13.752 : 17.226 | (186 + 353.693 ):298 | 100 | 175.8 |
| 13 | 8 | 5.454 : 17.226 | (200 + 353.693 ):298 | 100 | 71.5 |
| 14 | 8 | 7.817 : 17.226 | (214 + 353.693 ):298 | 100 | 105.1 |
| 15 | 8 | 3.147 : 17.226 | (228 + 353.693 ):298 | 100 | 43.4 |
| 16 | 8 | 3.799 : 17.226 | (242 + 353.693 ):298 | 100 | 53.6 |
| 18 | 8 | 2.72 : 17.226 | (270 + 353.693 ):298 | 100 | 40.2 |
| | | | | | 675.2 |

TOTAL MICROGRAMS ALCOHOL ETHOXYLATE =

** FROM EXPERIMENTAL EO VALUE. DUE TO INTERFERENCES FROM THE PHENYL ISOCYANATE,
REVERSE PHASE FRACTIONATION WAS NECESSARY FOR ACCURATE EO ISOMER IDENTIFICATION
BY NORMAL PHASE LIQUID CHROMATOGRAPHY.

INDUSTRIAL TESTING LABORATORIES, INC.
ALCOHOL ETHOXYLATE ANALYSIS
REPORT NUMBER 84-5-360, PAGE 32

| | |
|---|---|
| SAMPLE ID | 2C-B |
| SAMPLE TYPE | EFFLUENT |
| SAMPLE VOLUME | 1000 MILLILITERS |
| ISTD AMOUNT | 100 MICROGRAMS |
| FINAL VOLUME | 250 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 553 ** |
| ALCOHOL ETHOXYLATE CONC. = | .69 MG/L |

CALCULATIONS

| ALKYL CHAIN | AVG. EO ** | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 8 | 15.663 : 17.991 | (172 + 353.693 ):298 | 100 | 186.7 |
| 12 | 8 | 14.616 : 17.991 | (186 + 353.693 ):298 | 100 | 178.9 |
| 13 | 8 | 5.85 : 17.991 | (200 + 353.693 ):298 | 100 | 73.5 |
| 14 | 8 | 8.388 : 17.991 | (214 + 353.693 ):298 | 100 | 108 |
| 15 | 8 | 3.399 : 17.991 | (228 + 353.693 ):298 | 100 | 44.8 |
| 16 | 8 | 4.093 : 17.991 | (242 + 353.693 ):298 | 100 | 55.3 |
| 18 | 8 | 2.89 : 17.991 | (270 + 353.693 ):298 | 100 | 40.9 |
| TOTAL MICROGRAMS ALCOHOL ETHOXYLATE = | | | | | 688.1 |

** FROM EXPERIMENTAL EO VALUE. DUE TO INTERFERENCES FROM THE PHENYL ISOCYANATE, REVERSE PHASE FRACTIONATION WAS NECESSARY FOR ACCURATE EO ISOMER IDENTIFICATION BY NORMAL PHASE LIQUID CHROMATOGRAPHY.

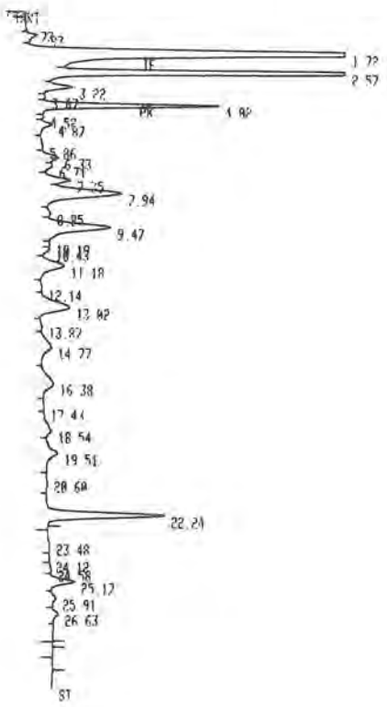
LIST ZERO = 0, 1.2

LIST: LIST
PEAK CAPACITY: 1151

ZERO = 0, 1.1
ATT 2↑ = 9
CHT SP = 0.5
PK WD = 0.16
THRSH = 5
AR REJ = 1000000000

2C
7.5pl

Page 32L




RUN # 141 DEC/17/84 16:34:48

ISTD

| RT | AREA | TYPE | CAL# | AMOUNT |
|---|---|---|---|---|
| 7.35 | 3836200 | BB | 1 | 35.874 |
| 8.85 | 418680 | BP | 2 | 4.834 |
| 11.18 | 7345680 | BB | 3 | 84.514 |
| 12.14 | 189720 | BP | 4 | 2.183 |
| 14.77 | 4238600 | BB | 5 | 49.508 |
| 16.38 | 5116400 | BP | 6 | 58.814 |
| 19.51 | 3663000 | BB | 7 | 42.463 |
| 22.24 | 2.3199E+07 | BB | 8S | 190.000 |

TOTAL AREA= 4.7207E+07
ISTD AMT= 1.0000E+02
MUL FACTOR= 1.0000E+00

RUN # 141 DEC/17/84 16:34:48

AREA%

| RT | AREA | TYPE | AR/HT | AREA% |
|---|---|---|---|---|
| 4.02 | 2.3485E+07 | SPR | 0.173 | 17.379 |
| 4.52 | 82628 | D BR | 0.123 | 0.061 |
| 4.87 | 1812500 | BB | 0.231 | 1.346 |
| 5.86 | 232920 | BR | 0.344 | 0.173 |
| 6.33 | 1924900 | BB | 0.234 | 1.429 |
| 6.71 | 554960 | BR | 0.207 | 0.412 |
| 7.35 | 3036200 | BB | 0.224 | 2.254 |
| 7.94 | 2.0082E+07 | BR | 0.329 | 14.912 |
| 8.85 | 418680 | BV | 0.220 | 0.311 |
| 9.47 | 1.8521E+07 | BR | 0.385 | 13.752 |
| 10.19 | 64987 | BB | 0.131 | 0.048 |
| 10.43 | 315450 | BR | 0.209 | 0.234 |
| 11.18 | 7345680 | BB | 0.426 | 5.454 |
| 12.14 | 189720 | BB | 0.294 | 0.141 |
| 13.82 | 1.0528E+07 | BB | 0.469 | 7.817 |
| 13.87 | 190460 | BB | 0.256 | 0.141 |
| 14.77 | 4238600 | BB | 0.565 | 3.147 |
| 16.38 | 5116400 | BB | 0.630 | 3.799 |
| 17.43 | 42867 | BR | 0.271 | 0.032 |
| 18.54 | 1790400 | BR | 0.436 | 1.329 |
| 19.51 | 3663000 | BB | 0.489 | 2.720 |
| 20.60 | 369960 | BP | 0.468 | 0.275 |
| 22.24 | 2.3199E+07 | BB | 0.255 | 17.226 |
| 23.48 | 219320 | PR | 0.289 | 0.163 |
| 24.12 | 77255 | BB | 0.228 | 0.057 |
| 24.58 | 175890 | BR | 0.232 | 0.131 |
| 25.17 | 5009100 | BR | 0.225 | 3.719 |
| 25.91 | 957370 | BB | 0.292 | 0.711 |
| 26.63 | 1111200 | BR | 0.271 | 0.825 |

TOTAL AREA= 1.3467E+08
MUL FACTOR= 1.0000E+00

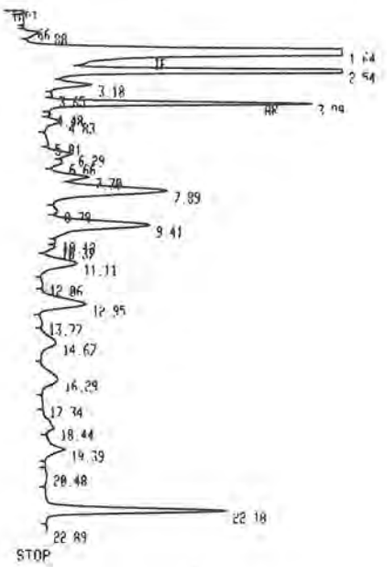
LIST: ZERO = 0, 0.6

LIST: LIST
PEAK CAPACITY: 1151

ZERO = 0, 0.4
ATT 2↑ = 9
CHT SP = 0.5
PK WD = 0.16
THRSH = 5
AR REJ = 1000000000

2C-B
12pl

Page 32R




RUN # 142 DEC/17/84 17:11:38

ISTD

| RT | AREA | TYPE | CAL# | AMOUNT |
|---|---|---|---|---|
| 7.30 | 4543600 | BR | 1 | 34.917 |
| 8.79 | 639420 | BR | 2 | 4.912 |
| 11.11 | 1.1339E+07 | BB | 3 | 86.785 |
| 12.95 | 1.6258E+07 | BR | 4 | 124.440 |
| 14.67 | 6588600 | BB | 5 | 51.195 |
| 16.29 | 7933200 | BR | 6 | 60.665 |
| 19.39 | 5601200 | BB | 7 | 43.195 |
| 22.18 | 3.4874E+07 | SPB | 8S | 190.000 |

TOTAL AREA= 8.7777E+07
ISTD AMT= 1.0000E+02
MUL FACTOR= 1.0000E+00

RUN # 142 DEC/17/84 17:11:38

AREA%

| RT | AREA | TYPE | AR/HT | AREA% |
|---|---|---|---|---|
| 3.99 | 3.5774E+07 | SPR | 0.177 | 18.456 |
| 4.48 | 104490 | D BR | 0.116 | 0.054 |
| 4.83 | 2652380 | BB | 0.230 | 1.368 |
| 5.81 | 372520 | BB | 0.361 | 0.192 |
| 6.29 | 2973300 | BB | 0.235 | 1.534 |
| 6.66 | 833830 | BR | 0.209 | 0.430 |
| 7.30 | 4543600 | BB | 0.225 | 2.344 |
| 7.89 | 3.0360E+07 | BB | 0.376 | 15.663 |
| 8.79 | 639420 | BB | 0.218 | 0.330 |
| 9.41 | 2.8331E+07 | BR | 0.385 | 14.616 |
| 10.12 | 87110 | BB | 0.131 | 0.045 |
| 10.37 | 457170 | D BB | 0.208 | 0.236 |
| 11.11 | 1.1339E+07 | BB | 0.428 | 5.850 |
| 12.06 | 271880 | BR | 0.280 | 0.140 |
| 12.95 | 1.6258E+07 | BB | 0.468 | 8.388 |
| 13.77 | 357750 | BR | 0.268 | 0.185 |
| 14.67 | 6588600 | BB | 0.565 | 3.399 |
| 16.29 | 7933200 | BB | 0.624 | 4.093 |
| 17.34 | 56168 | BB | 0.238 | 0.029 |
| 18.44 | 2723300 | BB | 0.428 | 1.405 |
| 19.39 | 5601200 | BB | 0.395 | 2.890 |
| 20.48 | 615640 | VB | 0.462 | 0.318 |
| 22.18 | 3.4874E+07 | SPB | 0.249 | 17.991 |
| 22.89 | 87011 | I BH | 0.238 | 0.045 |

TOTAL AREA= 1.9383E+08
MUL FACTOR= 1.0000E+00

INDUSTRIAL TESTING LABORATORIES, INC.
ALCOHOL ETHOXYLATE ANALYSIS
REPORT NUMBER 84-5-360, PAGE 34

| | |
|---|---|
| SAMPLE ID | 2C |
| SAMPLE TYPE | EFFLUENT |
| SAMPLE VOLUME | 1000 MILLILITERS |
| ISTD AMOUNT | 100 MICROGRAMS |
| FINAL VOLUME | 250 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 331 * |
| ALCOHOL ETHOXYLATE CONC. = | .4 MG/L |

CALCULATIONS

| ALKYL CHAIN | AVG. EO | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 3 | 14,912 : 17,226 | (172 + 132 ):298 | 100 | 107.4 |
| 12 | 3 | 13,752 : 17,226 | (186 + 132 ):298 | 100 | 103.6 |
| 13 | 3 | 5,454 : 17,226 | (200 + 132 ):298 | 100 | 42.9 |
| 14 | 3 | 7,817 : 17,226 | (214 + 132 ):298 | 100 | 64.1 |
| 15 | 3 | 3,147 : 17,226 | (228 + 132 ):298 | 100 | 26.8 |
| 16 | 3 | 3,799 : 17,226 | (242 + 132 ):298 | 100 | 33.7 |
| 18 | 3 | 2,72 : 17,226 | (270 + 132 ):298 | 100 | 25.9 |
| TOTAL MICROGRAMS ALCOHOL ETHOXYLATE = | | | | | 404.4 |

* FROM ASSUMED EO VALUE 3 . NOTE THAT THIS ASSUMED VALUE MAY NOT BE IN AGREEMENT WITH THE EXPERIMENTAL VALUE CALCULATED FROM THE AVAILABLE DATA.

INDUSTRIAL TESTING LABORATORIES, INC.
ALCOHOL ETHOXYLATE ANALYSIS
REPORT NUMBER 84-5-360, PAGE 35

| | |
|---|---|
| SAMPLE ID | 2C-B |
| SAMPLE TYPE | EFFLUENT |
| SAMPLE VOLUME | 1000 MILLILITERS |
| ISTD AMOUNT | 100 MICROGRAMS |
| FINAL VOLUME | 250 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 331 * |
| ALCOHOL ETHOXYLATE CONC. = | .41 MG/L |

CALCULATIONS

| ALKYL CHAIN | AVG. EO | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 3 | 15.563 : 17.991 | (172 + 132 ):298 | 100 | 108 |
| 12 | 3 | 14.616 : 17.991 | (186 + 132 ):298 | 100 | 105.4 |
| 13 | 3 | 5.85 : 17.991 | (200 + 132 ):298 | 100 | 44 |
| 14 | 3 | 8.888 : 17.991 | (214 + 132 ):298 | 100 | 65.8 |
| 15 | 3 | 3.899 : 17.991 | (228 + 132 ):298 | 100 | 27.7 |
| 16 | 3 | 4.093 : 17.991 | (242 + 132 ):298 | 100 | 34.7 |
| 18 | 3 | 2.89 : 17.991 | (270 + 132 ):298 | 100 | 26.8 |
| | | | | | 411.9 |

TOTAL MICROGRAMS ALCOHOL ETHOXYLATE =

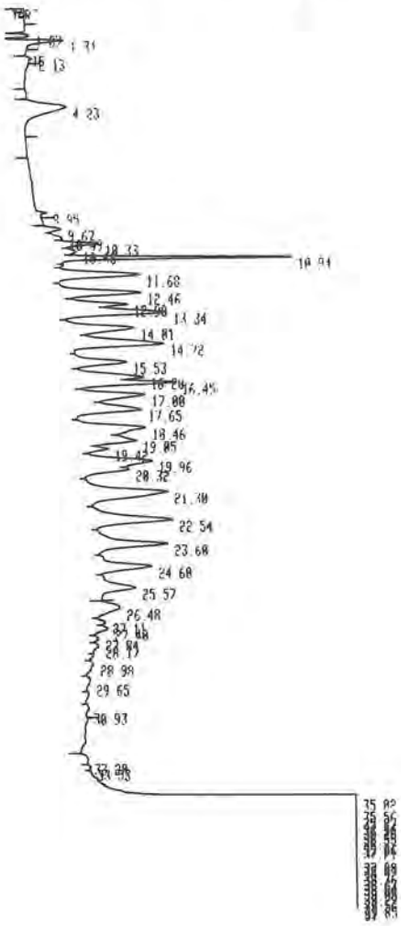
* FROM ASSUMED EO VALUE 3 . NOTE THAT THIS ASSUMED VALUE MAY NOT BE IN AGREEMENT WITH THE EXPERIMENTAL VALUE CALCULATED FROM THE AVAILABLE DATA.

LIST: LIST
PEAK CAPACITY: 1159

ZERO = 0, 4.1
ATT 2↑ = 7
CHT SP = 0.5
PK WD = 0.16
THRSH = 6
AR REJ = 1000

Fractioned
2C
20µl/100µl

Page 36 L



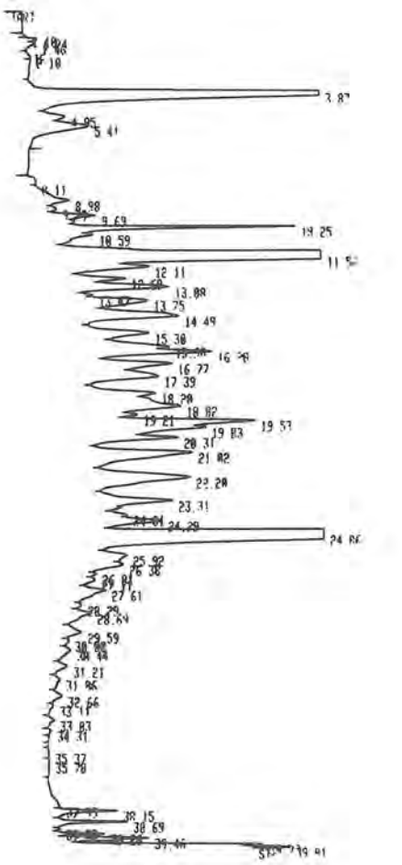

LIST: ZERO = 0, 1.2

LIST: LIST
PEAK CAPACITY: 1159

ZERO = 0, 1.8
ATT 2↑ = 9
CHT SP = 0.5
PK WD = 0.16
THRSH = 6
AR REJ = 1000

Unfractioned
2C
20µl/100µl

Page 36 R




RUN # 162 DEC/28/84 14:11:29

AREA%

| RT | AREA | TYPE | AR/HT | AREA% |
|---|---|---|---|---|
| 1.87 | 912860 | BP | 0.196 | 1.082 |
| 1.31 | 2586300 | PR | 0.195 | 2.838 |
| 2.13 | 114960 | PR | 0.117 | 0.126 |
| 4.23 | 3643300 | BR | 0.477 | 3.998 |
| 9.67 | 411780 | PR | 0.155 | 0.452 |
| 10.09 | 104390 | BR | 0.132 | 0.115 |
| 10.33 | 998350 | BB | 0.150 | 1.096 |
| 10.68 | 208500 | BP | 0.163 | 0.229 |
| 10.94 | 4458500 | SPB | 0.102 | 4.893 |
| 11.68 | 3994900 | PP | 0.257 | 4.384 |
| 12.46 | 3489400 | BB | 0.243 | 3.830 |
| 12.98 | 990470 | BR | 0.153 | 1.087 |
| 13.34 | 3486200 | BB | 0.228 | 3.826 |
| 14.01 | 3164600 | BB | 0.203 | 3.473 |
| 14.72 | 4893900 | BB | 0.300 | 5.371 |
| 15.53 | 2582000 | BP | 0.262 | 2.834 |
| 16.20 | 1058100 | BB | 0.197 | 1.161 |
| 16.45 | 2093400 | BP | 0.170 | 2.298 |
| 17.00 | 2921500 | BB | 0.273 | 3.206 |
| 17.65 | 2892700 | BB | 0.284 | 3.175 |
| 18.46 | 2352900 | BB | 0.269 | 2.582 |
| 19.05 | 1402500 | BP | 0.243 | 1.539 |
| 19.42 | 432330 | BB | 0.150 | 0.475 |
| 19.96 | 2167900 | BB | 0.261 | 2.379 |
| 20.32 | 113080 D | BB | 0.052 | 0.124 |
| 21.30 | 6446800 | BB | 0.421 | 7.075 |
| 22.54 | 5237600 | BB | 0.350 | 5.748 |
| 23.60 | 4138600 | BB | 0.311 | 4.542 |
| 24.60 | 3046200 | BB | 0.312 | 3.343 |
| 25.52 | 2284300 | BB | 0.351 | 2.507 |
| 26.48 | 1606300 | BB | 0.414 | 1.763 |
| 27.11 | 150430 | BP | 0.148 | 0.165 |
| 27.40 | 299420 | BB | 0.186 | 0.329 |
| 27.84 | 122940 | BB | 0.164 | 0.135 |
| 28.17 | 189880 | BB | 0.204 | 0.208 |
| 28.98 | 315050 | PB | 0.348 | 0.346 |
| 29.65 | 239480 | BB | 0.316 | 0.263 |
| 30.93 | 144850 | PP | 0.272 | 0.159 |
| 33.20 | 230070 | PB | 0.336 | 0.253 |
| 33.53 | 42768 | BB | 0.126 | 0.047 |
| 35.56 | 186840 | DSPB | 0.089 | 0.204 |
| 35.87 | 132900 | DSPB | 0.157 | 0.146 |
| 36.16 | 97621 | SPB | 0.850 | 0.107 |
| 36.28 | 161250 | SPB | 0.862 | 0.177 |
| 36.55 | 2749400 | SPB | 0.281 | 3.017 |
| 36.77 | 317950 | SPB | 0.081 | 0.349 |
| 37.06 | 1195800 | SPB | 0.166 | 1.312 |
| 37.21 | 123150 | SPB | 0.065 | 0.135 |
| 37.88 | 1563700 | SPB | 0.365 | 1.716 |
| 38.03 | 1086000 | SPB | 0.162 | 1.192 |
| 38.36 | 2527700 | SPB | 0.177 | 2.774 |
| 38.63 | 518930 | DSPB | 0.084 | 0.570 |
| 38.84 | 238390 | DSPB | 0.082 | 0.262 |
| 39.05 | 1403500 | SPB | 0.147 | 1.540 |
| 39.29 | 686520 | SPB | 0.088 | 0.753 |
| 39.56 | 1352800 | SPB | 0.165 | 1.485 |
| 39.85 | 808640 | ISPH | 0.125 | 0.887 |

TOTAL AREA= 9.1128E+07
MUL FACTOR= 1.0000E+00

RUN # 170 JAN/03/85 12:29:43

AREA%

| RT | AREA | TYPE | AR/HT | AREA% |
|---|---|---|---|---|
| 1.10 | 324930 | PV | 0.102 | 0.036 |
| 1.24 | 1765580 | VV | 0.158 | 0.194 |
| 1.46 | 1939180 | VP | 0.203 | 0.213 |
| 2.10 | 18717 | PR | 0.026 | 0.002 |
| 3.87 | 1.2820E+08 | SPB | 0.351 | 14.098 |
| 4.95 | 2396180 | BR | 0.227 | 0.264 |
| 5.41 | 9078980 | BB | 0.300 | 0.998 |
| 8.11 | 1006980 | PB | 0.546 | 0.111 |
| 8.98 | 5272980 | BR | 0.297 | 0.580 |
| 9.39 | 501880 | BP | 0.149 | 0.055 |
| 9.69 | 4033480 | BR | 0.152 | 0.444 |
| 10.25 | 2.1150E+07 | SPB | 0.117 | 2.326 |
| 10.59 | 664838 | DSPB | 0.088 | 0.073 |
| 11.56 | 1.9268E+08 | †SPB | 0.419 | 21.188 |
| 12.11 | 6756380 | BR | 0.206 | 0.743 |
| 12.68 | 4551380 | BP | 0.161 | 0.501 |
| 13.08 | 1.5298E+07 | BB | 0.238 | 1.681 |
| 13.42 | 251770 | BR | 0.099 | 0.028 |
| 13.75 | 1.2588E+07 | BR | 0.290 | 1.375 |
| 14.49 | 2.3558E+07 | BB | 0.340 | 2.590 |
| 15.30 | 1.1023E+07 | RB | 0.274 | 1.212 |
| 15.98 | 2531680 | BP | 0.187 | 0.278 |
| 16.20 | 9771800 | BB | 0.172 | 1.075 |
| 16.77 | 1.1876E+07 | BR | 0.256 | 1.306 |
| 17.39 | 1.1655E+07 | BR | 0.303 | 1.282 |
| 18.20 | 3794780 | BB | 0.161 | 0.417 |
| 18.82 | 1.2628E+07 | BB | 0.321 | 1.388 |
| 19.21 | 1153300 | BR | 0.119 | 0.127 |
| 19.53 | 1.5283E+07 | SPB | 0.194 | 1.672 |
| 19.83 | 1708900 | DSPB | 0.110 | 0.188 |
| 20.31 | 7806280 | SPB | 0.166 | 0.771 |
| 21.02 | 3.2469E+07 | SPB | 0.486 | 3.571 |
| 22.20 | 3.5639E+07 | SPB | 0.472 | 3.919 |
| 23.31 | 1.2425E+07 | SPB | 0.257 | 1.366 |
| 23.61 | 1.7299E+07 | SPP | 11.473 | 1.902 |
| 24.01 | 687428 | SPB | 0.146 | 0.076 |
| 24.29 | 8086100 | SPB | 0.229 | 0.889 |
| 24.86 | 2.1659E+08 | †SPB | 0.479 | 23.818 |
| 25.92 | 3703780 | BB | 0.268 | 0.407 |
| 26.38 | 2103100 | BB | 0.215 | 0.231 |
| 26.81 | 321250 | BB | 0.123 | 0.035 |
| 27.11 | 1005680 | BB | 0.200 | 0.111 |
| 27.61 | 6359280 | BB | 0.338 | 0.699 |
| 28.29 | 393640 | BR | 0.154 | 0.043 |
| 28.69 | 4605780 | BB | 0.332 | 0.507 |
| 29.59 | 3221400 | BR | 0.292 | 0.354 |
| 30.00 | 329770 | BB | 0.198 | 0.036 |
| 30.44 | 1984880 | BB | 0.324 | 0.218 |
| 31.21 | 2204780 | BB | 0.270 | 0.243 |
| 31.86 | 1399580 | BB | 0.330 | 0.154 |
| 32.66 | 1982580 | BB | 0.287 | 0.218 |
| 33.11 | 266720 | BB | 0.188 | 0.029 |
| 33.83 | 1469880 | BB | 0.276 | 0.162 |
| 34.31 | 352980 | BR | 0.131 | 0.039 |
| 35.37 | 144938 | PB | 0.295 | 0.016 |
| 35.78 | 215538 | BB | 0.365 | 0.024 |
| 38.15 | 5945580 | SPB | 0.123 | 0.654 |
| 38.69 | 6412580 | SPB | 0.112 | 0.705 |
| 39.03 | 101658 D | BB | 0.067 | 0.011 |
| 39.26 | 2823080 | SPP | 0.078 | 0.310 |
| 39.46 | 9880180 | SPB | 0.148 | 1.087 |
| 39.77 | 3589980 | SPB | 0.067 | 0.395 |
| 39.91 | 5136080 | ISPP | 0.085 | 0.565 |

TOTAL AREA= 9.0935E+08
MUL FACTOR= 1.0000E+00

INDUSTRIAL TESTING LABORATORIES, INC.
ALCOHOL ETHOXYLATE ANALYSIS
REPORT NUMBER 84-5-360, PAGE 37

| | |
|---|---|
| SAMPLE ID | 3A-1 |
| SAMPLE TYPE | EFFLUENT |
| SAMPLE VOLUME | 1000 MILLILITERS |
| ISTD AMOUNT | 100 MICROGRAMS |
| FINAL VOLUME | 250 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 323 * |
| ALCOHOL ETHOXYLATE CONC. = | .26 MG/L |

CALCULATIONS

| ALKYL CHAIN | AVG. EO | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 3 | 22,82 : 25,858 | (172 + 132 ):298 | 100 | 109.5 |
| 12 | 3 | 13,527 : 25,858 | (186 + 132 ):298 | 100 | 58.4 |
| 13 | 3 | 3,712 : 25,858 | (200 + 132 ):298 | 100 | 19.4 |
| 14 | 3 | 5,454 : 25,858 | (214 + 132 ):298 | 100 | 29.8 |
| 15 | 3 | 1,541 : 25,858 | (228 + 132 ):298 | 100 | 8.8 |
| 16 | 3 | 2,005 : 25,858 | (242 + 132 ):298 | 100 | 11.8 |
| 18 | 3 | 2,262 : 25,858 | (270 + 132 ):298 | 100 | 14.3 |
| | | | | | 262 |

TOTAL MICROGRAMS ALCOHOL ETHOXYLATE =

* FROM ASSUMED EO VALUE 3 . NOTE THAT THIS ASSUMED VALUE MAY NOT BE IN AGREEMENT WITH THE EXPERIMENTAL VALUE CALCULATED FROM THE AVAILABLE DATA.

INDUSTRIAL TESTING LABORATORIES, INC.
ALCOHOL ETHOXYLATE ANALYSIS
REPORT NUMBER 84-5-360, PAGE 38

| | |
|---|---|
| SAMPLE ID | 3A-1B |
| SAMPLE TYPE | EFFLUENT |
| SAMPLE VOLUME | 1000 MILLILITERS |
| ISTD AMOUNT | 100 MICROGRAMS |
| FINAL VOLUME | 250 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 323 * |
| ALCOHOL ETHOXYLATE CONC. = | .25 MG/L |

CALCULATIONS

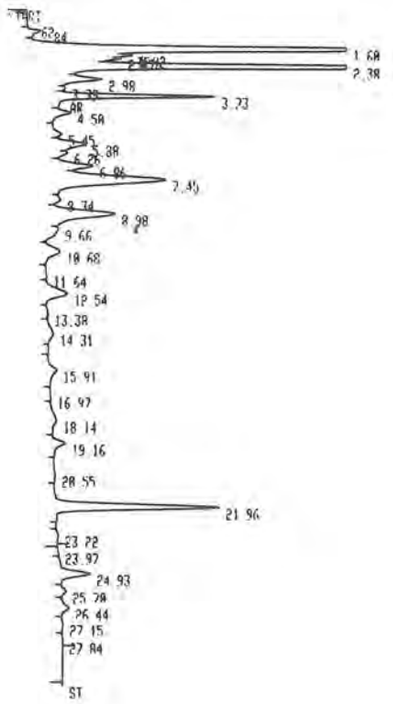
| ALKYL CHAIN | AVG. EO | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 3 | 22,705 : 26,798 | (172 + 132 ):298 | 100 | 105.1 |
| 12 | 3 | 13,641 : 26,798 | (186 + 132 ):298 | 100 | 66 |
| 13 | 3 | 3,699 : 26,798 | (200 + 132 ):298 | 100 | 18.7 |
| 14 | 3 | 5,441 : 26,798 | (214 + 132 ):298 | 100 | 28.7 |
| 15 | 3 | 1,546 : 26,798 | (228 + 132 ):298 | 100 | 8.5 |
| 16 | 3 | 2,017 : 26,798 | (242 + 132 ):298 | 100 | 11.5 |
| 18 | 3 | 2,254 : 26,798 | (270 + 132 ):298 | 100 | 13.8 |
| | | | | | 252.3 |

TOTAL MICROGRAMS ALCOHOL ETHOXYLATE =

* FROM ASSUMED EO VALUE 3 . NOTE THAT THIS ASSUMED VALUE MAY NOT BE IN AGREEMENT WITH THE EXPERIMENTAL VALUE CALCULATED FROM THE AVAILABLE DATA.

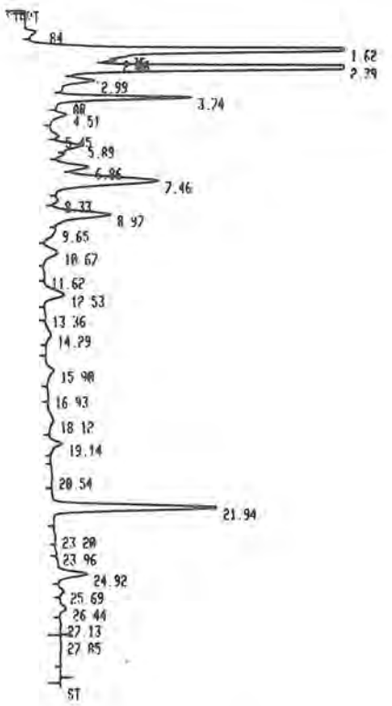
```
LIST: ZERO =  0, 1.3

LIST: LIST
PEAK CAPACITY: 1151

ZERO   =  0, 1.2
ATT 2^ =  9
CHT SP =  0.5
PK WD  =  0.16
THRSH  =  5
AR REJ =  1000000000
```

3A-1
Page 39L




```
LIST: ZERO =  0, 6.6

LIST: LIST
PEAK CAPACITY: 1151

ZERO   =  0, 3.7
ATT 2^ =  9
CHT SP =  0.5
PK WD  =  0.16
THRSH  =  5
AR REJ =  1000000000
```

3A-1B
Page 39R




```
RUN #   74              NOV/29/84  12:54:01

ISTD
   RT          AREA TYPE  CAL#       AMOUNT
 7.45  2.8439E+07   BB     1        236.528
 8.98  1.6982E+07   BB     2        141.170
10.68     4626200   BB     3         38.318
12.54     6796400   BB     4         56.293
14.31     1920600   BB     5         16.150
15.91     2498500   PB     6         20.676
19.16     2818500   BB     7         23.522
21.96  3.2225E+07   SPB    RS       100.000

TOTAL AREA= 9.6306E+07
  ISTD AMT= 1.0000E+02
MUL FACTOR= 1.0000E+00
```

```
RUN #   75              NOV/29/84  13:42:23

ISTD
   RT          AREA TYPE  CAL#       AMOUNT
 7.46  2.7342E+07   BB     1        227.070
 8.97  1.6426E+07   BB     2        136.350
10.67     4454100   BB     3         36.841
12.53     6551500   BB     4         54.189
14.29     1861200   BB     5         15.629
15.98     2429300   PB     6         20.075
19.14     2713800   BB     7         22.616
21.94  3.2270E+07   SPB    RS       100.000

TOTAL AREA= 9.4048E+07
  ISTD AMT= 1.0000E+02
MUL FACTOR= 1.0000E+00
```

```
RUN #   74              NOV/29/84  12:54:01

AREA%
   RT          AREA TYPE  AR/HT      AREA%
 4.50       2564600   BB   0.282      2.658
 5.45        711970   BB   0.164      0.571
 5.88       4752900   BB   0.261      3.814
 6.26        416980 D BR   0.176      0.335
 6.86       4666800   BB   0.232      3.745
 7.45  2.8439E+07   BP   0.374     22.828
 8.34        766220   BB   0.226      0.615
 8.98  1.6982E+07   BB   0.368     13.627
 9.66       1124980   BB   0.499      0.903
10.68       4626200   BB   0.419      3.712
11.64        238770   BB   0.379      0.192
12.54       6796400   BB   0.417      5.454
13.38        163450   BB   0.285      0.131
14.31       1920600   BP   0.500      1.541
15.91       2498500   PB   0.417      2.005
16.97        211760   BB   0.372      0.170
18.14       1996200   BB   0.531      1.602
19.16       2818500   BB   0.297      2.262
20.55        480150   BB   0.516      0.385
21.96  3.2225E+07   SPB   0.254     25.858
23.22        239590   PB   0.249      0.192
23.97         79507   PB   0.192      0.064
24.93       7002100   BB   0.305      5.619
25.70        850960   BB   0.245      0.683
26.44       1729500   BB   0.310      1.388
27.15        254070   BB   0.246      0.204
27.84         68070   BB   0.245      0.055

TOTAL AREA= 1.2462E+08
MUL FACTOR= 1.0000E+00
```

```
RUN #   75              NOV/29/84  13:42:23

AREA%
   RT          AREA TYPE  AR/HT      AREA%
 4.51       2389500   BB   0.237      1.984
 5.45        587750   BB   0.157      0.488
 5.89       4467000   BB   0.268      3.710
 6.86       4295200   PB   0.235      3.567
 7.46  2.7342E+07   BB   0.377     22.705
 8.33        712840   BB   0.226      0.592
 8.97  1.6426E+07   BB   0.371     13.641
 9.65       1058500   BB   0.494      0.879
10.67       4454100   BB   0.419      3.699
11.62        209470   BB   0.341      0.174
12.53       6551500   BB   0.418      5.441
13.36        148240   BB   0.269      0.123
14.29       1861200   BB   0.498      1.546
15.98       2429300   PB   0.420      2.017
16.93        201580   BB   0.357      0.167
18.12       1888400   BB   0.515      1.568
19.14       2713800   BB   0.296      2.254
20.54        386970   VB   0.474      0.321
21.94  3.2270E+07   SPB   0.253     26.798
23.20         88055   BB   0.112      0.073
23.96         39308   BB   0.105      0.033
24.92       6855300   BB   0.347      5.693
25.69        843390   BB   0.249      0.700
26.44       1669300   BB   0.315      1.386
27.13        198880   BB   0.281      0.165
27.85        332920   BB   0.651      0.277

TOTAL AREA= 1.2042E+08
MUL FACTOR= 1.0000E+00
```

INDUSTRIAL TESTING LABORATORIES, INC.
ALCOHOL ETHOXYLATE ANALYSIS
REPORT NUMBER 84-5-360, PAGE 40

| | |
|---|---|
| SAMPLE ID | 3A-2 |
| SAMPLE TYPE | EFFLUENT |
| SAMPLE VOLUME | 1000 MILLILITERS |
| ISTD AMOUNT | 100 MICROGRAMS |
| FINAL VOLUME | 250 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 328 * |
| ALCOHOL ETHOXYLATE CONC. = | .28 MG/L |

CALCULATIONS

| ALKYL CHAIN | AVG. EO | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 3 | 18.485 : 24.952 | (172 + 132 ):298 | 100 | 91.6 |
| 12 | 3 | 14.656 : 24.952 | (186 + 132 ):298 | 100 | 76.2 |
| 13 | 3 | 3.782 : 24.952 | (200 + 132 ):298 | 100 | 20.5 |
| 14 | 3 | 6.54 : 24.952 | (214 + 132 ):298 | 100 | 37 |
| 15 | 3 | 1.917 : 24.952 | (228 + 132 ):298 | 100 | 11.3 |
| 16 | 3 | 2.894 : 24.952 | (242 + 132 ):298 | 100 | 17.7 |
| 18 | 3 | 3.697 : 24.952 | (270 + 132 ):298 | 100 | 24.3 |
| TOTAL MICROGRAMS ALCOHOL ETHOXYLATE = | | | | | 278.6 |

* FROM ASSUMED EO VALUE 3 , NOTE THAT THIS ASSUMED VALUE MAY NOT BE IN AGREEMENT WITH THE EXPERIMENTAL VALUE CALCULATED FROM THE AVAILABLE DATA.

INDUSTRIAL TESTING LABORATORIES, INC.
ALCOHOL ETHOXYLATE ANALYSIS
REPORT NUMBER 84-5-360, PAGE 41

| | |
|---|---|
| SAMPLE ID | 3A-2B |
| SAMPLE TYPE | EFFLUENT |
| SAMPLE VOLUME | 1000 MILLILITERS |
| ISTD AMOUNT | 100 MICROGRAMS |
| FINAL VOLUME | 250 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 329 * |
| ALCOHOL ETHOXYLATE CONC. = | .27 MG/L |

CALCULATIONS

| ALKYL CHAIN | AVG. EO | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 3 | 17,782 : 25,174 | (172 + 132 ):298 | 100 | 87.6 |
| 12 | 3 | 14,104 : 25,174 | (186 + 132 ):298 | 100 | 72.7 |
| 13 | 3 | 3,648 : 25,174 | (200 + 132 ):298 | 100 | 19.6 |
| 14 | 3 | 6,815 : 25,174 | (214 + 132 ):298 | 100 | 38.2 |
| 15 | 3 | 1,86 : 25,174 | (228 + 132 ):298 | 100 | 10.9 |
| 16 | 3 | 3,558 : 25,174 | (242 + 132 ):298 | 100 | 21.6 |
| 18 | 3 | 3,276 : 25,174 | (270 + 132 ):298 | 100 | 21.3 |
| | | | | | 271.9 |

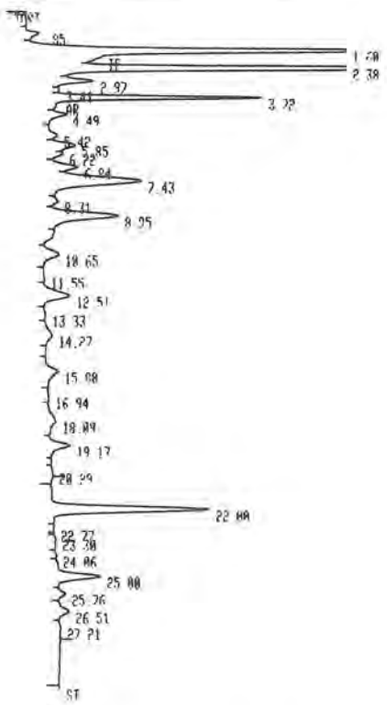
TOTAL MICROGRAMS ALCOHOL ETHOXYLATE =

* FROM ASSUMED EO VALUE 3 . NOTE THAT THIS ASSUMED VALUE MAY NOT BE IN AGREEMENT WITH THE EXPERIMENTAL VALUE CALCULATED FROM THE AVAILABLE DATA.

```
LIST: ZERO =  0, 5.6

LIST: LIST
PEAK CAPACITY= 1151

ZERO   =  0, 5.6
ATT 2? =  9
CHT SP =  0.5
PK WD  =  0.16
THRSH  =  5
AR REJ =  1000000000
```

3A-2

Page 42L




```
RUN #   26                NOV/29/84  14:25:30

ISTD
   RT          AREA TYPE   CAL #        AMOUNT
  7.43  2.3248E+07   BR       1        198.010
  8.95  1.8482E+07   BR       2        157.340
 10.65     4769500   PR       3         40.458
 12.51     8248000   BB       4         69.964
 14.27     2417800   BB       5         20.821
 15.88     3649400   PR       6         30.929
 19.17     4662200   BR       7         39.846
 22.00  3.1467E+07   SPR      8S       100.000

TOTAL AREA= 9.6944E+07
  ISTD AMT= 1.0000E+02
MUL FACTOR= 1.0000E+00
```

```
RUN #   26                NOV/29/84  14:25:30

AREA%
   RT          AREA TYPE   AR/HT        AREA%
 4.49       2370300   BR    0.218        1.889
 5.42        828860   BP    0.184        0.657
 5.85       3606100   BR    0.252        2.868
 6.28        460930 D BR    0.192        0.366
 6.84       3178600   BB    0.234        2.521
 7.43  2.3248E+07   BB    0.326       18.435
 8.31        782600   BR    0.227        0.621
 8.95  1.8482E+07   BB    0.364       14.656
10.65       4769500   PB    0.406        3.782
11.55        215930   BB    0.368        0.171
12.51       8248000   BB    0.488        6.540
13.33        229850   BR    0.233        0.182
14.27       2417800   BB    0.498        1.917
15.88       3649400   PB    0.418        2.894
16.94        249780   BB    0.340        0.198
18.09       3031600   BB    0.571        2.404
19.17       4662200   BB    0.301        3.697
20.29         90295   PB    0.242        0.072
22.00  3.1467E+07   SPB   0.260       24.952
22.77         56947   BR    0.226        0.045
23.30        226370   PB    0.213        0.180
24.06         30920   BB    0.064        0.025
25.00       9683500   BB    0.295        7.679
25.76       1308900   BR    0.254        1.038
26.51       2496400   BB    0.311        1.980
27.21        318740   BR    0.332        0.253

TOTAL AREA= 1.2611E+08
MUL FACTOR= 1.0000E+00
```

```
LIST: ZERO =  0, 6.0

LIST: LIST
PEAK CAPACITY= 1151

ZERO   =  0, 1.5
ATT 2? =  9
CHT SP =  0.5
PK WD  =  0.16
THRSH  =  5
AR REJ =  1000000006
```

3A-2B

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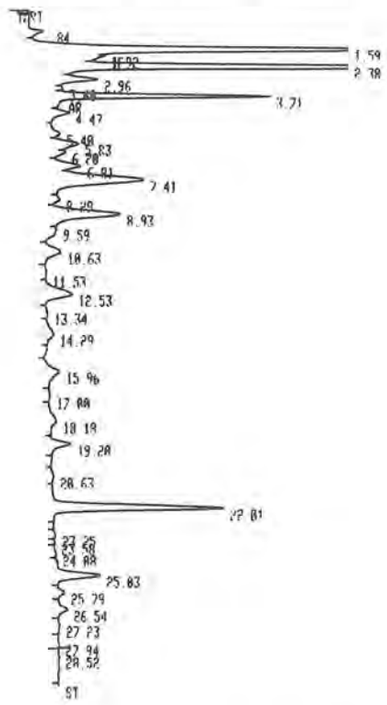



```
RUN #   27                NOV/29/84  15:05:02

ISTD
   RT          AREA TYPE   CAL #        AMOUNT
  7.41  2.3390E+07   BR       1        189.310
  8.93  1.8552E+07   BR       2        150.080
 10.63     4796100   BB       3         38.806
 12.53     8964000   BR       4         72.256
 14.29     2446500   BB       5         20.021
 15.96     4629900   PR       6         37.690
 19.20     4309100   BR       7         34.997
 22.01  3.3113E+07   SPR      8S       100.000

TOTAL AREA= 1.0025E+08
  ISTD AMT= 1.0000E+02
MUL FACTOR= 1.0000E+00
```

```
RUN #   27                NOV/29/84  15:05:02

AREA%
   RT          AREA TYPE   AR/HT        AREA%
 4.47       2332700   BR    0.214        1.773
 5.40        883350   BR    0.189        0.672
 5.83       3658700   BR    0.258        2.782
 6.28        442160 D BB    0.191        0.336
 6.81       3226400   BB    0.234        2.453
 7.41  2.3390E+07   BR    0.376       17.782
 8.29        792570   BB    0.225        0.603
 8.93  1.8552E+07   BR    0.363       14.104
 9.59       1066800   BR    0.259        0.811
10.63       4796100   BR    0.485        3.646
11.53        231130   BB    0.381        0.176
12.53       8964000   BP    0.443        6.815
13.34        232830   BB    0.274        0.177
14.29       2446500   BP    0.497        1.860
15.96       4629900   PB    0.462        3.558
17.00        453370   BP    0.403        0.345
18.18       3065800   BR    0.565        2.331
19.20       4309100   BB    0.285        3.276
20.63        558270   PB    0.344        0.424
22.01  3.3113E+07   SPB   0.250       25.174
23.25        281680   PR    0.229        0.214
23.58         83734   BR    0.158        0.064
24.08        204180   BB    0.298        0.155
25.03       9877200   BB    0.298        7.509
25.79       1217900   BB    0.246        0.926
26.54       2077700   BB    0.299        1.580
27.23        294990   BB    0.284        0.224
27.94         70444   BB    0.239        0.054
28.52        233010   BB    0.461        0.177

TOTAL AREA= 1.3154E+08
MUL FACTOR= 1.0000E+00
```

INDUSTRIAL TESTING LABORATORIES, INC.
ALCOHOL ETHOXYLATE ANALYSIS
REPORT NUMBER 84-5-360, PAGE 43

| | |
|---|---|
| SAMPLE ID | 3A-3 |
| SAMPLE TYPE | EFFLUENT |
| SAMPLE VOLUME | 1000 MILLILITERS |
| ISTD AMOUNT | 100 MICROGRAMS |
| FINAL VOLUME | 250 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 325 * |
| ALCOHOL ETHOXYLATE CONC. = | .24 MG/L |

CALCULATIONS

| ALKYL CHAIN | AVG. EO | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 3 | 20,681 : 26,283 | (172 + 132 ):298 | 100 | 97.4 |
| 12 | 3 | 12,352 : 26,283 | (186 + 132 ):298 | 100 | 61 |
| 13 | 3 | 3,995 : 26,283 | (200 + 132 ):298 | 100 | 17.5 |
| 14 | 3 | 5,924 : 26,283 | (214 + 132 ):298 | 100 | 31.8 |
| 15 | 3 | 1,518 : 26,283 | (228 + 132 ):298 | 100 | 8.5 |
| 16 | 3 | 1,896 : 26,283 | (242 + 132 ):298 | 100 | 11 |
| 18 | 3 | 2,783 : 26,283 | (270 + 132 ):298 | 100 | 17.4 |
| TOTAL MICROGRAMS ALCOHOL ETHOXYLATE = | | | | | 244.6 |

* FROM ASSUMED EO VALUE 3 . NOTE THAT THIS ASSUMED VALUE MAY NOT BE IN AGREEMENT WITH THE EXPERIMENTAL VALUE CALCULATED FROM THE AVAILABLE DATA.

INDUSTRIAL TESTING LABORATORIES, INC.
ALCOHOL ETHOXYLATE ANALYSIS
REPORT NUMBER 84-5-360, PAGE 44

| | |
|---|---|
| SAMPLE ID | 3A-3B |
| SAMPLE TYPE | EFFLUENT |
| SAMPLE VOLUME | 1000 MILLILITERS |
| ISTD AMOUNT | 100 MICROGRAMS |
| FINAL VOLUME | 250 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 325 * |
| ALCOHOL ETHOXYLATE CONC. = | .23 MG/L |

CALCULATIONS

| ALKYL CHAIN | AVG. EO | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 3 | 20.318 : 27.242 | (172 + 132 ):298 | 100 | 92.5 |
| 12 | 3 | 12.19 : 27.242 | (186 + 132 ):298 | 100 | 58.1 |
| 13 | 3 | 3.33 : 27.242 | (200 + 132 ):298 | 100 | 16.6 |
| 14 | 3 | 5.644 : 27.242 | (214 + 132 ):298 | 100 | 29.2 |
| 15 | 3 | 1.546 : 27.242 | (228 + 132 ):298 | 100 | 8.3 |
| 16 | 3 | 2.425 : 27.242 | (242 + 132 ):298 | 100 | 13.6 |
| 18 | 3 | 2.762 : 27.242 | (270 + 132 ):298 | 100 | 16.6 |
| TOTAL MICROGRAMS ALCOHOL ETHOXYLATE = | | | | | 284.9 |

* FROM ASSUMED EO VALUE 3 . NOTE THAT THIS ASSUMED VALUE MAY NOT BE IN AGREEMENT WITH THE EXPERIMENTAL VALUE CALCULATED FROM THE AVAILABLE DATA.

LIST: ZERO = 0, 2.4

LIST: LIST
PEAK CAPACITY: 1151

ZERO = 0, 2.4
ATT 2↑ = 9
CHT SP = 0.5
PK WD = 0.16
THRSH = 5
AR REJ = 1000000000

3A-3
Page 45L


RUN # 78 NOV/29/84 15:42:25

ISTD

| RT | AREA | TYPE | CAL# | AMOUNT |
|---|---|---|---|---|
| 7.41 | 2.5427E+07 | BB | 1 | 210.380 |
| 8.93 | 1.5222E+07 | BB | 2 | 125.890 |
| 10.64 | 4183900 | BB | 3 | 34.477 |
| 12.49 | 7300900 | BB | 4 | 60.162 |
| 14.38 | 1868400 | BB | 5 | 15.630 |
| 15.98 | 2336900 | BB | 6 | 19.248 |
| 19.18 | 3429400 | BB | 7 | 28.474 |
| 21.96 | 3.2391E+07 | SPB | BS | 100.000 |

TOTAL AREA= 9.2160E+07
ISTD AMT= 1.0000E+02
MUL FACTOR= 1.0000E+00

RUN # 78 NOV/29/84 15:42:25

AREA%

| | RT | AREA | TYPE | AR/HT | AREA% |
|---|---|---|---|---|---|
| | 4.47 | 2360400 | BB | 0.224 | 1.915 |
| | 5.48 | 1114400 | BB | 0.284 | 0.904 |
| | 5.83 | 4640800 | BD | 0.258 | 3.766 |
| | 6.23 | 814390 | BB | 0.194 | 0.661 |
| | 6.82 | 2537800 | BB | 0.225 | 2.059 |
| 11 | 7.41 | 2.5427E+07 | BB | 0.378 | 20.631 |
| | 8.38 | 661270 | BB | 0.215 | 0.537 |
| 12 | 8.93 | 1.5222E+07 | BB | 0.346 | 12.352 |
| | 9.61 | 1439000 | BB | 0.547 | 1.168 |
| 13 | 10.64 | 4183900 | BB | 0.409 | 3.395 |
| | 11.51 | 213410 | BB | 0.365 | 0.173 |
| 14 | 12.49 | 7300900 | BB | 0.410 | 5.924 |
| | 13.33 | 316480 | BB | 0.320 | 0.257 |
| 15 | 14.38 | 1868400 | BB | 0.475 | 1.516 |
| | 14.84 | 148150 | BB | 0.210 | 0.120 |
| 16 | 15.98 | 2336900 | BB | 0.542 | 1.896 |
| | 17.02 | 264410 | BB | 0.308 | 0.215 |
| | 18.13 | 2659400 | BB | 0.585 | 2.158 |
| 17 | 19.18 | 3429400 | BB | 0.283 | 2.783 |
| | 19.86 | 36990 | BB | 0.190 | 0.030 |
| | 20.56 | 416150 | BB | 0.463 | 0.338 |
| — | 21.96 | 3.2391E+07 | SPB | 0.252 | 26.283 |
| | 23.21 | 191560 | PB | 0.223 | 0.155 |
| | 23.98 | 163970 | PB | 0.248 | 0.133 |
| | 24.93 | 9264280 | BB | 0.302 | 7.517 |
| | 25.69 | 1171880 | BB | 0.248 | 0.951 |
| | 26.44 | 2259400 | BB | 0.307 | 1.833 |
| | 27.14 | 269730 | BB | 0.273 | 0.219 |
| | 27.83 | 54301 | BB | 0.225 | 0.044 |
| | 29.87 | 84482 | I BH | 0.237 | 0.069 |

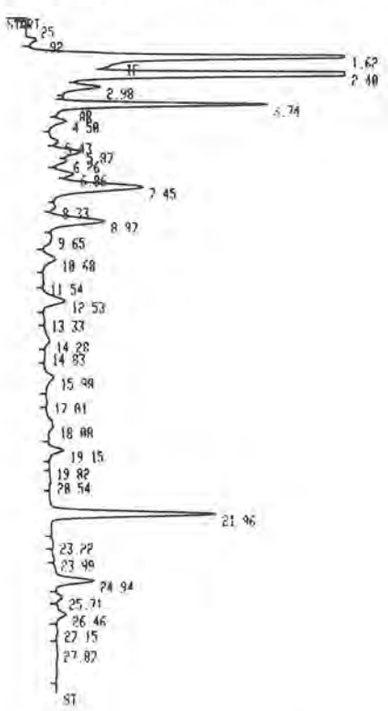
TOTAL AREA= 1.2324E+08
MUL FACTOR= 1.0000E+00

LIST ZERO = 0, 3.0

LIST: LIST
PEAK CAPACITY: 1151

ZERO = 0, 3.0
ATT 2↑ = 9
CHT SP = 0.5
PK WD = 0.16
THRSH = 5
AR REJ = 1000000000

3A-3B
Page 45R




RUN # 79 NOV/29/84 16:28:48

ISTD

| RT | AREA | TYPE | CAL# | AMOUNT |
|---|---|---|---|---|
| 7.45 | 2.4435E+07 | BB | 1 | 109.898 |
| 8.97 | 1.4668E+07 | BB | 2 | 119.870 |
| 10.68 | 4005000 | BB | 3 | 32.629 |
| 12.53 | 6787200 | BB | 4 | 55.296 |
| 14.28 | 1859300 | BB | 5 | 15.379 |
| 15.98 | 2916500 | BB | 6 | 23.748 |
| 19.15 | 3322200 | BB | 7 | 27.271 |
| 21.96 | 3.2762E+07 | SPB | BS | 100.000 |

TOTAL AREA= 9.0748E+07
ISTD AMT= 1.0000E+02
MUL FACTOR= 1.0000E+00

RUN # 79 NOV/29/84 16:28:48

AREA%

| | RT | AREA | TYPE | AR/HT | AREA% |
|---|---|---|---|---|---|
| | 4.50 | 2222900 | BB | 0.238 | 1.848 |
| | 5.43 | 911360 | BB | 0.199 | 0.758 |
| | 5.87 | 4273100 | BB | 0.264 | 3.553 |
| | 6.26 | 655030 | BB | 0.198 | 0.545 |
| | 6.86 | 2263900 | BB | 0.226 | 1.883 |
| 11 | 7.45 | 2.4435E+07 | BB | 0.383 | 20.319 |
| | 8.33 | 617340 | BB | 0.218 | 0.513 |
| 12 | 8.97 | 1.4668E+07 | BB | 0.350 | 12.198 |
| | 9.65 | 1362000 | BB | 0.555 | 1.133 |
| 13 | 10.68 | 4005000 | BB | 0.410 | 3.330 |
| | 11.54 | 197890 | BB | 0.354 | 0.165 |
| 14 | 12.53 | 6787200 | BB | 0.491 | 5.644 |
| | 13.33 | 208890 | BB | 0.278 | 0.174 |
| 15 | 14.28 | 1859300 | BB | 0.482 | 1.546 |
| | 14.83 | 143900 | BB | 0.212 | 0.120 |
| 16 | 15.98 | 2916500 | BB | 0.428 | 2.425 |
| | 17.01 | 283530 | BB | 0.332 | 0.236 |
| | 18.08 | 2610700 | BB | 0.602 | 2.171 |
| 17 | 19.15 | 3322200 | BB | 0.286 | 2.762 |
| | 19.82 | 35766 | BB | 0.179 | 0.030 |
| | 20.54 | 395930 | BB | 0.458 | 0.329 |
| — | 21.96 | 3.2762E+07 | SPB | 0.256 | 27.242 |
| | 23.22 | 187510 | BB | 0.219 | 0.156 |
| | 23.99 | 95671 | BB | 0.144 | 0.080 |
| | 24.94 | 8952500 | BB | 0.383 | 7.444 |
| | 25.71 | 1128000 | BB | 0.248 | 0.938 |
| | 26.46 | 2223500 | BB | 0.314 | 1.849 |
| | 27.15 | 273110 | BB | 0.277 | 0.227 |
| | 27.87 | 472470 | BB | 0.835 | 0.393 |

TOTAL AREA= 1.2026E+08
MUL FACTOR= 1.0000E+00

INDUSTRIAL TESTING LABORATORIES, INC.
ALCOHOL ETHOXYLATE ANALYSIS
REPORT NUMBER 84-5-360, PAGE 46

| | |
|---|---|
| SAMPLE ID | 3C |
| SAMPLE TYPE | EFFLUENT |
| SAMPLE VOLUME | 1000 MILLILITERS |
| ISTD AMOUNT | 100 MICROGRAMS |
| FINAL VOLUME | 250 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 526 ** |
| ALCOHOL ETHOXYLATE CONC. = | .48 MG/L |

CALCULATIONS

| ALKYL CHAIN | AVG. EO ** | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 7.5 | 20,098 : 23,419 | (172 + 328.733 ):298 | 100 | 175.3 |
| 12 | 7.5 | 11,791 : 23,419 | (186 + 328.733 ):298 | 100 | 105.7 |
| 13 | 7.5 | 3,488 : 23,419 | (200 + 328.733 ):298 | 100 | 32.1 |
| 14 | 7.5 | 7,149 : 23,419 | (214 + 328.733 ):298 | 100 | 67.6 |
| 15 | 7.5 | 2,192 : 23,419 | (228 + 328.733 ):298 | 100 | 21.3 |
| 16 | 7.5 | 3,547 : 23,419 | (242 + 328.733 ):298 | 100 | 35.3 |
| 18 | 7.5 | 3,624 : 23,419 | (270 + 328.733 ):298 | 100 | 37.8 |
| TOTAL MICROGRAMS ALCOHOL ETHOXYLATE = | | | | | 475.1 |

** FROM EXPERIMENTAL EO VALUE. DUE TO INTERFERENCES FROM THE PHENYL ISOCYANATI
REVERSE PHASE FRACTIONATION WAS NECESSARY FOR ACCURATE EO ISOMER IDENTIFICATI(
BY NORMAL PHASE LIQUID CHROMATOGRAPHY.

INDUSTRIAL TESTING LABORATORIES, INC.
ALCOHOL ETHOXYLATE ANALYSIS
REPORT NUMBER 84-5-360, PAGE 47

| | |
|---|---|
| SAMPLE ID | 3C-B |
| SAMPLE TYPE | EFFLUENT |
| SAMPLE VOLUME | 1000 MILLILITERS |
| ISTD AMOUNT | 100 MICROGRAMS |
| FINAL VOLUME | 250 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 526 ** |
| ALCOHOL ETHOXYLATE CONC. = | .47 MG/L |

CALCULATIONS

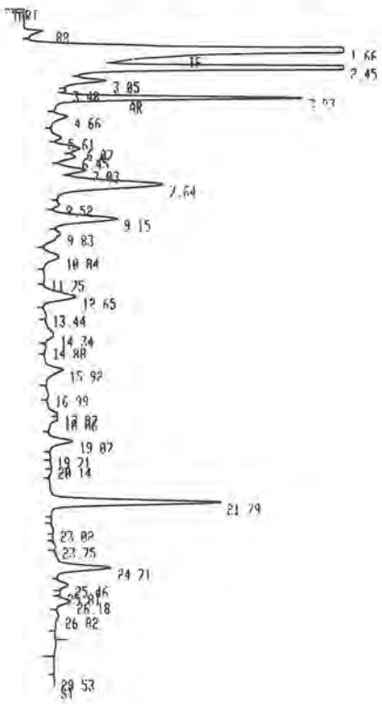
| ALKYL CHAIN | AVG. EO ** | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 7.5 | 19,991 : 28,706 | (172 + 328.733 ):298 | 100 | 172.3 |
| 12 | 7.5 | 11,721 : 28,706 | (186 + 328.733 ):298 | 100 | 103.8 |
| 13 | 7.5 | 8,466 : 28,706 | (200 + 328.733 ):298 | 100 | 81.5 |
| 14 | 7.5 | 7,108 : 28,706 | (214 + 328.733 ):298 | 100 | 66.4 |
| 15 | 7.5 | 2,193 : 28,706 | (228 + 328.733 ):298 | 100 | 21 |
| 16 | 7.5 | 3,533 : 28,706 | (242 + 328.733 ):298 | 100 | 34.7 |
| 18 | 7.5 | 3,615 : 28,706 | (270 + 328.733 ):298 | 100 | 37.3 |
| | | | | | 467 |

TOTAL MICROGRAMS ALCOHOL ETHOXYLATE = 467

** FROM EXPERIMENTAL EO VALUE. DUE TO INTERFERENCES FROM THE PHENYL ISOCYANATE, REVERSE PHASE FRACTIONATION WAS NECESSARY FOR ACCURATE EO ISOMER IDENTIFICATION BY NORMAL PHASE LIQUID CHROMATOGRAPHY.

```
LIST: ZERO =  0, 4.0

LIST: LIST
PEAK CAPACITY: 1151

ZERO   =  0, 4.1
ATT 2↑ =  9
CHT SP =  0.5
PK WD  =  0.16
THRSH  =  5
AR REJ =  1000000000
```

3-C
Page 48L

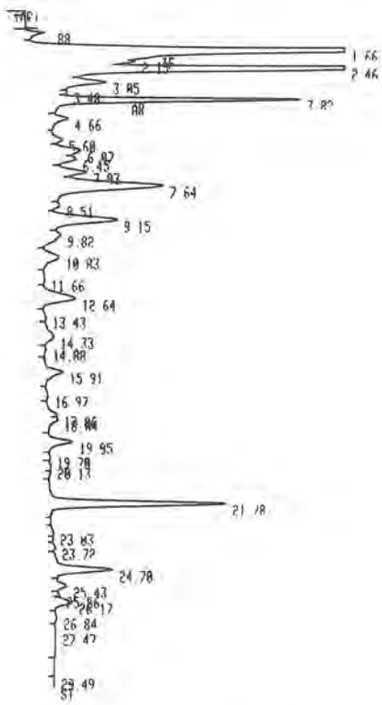



```
RUN #  127              DEC/14/84  14:04:49

ISTD
   RT          AREA TYPE  CAL#        AMOUNT
 7.03       3874800   BB     1        31.168
 9.15  1.6775E+07   BB     2       134.870
10.84       4962600   BB     3        39.757
12.65  1.0170E+07   BB     4        81.476
14.34       3118100   BB     5        25.359
15.92       5046000   BB     6        40.389
19.07       5156400   BB     7        41.621
21.79  3.3318E+07  SPB    8S       100.000

TOTAL AREA= 8.2421E+07
  ISTD AMT= 1.0000E+02
MUL FACTOR= 1.0000E+00
```

```
RUN #  127              DEC/14/84  14:04:49

AREA%
   RT          AREA TYPE   AR/HT       AREA%
 4.66       2831600   BB   0.250        1.998
 5.61       1150100   BB   0.199        0.808
 6.07       3085700   BB   0.257        2.169
 6.45       1456200   BB   0.214        1.024
 7.03       3874800   BB   0.234        2.724
 7.64  2.8593E+07   BB   0.376       20.098 —
 8.52        703700   BB   0.216        0.495
 9.15  1.6775E+07   BB   0.342       11.791—
 9.83       2701100   BB   0.422        1.899
10.84       4962600   BB   0.409        3.488—
11.75        269260   BB   0.404        0.189
12.65  1.0170E+07   BB   0.406        7.149—
13.44        265840   BB   0.261        0.187
14.34       3118100   BB   0.477        2.192—
14.88        160890   BB   0.210        0.113
15.92       5046000   BB   0.368        3.547—
16.99        463310   BB   0.299        0.326
19.07       5156400   BB   0.281        3.624—
19.71         87582   BB   0.185        0.062
20.14         69605   BB   0.169        0.049
21.79  3.3318E+07  SPB   0.253       23.419 —
23.02        169100   PB   0.191        0.119
23.75        304610   PB   0.204        0.214
24.71  1.2724E+07   BB   0.298        8.944
25.46       1791300   BB   0.240        1.259
25.81        112740   BP   0.122        0.079
26.18       2311300   BB   0.247        1.625
26.82        516230   BB   0.290        0.363
29.53         79298 I PP   0.215        0.056

TOTAL AREA= 1.4227E+08
MUL FACTOR= 1.0000E+00
```

```
LIST: ZERO =  0, 1.4

LIST: LIST
PEAK CAPACITY: 1151

ZERO   =  0, 1.5
ATT 2↑ =  9
CHT SP =  0.5
PK WD  =  0.16
THRSH  =  5
AR REJ =  1000000000
```

3C-B
Page 48R




```
RUN #  128              DEC/14/84  14:44:31

ISTD
   RT          AREA TYPE  CAL#        AMOUNT
 7.03       3869500   BB     1        30.613
 9.15  1.6749E+07   BB     2       132.448
10.83       4953100   BB     3        39.026
12.64  1.0158E+07   BP     4        80.032
14.33       3134100   BB     5        25.069
15.91       5049100   BB     6        39.747
19.05       5165300   BB     7        41.006
21.78  3.3877E+07  SPB    8S       100.000

TOTAL AREA= 8.2955E+07
  ISTD AMT= 1.0000E+02
MUL FACTOR= 1.0000E+00
```

```
RUN #  128              DEC/14/84  14:44:31

AREA%
   RT          AREA TYPE   AR/HT       AREA%
 4.66       2768900   BP   0.252        1.938
 5.60       1137500   BB   0.197        0.796
 6.07       3045500   BB   0.259        2.131
 6.45       1439600   BB   0.215        1.007
 7.03       3869500   BB   0.235        2.708
 7.64  2.8568E+07   BB   0.376       19.991—
 8.51        681470   BB   0.211        0.477
 9.15  1.6749E+07   BB   0.342       11.721—
 9.82       2709600   BB   0.421        1.896
10.83       4953100   BB   0.408        3.466—
11.66        264630   BB   0.413        0.185
12.64  1.0158E+07   BP   0.406        7.108—
13.43        248120   BB   0.247        0.174
14.33       3134100   BB   0.478        2.193—
14.88        156990   BB   0.194        0.110
15.91       5049100   BB   0.368        3.533—
16.97        468800   BB   0.304        0.328
19.05       5165300   BB   0.280        3.615—
19.78         89482   BB   0.186        0.063
20.13         79668   BB   0.190        0.056
21.78  3.3877E+07  SPB   0.249       23.706—
23.03         85520   PB   0.152        0.060
23.72        280560   PB   0.201        0.196
24.70  1.2486E+07   BB   0.286        8.738
25.43       1765900   BB   0.240        1.236
25.86         71512   BB   0.153        0.050
26.17       2789000   BB   0.244        1.952
26.84        350570   BB   0.281        0.245
27.47        381160   BB   0.725        0.267
29.49         82069 I PP   0.205        0.057

TOTAL AREA= 1.4291E+08
MUL FACTOR= 1.0000E+00
```

INDUSTRIAL TESTING LABORATORIES, INC.
ALCOHOL ETHOXYLATE ANALYSIS
REPORT NUMBER 84-5-360, PAGE 49

| | |
|---|---|
| SAMPLE ID | 8C |
| SAMPLE TYPE | EFFLUENT |
| SAMPLE VOLUME | 1000 MILLILITERS |
| ISTD AMOUNT | 100 MICROGRAMS |
| FINAL VOLUME | 250 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 329 * |
| ALCOHOL ETHOXYLATE CONC. = | .3 MG/L |

CALCULATIONS

| ALKYL CHAIN | AVG. EO | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 8 | 20,098 : 23,419 | (172 + 132 ):298 | 100 | 106.4 |
| 12 | 8 | 11,791 : 23,419 | (186 + 132 ):298 | 100 | 65.8 |
| 13 | 8 | 3,488 : 23,419 | (200 + 132 ):298 | 100 | 20.2 |
| 14 | 8 | 7,149 : 23,419 | (214 + 132 ):298 | 100 | 43.1 |
| 15 | 8 | 2,192 : 23,419 | (228 + 132 ):298 | 100 | 13.7 |
| 16 | 8 | 3,547 : 23,419 | (242 + 132 ):298 | 100 | 23.1 |
| 18 | 8 | 3,624 : 23,419 | (270 + 132 ):298 | 100 | 25.4 |
| TOTAL MICROGRAMS ALCOHOL ETHOXYLATE = | | | | | 297.2 |

* FROM ASSUMED EO VALUE 8 . NOTE THAT THIS ASSUMED VALUE MAY NOT BE IN AGREEMENT WITH THE EXPERIMENTAL VALUE CALCULATED FROM THE AVAILABLE DATA.

INDUSTRIAL TESTING LABORATORIES, INC.
ALCOHOL ETHOXYLATE ANALYSIS
REPORT NUMBER 84-5-360, PAGE 50

| | |
|---|---|
| SAMPLE ID | 3C-B |
| SAMPLE TYPE | EFFLUENT |
| SAMPLE VOLUME | 1000 MILLILITERS |
| ISTD AMOUNT | 100 MICROGRAMS |
| FINAL VOLUME | 250 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 329 * |
| ALCOHOL ETHOXYLATE CONC. = | .29 MG/L |

CALCULATIONS

| ALKYL CHAIN | AVG. EO | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 3 | 19,991 : 23,706 | (172 + 132 ):298 | 100 | 104.6 |
| 12 | 3 | 11,721 : 23,706 | (186 + 132 ):298 | 100 | 54.1 |
| 13 | 3 | 3,466 : 23,706 | (200 + 132 ):298 | 100 | 19.8 |
| 14 | 3 | 7,108 : 23,706 | (214 + 132 ):298 | 100 | 42.3 |
| 15 | 3 | 2,193 : 23,706 | (228 + 132 ):298 | 100 | 13.6 |
| 16 | 3 | 3,583 : 23,706 | (242 + 132 ):298 | 100 | 22.7 |
| 18 | 3 | 3,615 : 23,706 | (270 + 132 ):298 | 100 | 25 |
| TOTAL MICROGRAMS ALCOHOL ETHOXYLATE = | | | | | 292.1 |

* FROM ASSUMED EO VALUE 3 . NOTE THAT THIS ASSUMED VALUE MAY NOT BE IN AGREEMENT WITH THE EXPERIMENTAL VALUE CALCULATED FROM THE AVAILABLE DATA.

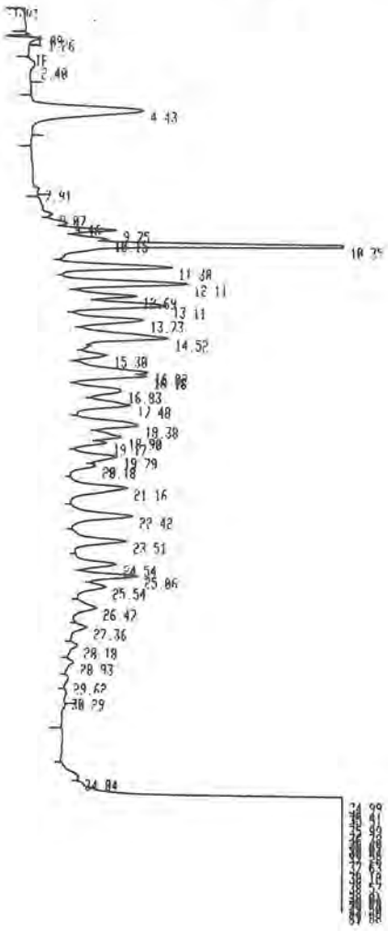
LIST: ZERO = 0, 0.6

LIST: LIST
PEAK CAPACITY: 1159

ZERO = 0, 0.4
ATT 2^ = 7
CHT SP = 0.5
PK WD = 0.16
THRSH = 6
AR REJ = 1000

Fractioned
3C
20µl/100µl

Page 51L



RUN # 164 DEC/28/84 16:00:58

AREA%

| RT | AREA | TYPE | AR/HT | AREA% |
|---|---|---|---|---|
| 1.09 | 533020 | BP | 0.115 | 0.220 |
| 1.26 | 1397100 | PB | 0.193 | 0.576 |
| 2.40 | 437220 | PB | 0.370 | 0.180 |
| 4.43 | 9773700 | BB | 0.449 | 4.029 |
| 9.07 | 157380 | PB | 0.129 | 0.065 |
| 9.46 | 298620 | BB | 0.172 | 0.123 |
| 9.75 | 1527500 | BB | 0.162 | 0.630 -2 |
| 10.15 | 286910 | BB | 0.133 | 0.118 |
| 10.35 | 1.2323E+07 | SPB | 0.132 | 5.079 |
| 11.38 | 5423800 | BB | 0.254 -2 | 2.236 -3 |
| 12.11 | 6098200 | BB | 0.268 | 2.514 |
| 12.69 | 1721100 | BB | 0.186 | 0.709 |
| 13.11 | 3985300 | BB | 0.256 -3 | 1.643 -4 |
| 13.73 | 3559700 | BB | 0.272 | 1.467 |
| 14.52 | 4933100 | DB | 0.314 -4 | 2.033 -5 |
| 15.30 | 1194700 | PB | 0.225 | 0.491 |
| 16.02 | 63635 | BB | 0.021 } -5 | 0.026 } -6 |
| 16.18 | 360980 D | BB | 0.099 } | 0.149 } |
| 16.83 | 2390100 | BB | 0.330 | 0.985 |
| 17.48 | 2585200 | BB | 0.286 -6 | 1.033 -7 |
| 18.38 | 3247600 | BB | 0.342 | 1.339 |
| 18.90 | 1036700 | BB | 0.225 -7 | 0.427 -8 |
| 19.17 | 349140 | BB | 0.128 | 0.144 |
| 19.79 | 1687700 | BB | 0.266 -8 | 0.696 -9 |
| 20.18 | 132630 | BB | 0.086 | 0.055 |
| 21.16 | 4388000 | BB | 0.400 -9 | 1.809 -10 |
| 22.42 | 4070100 | BB | 0.342 -10 | 1.678 -11 |
| 23.51 | 3112600 | BB | 0.306 -11 | 1.283 -12 |
| 24.54 | 1881100 | BB | 0.263 -12 | 0.775 -13 |
| 25.06 | 2223800 | BB | 0.223 | 0.917 |
| 25.54 | 843760 | BB | 0.229 -13 | 0.348 -14 |
| 26.47 | 1473600 | BB | 0.359 -14 | 0.607 -15 |
| 27.36 | 910820 | BB | 0.320 -15 | 0.375 -16 |
| 28.18 | 434280 | BB | 0.292 -16 | 0.179 -17 |
| 28.93 | 377090 | BB | 0.293 -17 | 0.155 -18 |
| 29.62 | 246710 | BB | 0.315 -18 | 0.102 -19 |
| 30.29 | 123840 | BB | 0.256 -19 | 0.051 -20 |
| 34.84 | 140760 | PB | 0.208 | 0.058 |
| 35.41 | 222920 | DSPB | 0.070 | 0.092 |
| 35.51 | 612570 | DSPB | 0.202 | 0.253 |
| 35.99 | 3711600 | SPB | 0.251 | 1.530 |
| 36.38 | 217870 | SPB | 0.134 | 0.090 |
| 36.64 | 1071800 | SPB | 0.149 | 0.442 |
| 36.83 | 694730 | SPB | 0.138 | 0.286 |
| 36.94 | 174630 | DSPB | 0.066 | 0.072 |
| 37.28 | 1663900 | SPB | 0.164 | 0.686 |
| 37.63 | 2220000 | SPB | 0.216 | 0.915 |
| 37.83 | 7.9033E+07 | SPP | 143.868 | 32.576 |
| 38.10 | 1907800 | SPB | 0.380 | 0.786 |
| 38.53 | 898560 | SPB | 0.106 | 0.370 |
| 38.71 | 6.1724E+07 | SPP | 45.493 | 25.441 |
| 39.01 | 737660 | SPB | 0.172 | 0.304 |
| 39.22 | 480440 | SPB | 0.112 | 0.198 |
| 39.37 | 111590 | SPB | 0.054 | 0.046 |
| 39.58 | 1238200 | SPB | 0.180 | 0.510 |
| 39.88 | 245960 | ISPH | 0.110 | 0.101 |

TOTAL AREA= 2.4261E+08
MUL FACTOR= 1.0000E+00

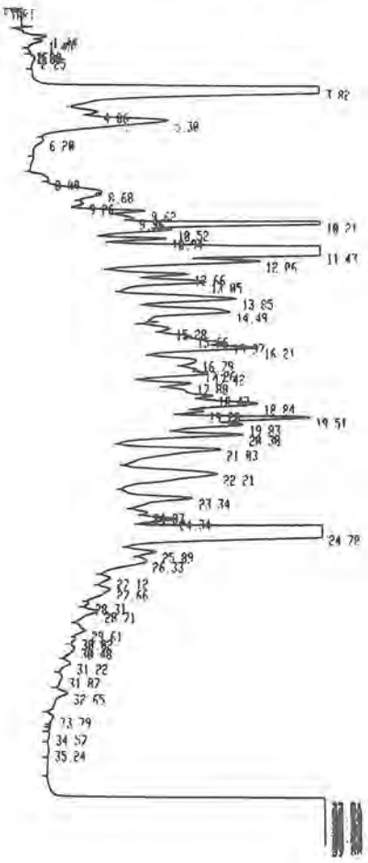
LIST: ZERO = 0, 1.3

LIST: LIST
PEAK CAPACITY: 1159

ZERO = 0, 1.3
ATT 2^ = 9
CHT SP = 0.5
PK WD = 0.16
THRSH = 6
AR REJ = 1000

Unfractioned
3C
20µl/100µl

Page 51R



RUN # 171 JAN/03/85 17:15:27

AREA%

| RT | AREA | TYPE | AR/HT | AREA% |
|---|---|---|---|---|
| 1.24 | 3794500 | PV | 0.198 | 0.365 |
| 1.45 | 2958000 D | VV | 0.284 | 0.284 |
| 2.00 | 76497 | VB | 0.097 | 0.007 |
| 2.25 | 1192200 | BB | 0.300 | 0.115 |
| 3.82 | 1.7802E+08 | †SPB | 0.362 | 17.128 |
| 4.86 | 2553600 | BP | 0.196 | 0.246 |
| 5.30 | 3.2592E+07 | BB | 0.426 | 3.136 |
| 6.20 | 381190 | BB | 0.175 | 0.037 |
| 8.09 | 1462700 | PB | 0.435 | 0.141 |
| 8.68 | 887180 | BP | 0.112 | 0.085 |
| 9.26 | 897820 | PB | 0.171 | 0.086 |
| 9.62 | 5849700 | BP | 0.149 | 0.563 |
| 9.96 | 1121500 | BB | 0.179 | 0.108 |
| 10.21 | 5.7109E+07 | SPB | 0.145 | 5.495 |
| 10.52 | 2538800 | DSPB | 0.114 | 0.244 |
| 10.94 | 6543500 | SPB | 0.135 | 0.630 |
| 11.43 | 1.8879E+08 | †SPB | 0.454 | 18.165 |
| 12.06 | 1.5774E+07 | BB | 0.212 | 1.518 |
| 12.66 | 7348700 | BB | 0.159 | 0.707 |
| 13.05 | 1.3769E+07 | BB | 0.245 | 1.325 |
| 13.35 | 2.5381E+07 | BB | 0.302 | 2.442 |
| 14.49 | 2.3920E+07 | BB | 0.342 | 2.302 |
| 15.28 | 2553800 | PB | 0.209 | 0.246 |
| 15.66 | 547000 | BB | 0.103 | 0.053 |
| 15.97 | 2006800 | BB | 0.136 | 0.193 |
| 16.21 | 9122900 | BB | 0.177 | 0.878 |
| 16.79 | 6800500 | BB | 0.287 | 0.654 |
| 17.26 | 322670 | BB | 0.149 | 0.031 |
| 17.42 | 3761400 D | BB | 0.164 | 0.362 |
| 17.88 | 5062500 | BB | 0.165 | 0.487 |
| 18.47 | 3820500 | BB | 0.236 | 0.368 |
| 18.84 | 1.2019E+07 | BB | 0.240 | 1.156 |
| 19.20 | 1558100 | BB | 0.123 | 0.150 |
| 19.51 | 1.6466E+07 | SPB | 0.182 | 1.584 |
| 19.83 | 3653000 | SPB | 0.137 | 0.352 |
| 20.30 | 1.3834E+07 | SPB | 0.194 | 1.331 |
| 21.03 | 3.2239E+07 | SPB | 0.392 | 3.102 |
| 22.21 | 3.9881E+07 | SPB | 0.515 | 3.837 |
| 23.34 | 1.7089E+07 | SPB | 0.314 | 1.644 |
| 24.03 | 924380 | SPB | 0.149 | 0.089 |
| 24.34 | 5602800 | SPB | 0.211 | 0.539 |
| 24.78 | 2.3467E+08 | †SPB | 0.550 | 22.579 |
| 25.89 | 3814000 | BB | 0.287 | 0.367 |
| 26.33 | 5159800 | BB | 0.344 | 0.496 |
| 27.12 | 1984300 | BB | 0.249 | 0.191 |
| 27.66 | 4939700 | BB | 0.409 | 0.475 |
| 28.31 | 265520 D | BB | 0.144 | 0.026 |
| 28.71 | 3904700 | BB | 0.289 | 0.376 |
| 29.61 | 2569700 | BB | 0.322 | 0.247 |
| 30.02 | 365410 | BB | 0.203 | 0.035 |
| 30.48 | 1857100 | BB | 0.378 | 0.179 |
| 31.22 | 1631500 | BB | 0.251 | 0.157 |
| 31.87 | 865630 | BB | 0.342 | 0.083 |
| 32.65 | 4352600 | BB | 0.434 | 0.419 |
| 33.79 | 979800 | BB | 0.255 | 0.094 |
| 34.57 | 367150 | PB | 0.237 | 0.035 |
| 35.24 | 341970 | BB | 0.395 | 0.033 |
| 37.91 | 924800 | DSPP | 0.059 | 0.094 |
| 38.09 | 857180 | SPB | 0.060 | 0.083 |
| 38.22 | 2464100 | SPB | 0.083 | 0.237 |
| 38.39 | 1784500 | SPB | 0.086 | 0.172 |
| 38.55 | 1347600 | DSPP | 0.079 | 0.130 |
| 38.74 | 1522000 | SPB | 0.071 | 0.147 |
| 38.89 | 1943300 | SPP | 0.077 | 0.187 |
| 39.04 | 2200000 | DSPB | 0.078 | 0.213 |
| 39.24 | 1987700 | DSPB | 0.077 | 0.191 |
| 39.43 | 1529500 | SPB | 0.066 | 0.147 |
| 39.56 | 2287100 | DSPB | 0.082 | 0.220 |
| 39.72 | 1454200 | SPB | 0.057 | 0.140 |
| 39.88 | 662930 | SPB | 0.060 | 0.064 |

TOTAL AREA= 1.0393E+09
MUL FACTOR= 1.0000E+00

INDUSTRIAL TESTING LABORATORIES, INC.
ALCOHOL ETHOXYLATE ANALYSIS
REPORT NUMBER 84-5-360, PAGE 52

| | |
|---|---|
| SAMPLE ID | 4A-1 |
| SAMPLE TYPE | EFFLUENT |
| SAMPLE VOLUME | 5000 MILLILITERS |
| ISTD AMOUNT | 100 MICROGRAMS |
| FINAL VOLUME | 250 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 327 * |
| ALCOHOL ETHOXYLATE CONC. = | .04 MG/L |

CALCULATIONS

| ALKYL CHAIN | AVG. EO | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 8 | 23.661 : 27.107 | (172 + 132 ):298 | 100 | 108.8 |
| 12 | 8 | 1.394 : 27.107 | (186 + 132 ):298 | 100 | 6.7 |
| 13 | 8 | 2.916 : 27.107 | (200 + 132 ):298 | 100 | 14.6 |
| 14 | 8 | 3.001 : 27.107 | (214 + 132 ):298 | 100 | 15.6 |
| 15 | 0 | 0: 27.107 | (NO CALCULATION):298 | 100 | 0 |
| 16 | 8 | 3.134 : 27.107 | (242 + 132 ):298 | 100 | 17.6 |
| 18 | 8 | 4.255 : 27.107 | (270 + 132 ):298 | 100 | 25.7 |
| TOTAL MICROGRAMS ALCOHOL ETHOXYLATE = | | | | | 188.5 |

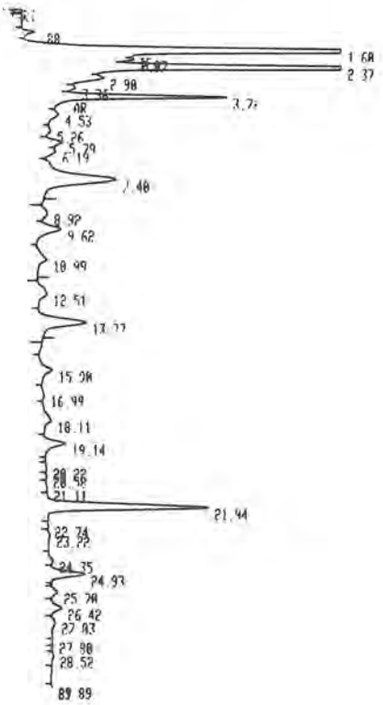
* FROM ASSUMED EO VALUE 8 . NOTE THAT THIS ASSUMED VALUE MAY NOT BE IN AGREEMENT WITH THE EXPERIMENTAL VALUE CALCULATED FROM THE AVAILABLE DATA.

LIST: ZERO = 0, 2.3

LIST: LIST
PEAK CAPACITY: 1151

ZERO = 0, 2.3
ATT 2^ = 9
CNT SP = 0.5
PK WD = 0.16
THRSH = 5
AR REJ = 1000000000

4A-1
Page 54L




RUN 0 80 NOV/29/84 17:02:27

ISTD

| RT | AREA | TYPE | CAL# | AMOUNT |
|---|---|---|---|---|
| 7.40 | 2.7457E+07 | BB | 1 | 973.940 |
| 8.92 | 1617700 | PR | 2 | 13.777 |
| 10.99 | 3384100 | BR | 3 | 28.717 |
| 12.51 | 3482700 | BB | 4 | 29.553 |
| 13.77 | 1.3711E+07 | BB | 5 | 118.120 |
| 15.90 | 3636400 | PB | 6 | 30.834 |
| 19.14 | 4937000 | BB | 7 | 42.211 |
| 21.94 | 3.1455E+07 | SPR | 8S | 100.000 |

TOTAL AREA= 8.9681E+07
ISTD AMT= 1.0000E+02
MUL FACTOR= 1.0000E+00

RUN 0 80 NOV/29/84 17:02:27

AREA%

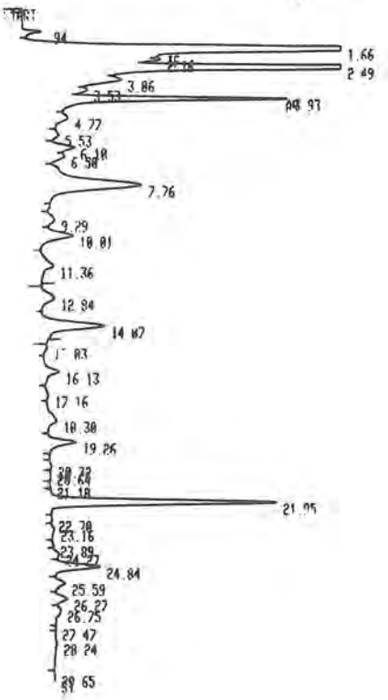
| | RT | AREA | TYPE | AR/HT | AREA% |
|---|---|---|---|---|---|
| | 4.53 | 1298380 | BB | 0.277 | 1.119 |
| | 5.26 | 678680 | BR | 0.276 | 0.585 |
| | 5.79 | 2159900 | BB | 0.231 | 1.861 |
| | 6.19 | 858770 | BR | 0.275 | 0.740 |
| 11 | 7.40 | 2.7457E+07 | BB | 0.496 | 23.661 |
| 12 | 8.92 | 1617700 | PB | 0.373 | 1.394 |
| | 9.62 | 5512100 | BB | 0.345 | 4.750 |
| 13 | 10.99 | 3384100 | BR | 0.462 | 2.916 |
| 14 | 12.51 | 3482700 | BR | 0.496 | 3.001 |
| 7 15 | 13.77 | 1.3711E+07 | BR | 0.390 | 11.816 |
| 16 | 15.90 | 3636400 | PB | 0.483 | 3.134 |
| | 16.99 | 439880 | BR | 0.343 | 0.379 |
| | 18.11 | 2894300 | BB | 0.504 | 2.494 |
| 18 | 19.14 | 4937000 | BB | 0.303 | 4.255 |
| | 20.22 | 145450 | PB | 0.230 | 0.125 |
| | 20.58 | 84551 | BR | 0.181 | 0.073 |
| | 21.11 | 89531 | BB | 0.266 | 0.077 |
| 8 | 21.94 | 3.1455E+07 | SPR | 0.252 | 27.107 |
| | 22.74 | 69895 | BR | 0.215 | 0.060 |
| | 23.22 | 397800 | BR | 0.292 | 0.343 |
| | 24.35 | 81713 | BR | 0.052 | 0.070 |
| | 24.93 | 6969100 | BB | 0.272 | 6.006 |
| | 25.70 | 1166200 | VB | 0.258 | 1.005 |
| | 26.42 | 2200400 | BR | 0.296 | 1.896 |
| | 27.03 | 864090 | BB | 0.343 | 0.745 |
| | 27.90 | 77117 | BR | 0.262 | 0.067 |
| | 28.52 | 335720 | VB | 0.286 | 0.289 |
| | 29.89 | 38866 | I PP | 0.140 | 0.033 |

TOTAL AREA= 1.1604E+08
MUL FACTOR= 1.0000E+00

LIST: LIST
PEAK CAPACITY: 1151

ZERO = 0, 3.6
ATT 2^ = 9
CNT SP = 0.5
PK WD = 0.16
THRSH = 5
AR REJ = 1000000000

4A-1B
Page 54R




RUN 0 85 DEC/03/84 12:38:36

ISTD

| RT | AREA | TYPE | CAL# | AMOUNT |
|---|---|---|---|---|
| 7.76 | 3.5757E+07 | BR | 1 | 917.970 |
| 9.29 | 1966100 | PR | 2 | 11.988 |
| 10.01 | 7422600 | BB | 3 | 45.064 |
| 12.84 | 4455900 | BR | 4 | 27.052 |
| 14.07 | 1.7373E+07 | BB | 5 | 107.000 |
| 16.13 | 3971200 | BR | 6 | 24.088 |
| 19.26 | 6293900 | BR | 7 | 38.581 |
| 21.95 | 4.3964E+07 | SPR | 8S | 100.000 |

TOTAL AREA= 1.2120E+08
ISTD AMT= 1.0000E+02
MUL FACTOR= 1.0000E+00

RUN 0 85 DEC/03/84 12:38:36

AREA%

| | RT | AREA | TYPE | AR/HT | AREA% |
|---|---|---|---|---|---|
| | 4.77 | 1709900 | BR | 0.277 | 1.108 |
| | 5.53 | 1010000 | BR | 0.296 | 0.655 |
| | 6.18 | 2893800 | BB | 0.236 | 1.876 |
| | 6.58 | 1177500 | BB | 0.303 | 0.763 |
| 11 | 7.76 | 3.5757E+07 | BR | 0.509 | 23.176 |
| 12 | 9.29 | 1966100 | PB | 0.373 | 1.274 |
| | 10.01 | 7422600 | BB | 0.347 | 4.811 |
| 13 | 11.36 | 4518400 | BR | 0.478 | 2.929 |
| 14 | 12.84 | 4455900 | BB | 0.468 | 2.888 |
| 7 10 | 14.07 | 1.7373E+07 | BR | 0.378 | 11.260 |
| | 15.03 | 264030 | BB | 0.242 | 0.171 |
| 16 | 16.13 | 3971200 | BB | 0.354 | 2.574 |
| | 17.16 | 463350 | BB | 0.332 | 0.300 |
| | 18.38 | 3548400 | BB | 0.494 | 2.300 |
| 18 | 19.26 | 6293900 | BB | 0.293 | 4.079 |
| | 20.32 | 221210 | PB | 0.220 | 0.143 |
| | 20.64 | 77723 | BR | 0.161 | 0.050 |
| | 21.18 | 36656 | BR | 0.168 | 0.024 |
| 9 | 21.95 | 4.3964E+07 | SPR | 0.251 | 28.496 |
| | 22.78 | 76119 | BB | 0.217 | 0.049 |
| | 23.16 | 557400 | BB | 0.301 | 0.361 |
| | 23.89 | 64674 | BB | 0.156 | 0.042 |
| | 24.27 | 662030 | BB | 0.224 | 0.429 |
| | 24.84 | 9339400 | BB | 0.275 | 6.053 |
| | 25.59 | 2016400 | BB | 0.272 | 1.307 |
| | 26.27 | 2127800 | BB | 0.266 | 1.379 |
| | 26.75 | 1067100 | BR | 0.372 | 0.692 |
| | 27.47 | 83413 | BB | 0.223 | 0.054 |
| | 28.24 | 1022500 | BR | 0.593 | 0.663 |
| | 29.65 | 143010 | I BP | 0.225 | 0.093 |

TOTAL AREA= 1.5428E+08
MUL FACTOR= 1.0000E+00

INDUSTRIAL TESTING LABORATORIES, INC.
ALCOHOL ETHOXYLATE ANALYSIS
REPORT NUMBER 84-5-360, PAGE 53

| | |
|---|---|
| SAMPLE ID | 4A-1B |
| SAMPLE TYPE | EFFLUENT |
| SAMPLE VOLUME | 5000 MILLILITERS |
| ISTD AMOUNT | 100 MICROGRAMS |
| FINAL VOLUME | 250 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 326 * |
| ALCOHOL ETHOXYLATE CONC. = | .03 MG/L |

CALCULATIONS

| ALKYL CHAIN | AVG. EO | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 3 | 23,176 : 28,496 | (172 + 132 ):298 | 100 | 100,9 |
| 12 | 3 | 1,274 : 28,496 | (186 + 132 ):298 | 100 | 5,8 |
| 13 | 3 | 2,929 : 28,496 | (200 + 132 ):298 | 100 | 13,9 |
| 14 | 3 | 2,888 : 28,496 | (214 + 132 ):298 | 100 | 14,8 |
| 15 | 0 | 0: 28,496 | (NO CALCULATION):298 | 100 | 0 |
| 16 | 3 | 2,574 : 28,496 | (242 + 132 ):298 | 100 | 13,8 |
| 18 | 3 | 4,079 : 28,496 | (270 + 132 ):298 | 100 | 23,5 |
| TOTAL MICROGRAMS ALCOHOL ETHOXYLATE = | | | | | 172,2 |

* FROM ASSUMED EO VALUE 3 . NOTE THAT THIS ASSUMED VALUE MAY NOT BE IN AGREEMENT WITH THE EXPERIMENTAL VALUE CALCULATED FROM THE AVAILABLE DATA.

INDUSTRIAL TESTING LABORATORIES, INC.
ALCOHOL ETHOXYLATE ANALYSIS
REPORT NUMBER 84-5-360, PAGE 55

| | |
|---|---|
| SAMPLE ID | 4A-2 |
| SAMPLE TYPE | EFFLUENT |
| SAMPLE VOLUME | 5000 MILLILITERS |
| ISTD AMOUNT | 100 MICROGRAMS |
| FINAL VOLUME | 250 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 329 * |
| ALCOHOL ETHOXYLATE CONC. = | .03 MG/L |

CALCULATIONS

| ALKYL CHAIN | AVG. EO | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 3 | 18,993 : 25,543 | (172 + 132 ):298 | 100 | 67.9 |
| 12 | 3 | .841 : 25,543 | (186 + 132 ):298 | 100 | 4.3 |
| 13 | 3 | 2,219 : 25,543 | (200 + 132 ):298 | 100 | 11.8 |
| 14 | 3 | 1,957 : 25,543 | (214 + 132 ):298 | 100 | 10.3 |
| 15 | 0 | 0: 25,543 | (NO CALCULATION):298 | 100 | 0 |
| 16 | 3 | 1,734 : 25,543 | (242 + 132 ):298 | 100 | 10.4 |
| 18 | 3 | 3,343 : 25,543 | (270 + 132 ):298 | 100 | 21.5 |
| TOTAL MICROGRAMS ALCOHOL ETHOXYLATE = | | | | | 126.2 |

* FROM ASSUMED EO VALUE 3 . NOTE THAT THIS ASSUMED VALUE MAY NOT BE IN AGREEMENT WITH THE EXPERIMENTAL VALUE CALCULATED FROM THE AVAILABLE DATA.

INDUSTRIAL TESTING LABORATORIES, INC.
ALCOHOL ETHOXYLATE ANALYSIS
REPORT NUMBER 84-5-360, PAGE 56

| | |
|---|---|
| SAMPLE ID | 4A-2B |
| SAMPLE TYPE | EFFLUENT |
| SAMPLE VOLUME | 5000 MILLILITERS |
| ISTD AMOUNT | 100 MICROGRAMS |
| FINAL VOLUME | 250 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 328 * |
| ALCOHOL ETHOXYLATE CONC. = | .02 MG/L |

CALCULATIONS

| ALKYL CHAIN | AVG. EO | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 3 | 14.285 : 25.69 | (172 + 132 ):298 | 100 | 69 |
| 12 | 3 | .77 : 25.69 | (186 + 132 ):298 | 100 | 3.9 |
| 13 | 3 | 2.22 : 25.69 | (200 + 132 ):298 | 100 | 11.7 |
| 14 | 3 | 1.752 : 25.69 | (214 + 132 ):298 | 100 | 9.6 |
| 15 | 0 | 0: 25.69 | (NO CALCULATION):298 | 100 | 0 |
| 16 | 3 | 1.534 : 25.69 | (242 + 132 ):298 | 100 | 9.1 |
| 18 | 3 | 3.235 : 25.69 | (270 + 132 ):298 | 100 | 20.7 |
| TOTAL MICROGRAMS ALCOHOL ETHOXYLATE = | | | | | 124 |

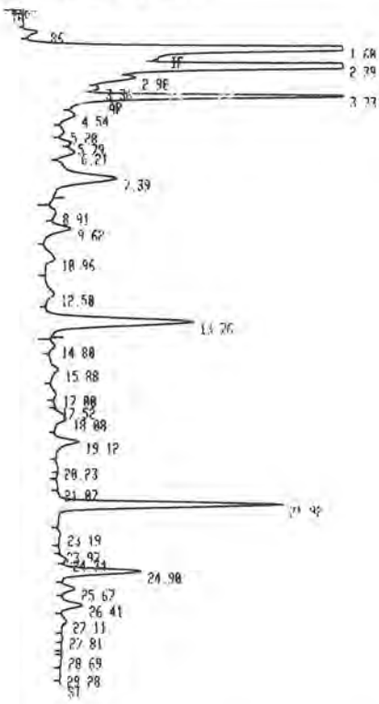
* FROM ASSUMED EO VALUE 3 . NOTE THAT THIS ASSUMED VALUE MAY NOT BE IN AGREEMENT WITH THE EXPERIMENTAL VALUE CALCULATED FROM THE AVAILABLE DATA.

LIST: LIST
PEAK CAPACITY: 1151

ZERO = 0, 3.1
ATT 2↑ = 9
CHT SP = 0.5
PK WD = 0.16
THRSH = 5
AR REJ = 1000000000

4A-2
Page 57L

LIST: ZERO = 0, 1.6

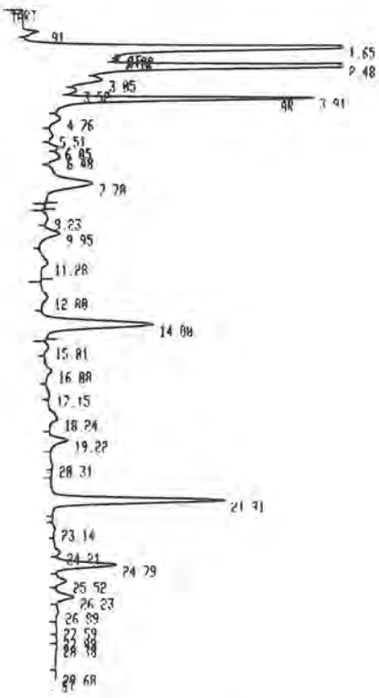



LIST: ZERO = 0, 5.1

LIST: LIST
PEAK CAPACITY: 1151

ZERO = 0, 5.1
ATT 2↑ = 9
CHT SP = 0.5
PK WD = 0.16
THRSH = 5
AR REJ = 1000000000

4A-2B
Page 57R




RUN # 81 NOV/29/84 17:48:47

ISTD

| RT | AREA | TYPE | CAL# | AMOUNT |
|---|---|---|---|---|
| 7.39 | 2.4503E+07 | BR | 1 | 146.820 |
| 8.91 | 1472300 | PB | 2 | 8.818 |
| 10.96 | 3886000 | BB | 3 | 23.191 |
| 12.50 | 3251400 | BB | 4 | 19.403 |
| 14.80 | 1167200 | BB | 5 | 7.072 |
| 15.88 | 3035900 | BB | 6 | 18.181 |
| 19.12 | 5854300 | BB | 7 | 35.201 |
| 21.92 | 4.4727E+07 | SPB | 8S | 100.000 |

TOTAL AREA= 8.7897E+07
ISTD AMT= 1.0000E+02
MUL FACTOR= 1.0000E+00

RUN # 86 DEC/03/84 17:15:20

ISTD

| RT | AREA | TYPE | CAL# | AMOUNT |
|---|---|---|---|---|
| 7.70 | 1.8644E+07 | BB | 1 | 149.030 |
| 9.23 | 1004400 | PB | 2 | 8.025 |
| 11.28 | 2897200 | BB | 3 | 23.065 |
| 12.80 | 2286600 | PB | 4 | 18.283 |
| 14.00 | 3.1647E+07 | BB | 5 | 255.770 |
| 16.80 | 2002600 | BB | 6 | 15.929 |
| 19.22 | 4222500 | BB | 7 | 33.870 |
| 21.91 | 3.3528E+07 | SPB | 8S | 100.000 |

TOTAL AREA= 9.6232E+07
ISTD AMT= 1.0000E+02
MUL FACTOR= 1.0000E+00

RUN # 81 NOV/29/84 17:48:47

AREA%

| | RT | AREA | TYPE | AR/HT | AREA% |
|---|---|---|---|---|---|
| | 4.54 | 1916100 | BB | 0.282 | 1.894 |
| | 5.28 | 987540 | BB | 0.298 | 0.564 |
| | 5.79 | 887300 | BB | 0.198 | 0.507 |
| | 6.21 | 2621200 | BB | 0.388 | 1.497 |
| 11 | 7.39 | 2.4503E+07 | BB | 0.512 | 13.993 |
| 12 | 8.91 | 1472300 | PB | 0.357 | 0.841 |
| | 9.62 | 5664900 | BB | 0.336 | 3.235 |
| 13 | 10.96 | 3886000 | BB | 0.481 | 2.219 |
| 14 | 12.50 | 3251400 | BB | 0.489 | 1.857 |
| | 13.76 | 4.2941E+07 | BB | 0.384 | 24.523 |
| | 14.80 | 1167200 | BB | 0.304 | 0.667 |
| 16 | 15.88 | 3835900 | BB | 0.446 | 1.734 |
| | 17.00 | 892350 | BB | 0.323 | 0.510 |
| | 17.52 | 35417 | BB | 0.167 | 0.020 |
| | 18.88 | 3967000 | BB | 0.442 | 2.266 |
| 18 | 19.12 | 5854300 | BB | 0.317 | 3.343 |
| | 21.87 | 123230 | PB | 0.257 | 0.070 |
| | 21.92 | 4.4727E+07 | SPB | 0.257 | 25.543 |
| | 23.19 | 696970 | BB | 0.298 | 0.398 |
| | 23.97 | 73895 | BB | 0.176 | 0.042 |
| | 24.34 | 686610 | BB | 0.284 | 0.392 |
| | 24.90 | 1.6743E+07 | BB | 0.276 | 9.562 |
| | 25.67 | 2565500 | BB | 0.261 | 1.465 |
| | 26.41 | 4671800 | BB | 0.285 | 2.668 |
| | 27.11 | 1187400 | BB | 0.328 | 0.678 |
| | 27.81 | 121570 | BB | 0.193 | 0.069 |
| | 28.69 | 311380 | VB | 0.406 | 0.178 |
| | 29.28 | 115720 | BB | 0.356 | 0.066 |

TOTAL AREA= 1.7511E+08
MUL FACTOR= 1.0000E+00

RUN # 86 DEC/03/84 17:15:20

AREA%

| | RT | AREA | TYPE | AR/HT | AREA% |
|---|---|---|---|---|---|
| | 4.76 | 1535800 | BB | 0.283 | 1.127 |
| | 5.51 | 895550 | BB | 0.310 | 0.686 |
| | 6.05 | 830900 | BB | 0.195 | 0.637 |
| | 6.48 | 2094600 | BB | 0.323 | 1.605 |
| 11 | 7.70 | 1.8644E+07 | BB | 0.522 | 14.285 |
| 12 | 9.23 | 1004400 | PB | 0.343 | 0.770 |
| | 9.95 | 4468200 | BB | 0.339 | 3.424 |
| 13 | 11.28 | 2897200 | BB | 0.481 | 2.220 |
| 14 | 12.80 | 2286600 | PB | 0.446 | 1.752 |
| | 14.00 | 3.1647E+07 | BB | 0.374 | 24.248 |
| | 15.01 | 822710 | BB | 0.291 | 0.630 |
| 16 | 16.80 | 2002600 | BB | 0.395 | 1.534 |
| | 17.15 | 532420 | BB | 0.303 | 0.408 |
| | 18.24 | 3244100 | BB | 0.479 | 2.486 |
| 18 | 19.22 | 4222500 | BB | 0.304 | 3.235 |
| | 20.31 | 16123 | BB | 0.835 | 0.012 |
| | 21.91 | 3.3528E+07 | SPB | 0.250 | 25.690 |
| | 23.14 | 471450 | PB | 0.287 | 0.361 |
| | 24.21 | 442820 | BB | 0.163 | 0.339 |
| | 24.79 | 1.2270E+07 | BB | 0.268 | 9.402 |
| | 25.52 | 1933200 | BB | 0.247 | 1.481 |
| | 26.23 | 3759100 | BB | 0.276 | 2.880 |
| | 26.89 | 526580 | BB | 0.288 | 0.404 |
| | 27.59 | 108560 | BB | 0.197 | 0.083 |
| | 27.99 | 67085 | BB | 0.240 | 0.051 |
| | 28.38 | 52249 | BB | 0.126 | 0.040 |
| | 29.68 | 209020 | I BP | 0.252 | 0.160 |

TOTAL AREA= 1.3051E+08
MUL FACTOR= 1.0000E+00

INDUSTRIAL TESTING LABORATORIES, INC.
ALCOHOL ETHOXYLATE ANALYSIS
REPORT NUMBER 84-5-360, PAGE 58

| | |
|---|---|
| SAMPLE ID | 4A-3 |
| SAMPLE TYPE | EFFLUENT |
| SAMPLE VOLUME | 5000 MILLILITERS |
| ISTD AMOUNT | 100 MICROGRAMS |
| FINAL VOLUME | 250 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 316 * |
| ALCOHOL ETHOXYLATE CONC. = | .04 MG/L |

CALCULATIONS

| ALKYL CHAIN | AVG. EO | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 8 | 87,794 : 29,226 | (172 + 132 ):298 | 100 | 160.4 |
| 12 | 8 | 1,396 : 29,226 | (186 + 132 ):298 | 100 | 6.2 |
| 13 | 8 | ,879 : 29,226 | (200 + 132 ):298 | 100 | 4.1 |
| 14 | 8 | ,896 : 29,226 | (214 + 132 ):298 | 100 | 4.3 |
| 15 | 8 | ,049 : 29,226 | (228 + 132 ):298 | 100 | .2 |
| 16 | 8 | 1,235 : 29,226 | (242 + 132 ):298 | 100 | 6.4 |
| 18 | 8 | 3,752 : 29,226 | (270 + 132 ):298 | 100 | 21.1 |
| TOTAL MICROGRAMS ALCOHOL ETHOXYLATE = | | | | | 202.7 |

* FROM ASSUMED EO VALUE 8 . NOTE THAT THIS ASSUMED VALUE MAY NOT BE IN AGREEMENT WITH THE EXPERIMENTAL VALUE CALCULATED FROM THE AVAILABLE DATA.

INDUSTRIAL TESTING LABORATORIES, INC.
ALCOHOL ETHOXYLATE ANALYSIS
REPORT NUMBER 84-5-360, PAGE 59

| | |
|---|---|
| SAMPLE ID | 4A-3B |
| SAMPLE TYPE | EFFLUENT |
| SAMPLE VOLUME | 5000 MILLILITERS |
| ISTD AMOUNT | 100 MICROGRAMS |
| FINAL VOLUME | 250 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 316 * |
| ALCOHOL ETHOXYLATE CONC. = | .04 MG/L |

CALCULATIONS

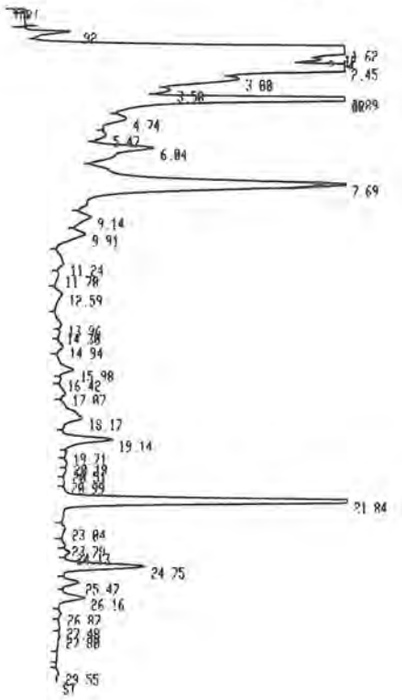
| ALKYL CHAIN | AVG. EO | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 3 | 37.326 : 30.107 | (172 + 132 ):298 | 100 | 153.8 |
| 12 | 3 | 1.457 : 30.107 | (186 + 132 ):298 | 100 | 6.3 |
| 13 | 3 | .787 : 30.107 | (200 + 132 ):298 | 100 | 3.5 |
| 14 | 3 | .879 : 30.107 | (214 + 132 ):298 | 100 | 4.1 |
| 15 | 3 | .049 : 30.107 | (228 + 132 ):298 | 100 | .2 |
| 16 | 3 | 1.207 : 30.107 | (242 + 132 ):298 | 100 | 6.1 |
| 18 | 3 | 3.706 : 30.107 | (270 + 132 ):298 | 100 | 20.2 |
| | | | | | 194.2 |

TOTAL MICROGRAMS ALCOHOL ETHOXYLATE =

* FROM ASSUMED EO VALUE 3 . NOTE THAT THIS ASSUMED VALUE MAY NOT BE IN AGREEMENT WITH THE EXPERIMENTAL VALUE CALCULATED FROM THE AVAILABLE DATA.

```
LIST: ZERO =  0. 4.2

LIST: LIST
PEAK CAPACITY: 1151

ZERO   =  0. 4.3
ATT 2^ =  9
CHT SP =  0.5
PK WD  =  0.16
THRSH  =  5
AR REJ =  1000000000
```

4A-3
20µl
Page 604




```
RUN #   88                DEC/03/84  14:54:04

ISTD
   RT          AREA TYPE   CAL#        AMOUNT
 7.69  1.0719E+08  SPB     1          346.529
 9.14     3958300  BB      2           12.793
11.24     2493100  BB      3            8.059
12.59     2541400  BR      4            8.184
14.30      139060  BB      5            0.455
15.98     3502000  BR      6           11.267
19.14  1.0641E+07  BB      7           34.526
21.84  8.2886E+07  SPB     IS         100.000

TOTAL AREA= 2.1335E+08
  ISTD AMT= 1.0000E+02
MUL FACTOR= 1.0000E+00
```

```
LIST: ZERO =  0. 4.4

LIST: LIST
PEAK CAPACITY: 1151

ZERO   =  0. 4.4
ATT 2^ =  9
CHT SP =  0.5
PK WD  =  0.16
THRSH  =  5
AR REJ =  1000000000
```

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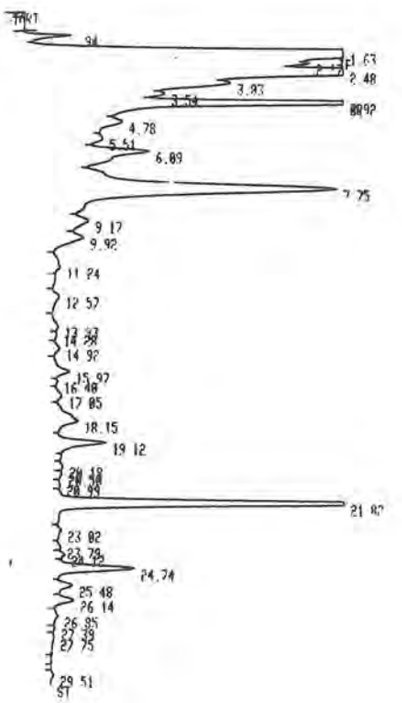
Page 60B




```
RUN #   98                DEC/03/84  16:09:06

ISTD
   RT          AREA TYPE   CAL#        AMOUNT
 7.75  1.0261E+08  SPB     1          332.260
 9.17     4005800  BB      2           12.965
11.24     2164400  BB      3            6.988
12.57     2417100  PB      4            7.795
14.28      134920  BB      5            0.442
15.97     3317300  BB      6           10.688
19.12  1.0188E+07  BB      7           33.184
21.82  8.2769E+07  SPB     IS         100.000

TOTAL AREA= 2.0761E+08
  ISTD AMT= 1.0000E+02
MUL FACTOR= 1.0000E+00
```

```
RUN #   88                DEC/03/84  14:54:04

AREA%
   RT          AREA TYPE   AR/HT       AREA%
 4.74     2847100  SPB     0.254       1.004
 5.47     1630700  SPB     0.385       0.575
 6.84  2.0344E+07  SPB     0.433       7.173
 7.69  1.0719E+08  SPB     0.528      37.794
 9.14     3958300  BB      0.372       1.396
 9.91     4689600  BB      0.371       1.654
11.24     2493100  BB      0.528       0.879
11.70      365120  BB      0.423       0.129
12.59     2541400  BB      0.465       0.896
13.96      723230  BB      0.298       0.255
14.30      139060  BB      0.183       0.049
14.94     1228000  BR      0.305       0.433
15.98     3502000  BB      0.319       1.235
16.42      135850  BB      0.165       0.048
17.07     1370200  BB      0.328       0.483
18.17     8474900  BB      0.539       2.988
19.14  1.0641E+07  BB      0.289       3.752
19.71       97286  BB      0.163       0.034
20.19      312620  BB      0.201       0.110
20.51      188980  BB      0.170       0.067
20.99      176540  BB      0.212       0.062
21.84  8.2886E+07  SPB     0.246      29.226
23.84      893850  BB      0.302       0.315
23.79      287290  BB      0.192       0.101
24.13      798990  BB      0.186       0.282
24.75  1.6701E+07  BB      0.269       5.889
25.47     2956180  BB      0.245       1.042
26.16     4850580  BB      0.270       1.710
26.87      335830  BB      0.212       0.118
27.48      196330  BB      0.232       0.069
27.80      163410  BB      0.234       0.058
29.55      495360  I VP    0.254       0.175

TOTAL AREA= 2.8361E+08
MUL FACTOR= 1.0000E+00
```

```
RUN #   98                DEC/03/84  16:09:06

AREA%
   RT          AREA TYPE   AR/HT       AREA%
 4.78     2824500  SPB     0.258       1.026
 5.51     1520100  SPB     0.283       0.553
 6.89  2.0108E+07  SPB     0.441       7.314
 7.75  1.0261E+08  SPB     0.519      37.326
 9.17     4005800  BB      0.367       1.457
 9.92     4641400  BB      0.369       1.688
11.24     2164400  BB      0.522       0.787
12.57     2417100  PB      0.468       0.879
13.93      712990  BB      0.289       0.259
14.28      134920  BR      0.182       0.049
14.92     1188800  BB      0.311       0.432
15.97     3317300  BB      0.317       1.207
16.48      139250  BR      0.168       0.051
17.05     1350200  BR      0.325       0.491
18.15     8243100  BB      0.541       2.999
19.12  1.0188E+07  BB      0.289       3.706
20.18      310560  PB      0.203       0.113
20.58      207520  BB      0.172       0.076
20.99      180030  BB      0.206       0.066
21.82  8.2769E+07  SPB     0.248      30.107
23.82      903620  BB      0.297       0.329
23.79      290140  BR      0.186       0.106
24.12      579580  BB      0.176       0.211
24.74  1.6122E+07  BB      0.278       5.865
25.48     3030700  BB      0.273       1.102
26.14     3395400  BB      0.260       1.235
26.85      748570  BB      0.288       0.269
27.39       89197  BR      0.157       0.033
27.75      255770  BB      0.329       0.093
29.51      474490  I VP    0.252       0.173

TOTAL AREA= 2.7491E+08
MUL FACTOR= 1.0000E+00
```

INDUSTRIAL TESTING LABORATORIES, INC.
ALCOHOL ETHOXYLATE ANALYSIS
REPORT NUMBER 84-5-360, PAGE 61

| | |
|---|---|
| SAMPLE ID | 4C |
| SAMPLE TYPE | EFFLUENT |
| SAMPLE VOLUME | 5000 MILLILITERS |
| ISTD AMOUNT | 100 MICROGRAMS |
| FINAL VOLUME | 250 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 526 ** |
| ALCOHOL ETHOXYLATE CONC. = | .05 MG/L |

CALCULATIONS

| ALKYL CHAIN | AVG. EO ** | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 7.7 | 25,923 : 30,034 | (172 + 336.82 ):298 | 100 | 179.2 |
| 12 | 7.7 | 1,355 : 30,034 | (186 + 336.82 ):298 | 100 | 9.6 |
| 13 | 7.7 | 1,712 : 30,034 | (200 + 336.82 ):298 | 100 | 12.5 |
| 14 | 7.7 | 1,212 : 30,034 | (214 + 336.82 ):298 | 100 | 9.1 |
| 15 | 7.7 | 0 : 30,034 | (NO CALCULATION):298 | 100 | 0 |
| 16 | 7.7 | 1,569 : 30,034 | (242 + 336.82 ):298 | 100 | 12.8 |
| 18 | 7.7 | 3,79 : 30,034 | (270 + 336.82 ):298 | 100 | 31.2 |
| | | | | | 253.9 |

TOTAL MICROGRAMS ALCOHOL ETHOXYLATE =

** FROM EXPERIMENTAL EO VALUE. DUE TO INTERFERENCES FROM THE PHENYL ISOCYANATE, REVERSE PHASE FRACTIONATION WAS NECESSARY FOR ACCURATE EO ISOMER IDENTIFICATION BY NORMAL PHASE LIQUID CHROMATOGRAPHY.

INDUSTRIAL TESTING LABORATORIES, INC.
ALCOHOL ETHOXYLATE ANALYSIS
REPORT NUMBER 84-5-360, PAGE 62

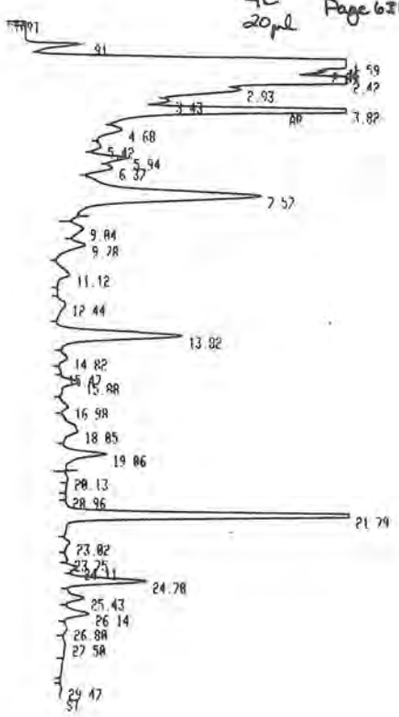
| | |
|---|---|
| SAMPLE ID | 4C-B |
| SAMPLE TYPE | EFFLUENT |
| SAMPLE VOLUME | 5000 MILLILITERS |
| ISTD AMOUNT | 100 MICROGRAMS |
| FINAL VOLUME | 250 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 527 ** |
| ALCOHOL ETHOXYLATE CONC. = | .05 MG/L |

CALCULATIONS

| ALKYL CHAIN | AVG. EO ** | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 7.7 | 25,446 : 30,195 | (172 + 336.82 ):298 | 100 | 174.9 |
| 12 | 7.7 | 1,362 : 30,195 | (186 + 336.82 ):298 | 100 | 9.6 |
| 13 | 7.7 | 1,685 : 30,195 | (200 + 336.82 ):298 | 100 | 12.2 |
| 14 | 7.7 | 1,196 : 30,195 | (214 + 336.82 ):298 | 100 | 8.9 |
| 15 | 7.7 | 0 : 30,195 | (NO CALCULATION):298 | 100 | 0 |
| 16 | 7.7 | 2,231 : 30,195 | (242 + 336.82 ):298 | 100 | 17.4 |
| 18 | 7.7 | 3,689 : 30,195 | (270 + 336.82 ):298 | 100 | 30.2 |
| TOTAL MICROGRAMS ALCOHOL ETHOXYLATE = | | | | | 253.4 |

** FROM EXPERIMENTAL EO VALUE. DUE TO INTERFERENCES FROM THE PHENYL ISOCYANATE, REVERSE PHASE FRACTIONATION WAS NECESSARY FOR ACCURATE EO ISOMER IDENTIFICATION BY NORMAL PHASE LIQUID CHROMATOGRAPHY.

4C
20µl
Page 631




RUN # 129 DEC/14/84 15:21:48

ISTD

| RT | AREA | TYPE | CAL# | AMOUNT |
|---|---|---|---|---|
| 7.57 | 7.0570E+07 | BB | 1 | 231.320 |
| 9.84 | 3688200 | BB | 2 | 12.084 |
| 11.12 | 4659200 | BB | 3 | 15.210 |
| 12.44 | 3308200 | VB | 4 | 10.774 |
| 14.82 | 1809500 | BB | 5 | 5.992 |
| 15.88 | 4271000 | BB | 6 | 13.931 |
| 19.06 | 1.0316E+07 | BB | 7 | 33.932 |
| 21.79 | 8.1760E+07 | SPB | 8S | 100.000 |

TOTAL AREA= 1.8837E+08
ISTD AMT= 1.0000E+02
MUL FACTOR= 1.0000E+00

RUN # 129 DEC/14/84 15:21:48

AREA%

| RT | AREA | TYPE | AR/HT | AREA% |
|---|---|---|---|---|
| 4.68 | 3543200 | SPB | 0.295 | 1.382 |
| 5.42 | 1430300 | SPB | 0.276 | 0.525 |
| 5.94 | 5081500 | BB | 0.240 | 1.867 |
| 6.37 | 2556300 | BB | 0.259 | 0.939 |
| 7.57 | 7.0570E+07 | BB | 0.508 | 25.923 |
| 9.84 | 3688200 | BB | 0.400 | 1.355 |
| 9.78 | 4847200 | BB | 0.343 | 1.781 |
| 11.12 | 4659200 | BB | 0.466 | 1.712 |
| 12.44 | 3300200 | VB | 0.509 | 1.212 |
| 13.82 | 3.6411E+07 | BB | 0.383 | 13.375 |
| 14.82 | 1809500 | BB | 0.325 | 0.665 |
| 15.47 | 85514 | BB | 0.218 | 0.031 |
| 15.88 | 4271000 | BB | 0.298 | 1.569 |
| 16.98 | 1730400 | BB | 0.327 | 0.636 |
| 18.85 | 6710300 | BB | 0.579 | 2.465 |
| 19.06 | 1.0316E+07 | BB | 0.319 | 3.790 |
| 20.13 | 247720 | PB | 0.222 | 0.091 |
| 20.96 | 89832 | PB | 0.236 | 0.033 |
| 21.79 | 8.1760E+07 | SPB | 0.248 | 30.034 |
| 23.82 | 1189500 | BB | 0.286 | 0.437 |
| 23.25 | 222560 | BB | 0.183 | 0.082 |
| 24.11 | 1430500 | BB | 0.289 | 0.526 |
| 24.78 | 1.5438E+07 | BB | 0.260 | 5.671 |
| 25.43 | 3519100 | BB | 0.265 | 1.293 |
| 26.14 | 5252500 | BB | 0.285 | 1.930 |
| 26.88 | 969420 | BB | 0.342 | 0.356 |
| 27.58 | 858590 | BB | 0.475 | 0.315 |
| 29.47 | 236840 | I PP | 0.210 | 0.087 |

TOTAL AREA= 2.7222E+08
MUL FACTOR= 1.0000E+00

LIST: LIST
PEAK CAPACITY: 1151

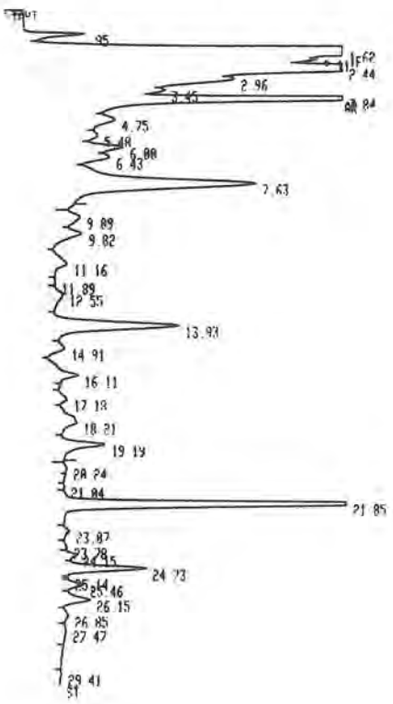
ZERO = 0, -1.1
ATT 2↑ = 9
CHT SP = 0.5
PK WD = 0.16
THRSH = 5
AR REJ = 1000000000

4C
20µl

LIST: LIST
PEAK CAPACITY: 1151

ZERO = 0, 2.3
ATT 2↑ = 9
CHT SP = 0.5
PK WD = 0.16
THRSH = 5
AR REJ = 1000000000

4C-B
20µl
Page 632




RUN # 130 DEC/14/84 16:01:28

ISTD

| RT | AREA | TYPE | CAL# | AMOUNT |
|---|---|---|---|---|
| 7.63 | 6.9380E+07 | BB | 1 | 225.850 |
| 9.89 | 3713800 | BB | 2 | 12.083 |
| 11.16 | 4594800 | BB | 3 | 14.896 |
| 12.55 | 3261700 | BB | 4 | 10.574 |
| 14.91 | 2822400 | BB | 5 | 9.290 |
| 16.11 | 6084200 | BB | 6 | 19.787 |
| 19.19 | 1.0057E+07 | BB | 7 | 32.852 |
| 21.85 | 8.2331E+07 | SPB | 8S | 100.000 |

TOTAL AREA= 1.8225E+08
ISTD AMT= 1.0000E+02
MUL FACTOR= 1.0000E+00

RUN # 130 DEC/14/84 16:01:28

AREA%

| RT | AREA | TYPE | AR/HT | AREA% |
|---|---|---|---|---|
| 4.75 | 3984900 | SPB | 0.321 | 1.462 |
| 5.48 | 1399500 | SPB | 0.272 | 0.513 |
| 6.00 | 4887400 | BB | 0.237 | 1.793 |
| 6.43 | 2663500 | BB | 0.258 | 0.977 |
| 7.63 | 6.9380E+07 | BB | 0.505 | 25.446 |
| 9.89 | 3713800 | BB | 0.404 | 1.362 |
| 9.82 | 4676900 | BB | 0.338 | 1.715 |
| 11.16 | 4594800 | BB | 0.459 | 1.685 |
| 11.89 | 89738 | BB | 0.288 | 0.033 |
| 12.55 | 3261700 | BB | 0.514 | 1.196 |
| 13.93 | 3.5986E+07 | BB | 0.380 | 13.198 |
| 14.91 | 2822400 | BB | 0.348 | 1.035 |
| 16.11 | 6084200 | BB | 0.372 | 2.231 |
| 17.18 | 1707800 | PB | 0.314 | 0.626 |
| 18.21 | 6738900 | BB | 0.569 | 2.472 |
| 19.19 | 1.0057E+07 | BB | 0.389 | 3.689 |
| 20.24 | 279830 | PB | 0.223 | 0.103 |
| 21.04 | 57365 | PB | 0.181 | 0.021 |
| 21.85 | 8.2331E+07 | SPB | 0.242 | 30.195 |
| 23.87 | 1170700 | BB | 0.281 | 0.429 |
| 23.78 | 193220 | BB | 0.174 | 0.071 |
| 24.15 | 1314400 | BB | 0.283 | 0.482 |
| 24.73 | 1.5198E+07 | BB | 0.255 | 5.574 |
| 25.14 | 13654 | BB | 0.081 | 0.005 |
| 25.46 | 2721100 | BB | 0.238 | 0.998 |
| 26.15 | 5425400 | BB | 0.288 | 1.990 |
| 26.85 | 1048900 | BB | 0.348 | 0.385 |
| 27.47 | 609310 | BB | 0.407 | 0.224 |
| 29.41 | 248190 | I PP | 0.223 | 0.091 |

TOTAL AREA= 2.7266E+08
MUL FACTOR= 1.0000E+00

INDUSTRIAL TESTING LABORATORIES, INC.
ALCOHOL ETHOXYLATE ANALYSIS
REPORT NUMBER 84-5-360, PAGE 64

| | |
|---|---|
| SAMPLE ID | 4C |
| SAMPLE TYPE | EFFLUENT |
| SAMPLE VOLUME | 5000 MILLILITERS |
| ISTD AMOUNT | 100 MICROGRAMS |
| FINAL VOLUME | 250 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 321 * |
| ALCOHOL ETHOXYLATE CONC. = | .03 MG/L |

CALCULATIONS

| ALKYL CHAIN | AVG. EO | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 3 | 25,923 : 30,034 | (172 + 132 ):298 | 100 | 107.1 |
| 12 | 3 | 1,355 : 30,034 | (186 + 132 ):298 | 100 | 5.9 |
| 13 | 3 | 1,712 : 30,034 | (200 + 132 ):298 | 100 | 7.7 |
| 14 | 3 | 1,212 : 30,034 | (214 + 132 ):298 | 100 | 5.7 |
| 15 | 0 | 0: 30,034 | (NO CALCULATION):298 | 100 | 0 |
| 16 | 3 | 1,569 : 30,034 | (242 + 132 ):298 | 100 | 8 |
| 18 | 3 | 3,79 : 30,034 | (270 + 132 ):298 | 100 | 20.7 |
| TOTAL MICROGRAMS ALCOHOL ETHOXYLATE = | | | | | 155.1 |

* FROM ASSUMED EO VALUE 3 . NOTE THAT THIS ASSUMED VALUE MAY NOT BE IN AGREEMENT WITH THE EXPERIMENTAL VALUE CALCULATED FROM THE AVAILABLE DATA.

INDUSTRIAL TESTING LABORATORIES, INC.
ALCOHOL ETHOXYLATE ANALYSIS
REPORT NUMBER 84-5-360, PAGE 65

| | |
|---|---|
| SAMPLE ID | 4C-B |
| SAMPLE TYPE | EFFLUENT |
| SAMPLE VOLUME | 5000 MILLILITERS |
| ISTD AMOUNT | 100 MICROGRAMS |
| FINAL VOLUME | 250 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 322 * |
| ALCOHOL ETHOXYLATE CONC. = | .03 MG/L |

CALCULATIONS

| ALKYL CHAIN | AVG. EO | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 3 | 25,446 : 30,195 | (172 + 132 ):298 | 100 | 104.5 |
| 12 | 3 | 1,362 : 30,195 | (186 + 132 ):298 | 100 | 5.9 |
| 13 | 3 | 1,685 : 30,195 | (200 + 132 ):298 | 100 | 7.6 |
| 14 | 3 | 1,196 : 30,195 | (214 + 132 ):298 | 100 | 5.6 |
| 15 | 0 | 0: 30,195 | (NO CALCULATION):298 | 100 | 0 |
| 16 | 3 | 2,231 : 30,195 | (242 + 132 ):298 | 100 | 11.3 |
| 18 | 3 | 3,689 : 30,195 | (270 + 132 ):298 | 100 | 20 |
| TOTAL MICROGRAMS ALCOHOL ETHOXYLATE = | | | | | 154.9 |

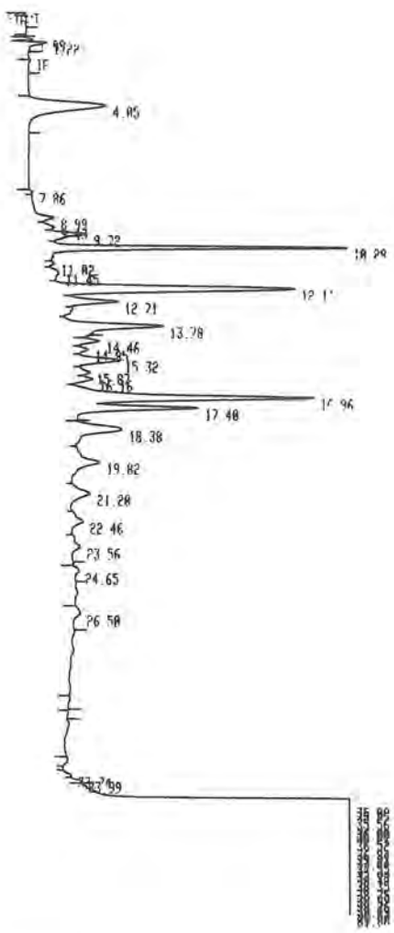
* FROM ASSUMED EO VALUE 3 . NOTE THAT THIS ASSUMED VALUE MAY NOT BE IN AGREEMENT WITH THE EXPERIMENTAL VALUE CALCULATED FROM THE AVAILABLE DATA.

LIST: ZERO = 0, 0.0

LIST: LIST
PEAK CAPACITY: 1159

ZERO = 0, 4.4
ATT 2↑ = 7
CHT SP = 0.5
PK WD = 0.16
THRSH = 6
AR REJ = 1000

Fractioned
4C
25µl/100µl
Page 66 L




RUN # 165 DEC/28/84 15:46:35

AREA%

| RT | AREA | TYPE | AR/HT | AREA% |
|---|---|---|---|---|
| 1.09 | 381060 | BP | 0.111 | 0.350 |
| 1.22 | 971190 | PP | 0.179 | 1.127 |
| 4.05 | 6838000 | BB | 0.456 | 7.939 |
| 8.99 | 54825 | BB | 0.092 | 0.064 |
| 9.43 | 192160 | BB | 0.171 | 0.223 |
| 9.72 | 1394100 | BB | 0.206 | 1.618 -2 |
| 10.28 | 8500500 | SPB | 0.136 | 9.868 |
| 11.82 | 100070 | BB | 0.141 | 0.116 |
| 11.45 | 304630 | BB | 0.262 -3 | 0.354 -3 |
| 12.11 | 1.1048E+07 | BB | 0.265 X5 | 13.753 X4 |
| 12.71 | 1941900 | BB | 0.213 | 2.254 |
| 13.78 | 4233400 | PB | 0.252 | 4.914 |
| 14.46 | 542300 | BB | 0.167 -4 | 0.630 -5 |
| 14.85 | 297790 | BB | 0.168 | 0.346 |
| 15.32 | 1911000 | BB | 0.254 | 2.218 |
| 15.87 | 276450 | BB | 0.174 | 0.321 |
| 16.16 | 483860 | BB | 0.191 -5 | 0.562 -6 |
| 16.96 | 1.0124E+07 | BB | 0.236 | 11.753 |
| 17.40 | 3447300 | BB | 0.173 -6 | 4.002 -7 |
| 18.38 | 3512300 | PP | 0.399 | 4.077 X8 |
| 19.82 | 2295900 | BB | 0.450 -8 | 2.665 -9 |
| 21.28 | 1556600 | BB | 0.417 -9 | 1.807 -10 |
| 22.46 | 997140 | BB | 0.427 -10 | 1.158 -11 |
| 23.56 | 601090 | BB | 0.383 -11 | 0.698 -12 |
| 24.65 | 247560 | PB | 0.253 -12 | 0.287 -13 X14 |
| 26.50 | 376230 | BB | 0.336 -13 | 0.437 -15 |
| 33.74 | 52579 | PB | 0.107 | 0.061 |
| 43.99 | 26508 | BB | 0.046 | 0.031 |
| 75.25 | 355430 | DSPB | 0.075 | 0.413 |
| 35.56 | 2650400 | DSPB | 0.314 | 3.077 |
| 36.00 | 111820 | SPB | 0.063 | 0.130 |
| 36.08 | 117570 | DSPB | 0.060 | 0.137 |
| 36.21 | 584760 | DSPB | 0.078 | 0.679 |
| 36.52 | 4106400 | SPB | 0.182 | 4.767 |
| 36.94 | 1644300 | SPB | 0.392 | 1.909 |
| 37.21 | 578700 | SPB | 0.212 | 0.672 |
| 37.34 | 280760 | DSPB | 0.083 | 0.326 |
| 37.55 | 786880 | SPB | 0.138 | 0.913 |
| 37.92 | 1479500 | SPB | 0.135 | 1.717 |
| 38.13 | 667260 | SPB | 0.109 | 0.775 |
| 38.35 | 3329400 | SPB | 0.236 | 3.865 |
| 38.75 | 1425000 | SPB | 0.126 | 1.654 |
| 38.99 | 1369500 | SPB | 0.094 | 1.590 |
| 39.26 | 964200 | SPB | 0.168 | 1.119 |
| 39.47 | 322590 | DSPB | 0.119 | 0.375 |
| 39.67 | 476180 | DSPB | 0.085 | 0.553 |
| 39.88 | 1465700 | ISPH | 0.148 | 1.701 |

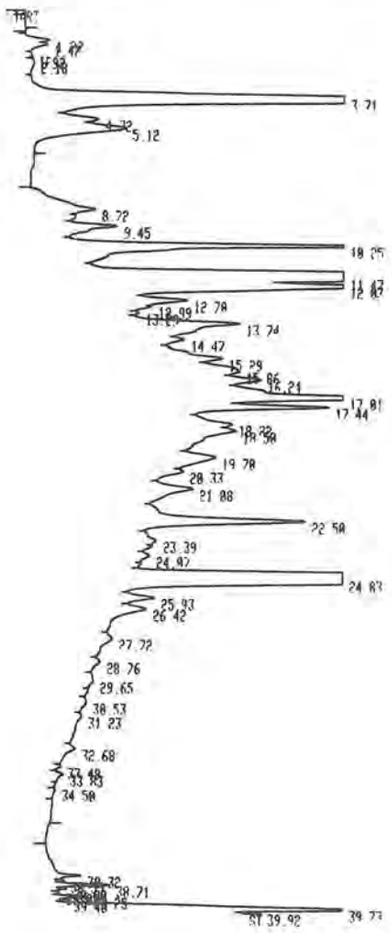
TOTAL AREA= 8.6145E+07
MUL FACTOR= 1.0000E+00

LIST: ZERO = 0,-0.0

LIST: LIST
PEAK CAPACITY: 1159

ZERO = 0, 2.6
ATT 2↑ = 9
CHT SP = 0.5
PK WD = 0.16
THRSH = 6
AR REJ = 1000

Unfractioned
4C
25µl/100µl
Page 66 R




RUN # 172 JAN/03/85 14:01:00

AREA%

| RT | AREA | TYPE | AR/HT | AREA% |
|---|---|---|---|---|
| 1.22 | 3503600 | PV | 0.195 | 0.356 |
| 1.42 | 3390100 D | VV | 0.220 | 0.345 |
| 1.92 | 295080 | VB | 0.215 | 0.030 |
| 2.18 | 904380 | BB | 0.336 | 0.092 |
| 3.71 | 1.7799E+08 ↑ | SPB | 0.357 | 18.095 |
| 4.72 | 2835200 | BB | 0.205 | 0.288 |
| 5.12 | 5186600 | BB | 0.146 | 0.527 |
| 8.72 | 7485700 | PB | 0.338 | 0.761 |
| 9.45 | 9855600 | PB | 0.268 | 1.002 |
| 10.25 | 7.4394E+07 | SPP | 0.282 | 7.563 |
| 11.47 | 1.5295E+08 ↑ | SPB | 0.383 | 15.549 |
| 12.03 | 2.9584E+07 | SPB | 0.271 | 3.008 |
| 12.78 | 6370700 | SPB | 0.199 | 0.648 |
| 12.99 | 381950 | DSPB | 0.139 | 0.039 |
| 13.29 | 303140 | SPB | 0.107 | 0.031 |
| 13.74 | 2.5328E+07 | SPB | 0.360 | 2.575 |
| 14.47 | 1474000 | SPB | 0.157 | 0.150 |
| 15.29 | 4181000 | SPB | 0.206 | 0.425 |
| 15.86 | 4774200 | SPB | 0.373 | 0.485 |
| 16.24 | 4826800 | SPB | 0.216 | 0.491 |
| 17.01 | 4.3321E+07 | SPB | 0.228 | 4.404 |
| 17.44 | 1.4501E+07 | SPB | 0.178 | 1.474 |
| 18.22 | 1160500 | SPB | 0.119 | 0.118 |
| 18.58 | 1104600 | SPB | 0.096 | 0.112 |
| 19.70 | 9631600 | SPB | 0.392 | 0.979 |
| 20.33 | 1089700 | SPB | 0.156 | 0.111 |
| 21.08 | 1.1493E+07 | SPB | 0.394 | 1.168 |
| 22.58 | 3.9429E+07 | SPB | 0.321 | 4.009 |
| 23.39 | 981610 | SPB | 0.199 | 0.100 |
| 23.63 | 3.2453E+07 | SPP | 16.582 | 3.299 |
| 24.07 | 1139300 | SPB | 0.201 | 0.116 |
| 24.38 | 2.4323E+07 | SPP | 38.433 | 2.473 |
| 24.83 | 2.3048E+08 ↑ | SPB | 0.535 | 23.432 |
| 25.93 | 4536000 | BB | 0.219 | 0.461 |
| 26.42 | 3718600 | BB | 0.216 | 0.378 |
| 27.72 | 2183400 | BB | 0.370 | 0.222 |
| 28.76 | 1062000 | BB | 0.280 | 0.108 |
| 29.65 | 1077000 | BB | 0.363 | 0.110 |
| 30.53 | 818500 | PB | 0.398 | 0.083 |
| 31.23 | 938460 | BB | 0.406 | 0.095 |
| 32.68 | 1656300 | BB | 0.282 | 0.168 |
| 33.48 | 258010 D | BB | 0.117 | 0.026 |
| 33.83 | 1201200 | BB | 0.199 | 0.122 |
| 34.50 | 276190 | PB | 0.193 | 0.028 |
| 38.55 | 104610 D | BB | 0.048 | 0.011 |
| 38.71 | 3484000 | SPB | 0.092 | 0.354 |
| 38.98 | 326330 D | BB | 0.061 | 0.033 |
| 39.09 | 119470 D | BB | 0.066 | 0.012 |
| 39.25 | 1608200 D | BB | 0.077 | 0.164 |
| 39.48 | 244430 D | BB | 0.060 | 0.025 |
| 39.73 | 3.1429E+07 | SPB | 0.176 | 3.195 |
| 39.92 | 1473600 | ISPP | 0.057 | 0.150 |

TOTAL AREA= 9.8363E+08
MUL FACTOR= 1.0000E+00

INDUSTRIAL TESTING LABORATORIES, INC.
ALCOHOL ETHOXYLATE ANALYSIS
REPORT NUMBER 84-5-360, PAGE 67

| | |
|---|---|
| SAMPLE ID | 4D |
| SAMPLE TYPE | EFFLUENT |
| SAMPLE VOLUME | 5000 MILLILITERS |
| ISTD AMOUNT | 100 MICROGRAMS |
| FINAL VOLUME | 250 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 312 * |
| ALCOHOL ETHOXYLATE CONC. = | .05 MG/L |

CALCULATIONS

| ALKYL CHAIN | AVG. EO | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 3 | 36.406 : 22.271 | (172 + 132 ):298 | 100 | 202.7 |
| 12 | 3 | 2.204 : 22.271 | (186 + 132 ):298 | 100 | 12.8 |
| 13 | 3 | .658 : 22.271 | (200 + 132 ):298 | 100 | 4 |
| 14 | 3 | .56 : 22.271 | (214 + 132 ):298 | 100 | 3.5 |
| 15 | 3 | .034 : 22.271 | (228 + 132 ):298 | 100 | .2 |
| 16 | 3 | .501 : 22.271 | (242 + 132 ):298 | 100 | 3.4 |
| 18 | 3 | 2.137 : 22.271 | (270 + 132 ):298 | 100 | 15.7 |
| TOTAL MICROGRAMS ALCOHOL ETHOXYLATE = | | | | | 242.3 |

* FROM ASSUMED EO VALUE 3 . NOTE THAT THIS ASSUMED VALUE MAY NOT BE IN AGREEMENT WITH THE EXPERIMENTAL VALUE CALCULATED FROM THE AVAILABLE DATA.

INDUSTRIAL TESTING LABORATORIES, INC.
ALCOHOL ETHOXYLATE ANALYSIS
REPORT NUMBER 84-5-350, PAGE 68

| | |
|---|---|
| SAMPLE ID | 4D-E |
| SAMPLE TYPE | EFFLUENT |
| SAMPLE VOLUME | 5000 MILLILITERS |
| ISTD AMOUNT | 100 MICROGRAMS |
| FINAL VOLUME | 250 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 311 * |
| ALCOHOL ETHOXYLATE CONC. = | .05 MG/L |

CALCULATIONS

| ALKYL CHAIN | AVG. EO | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 3 | 46.546 : 28.739 | (172 + 132 ):298 | 100 | 200.9 |
| 12 | 3 | 2.748 : 28.739 | (186 + 132 ):298 | 100 | 12.4 |
| 13 | 3 | .854 : 28.739 | (200 + 132 ):298 | 100 | 4 |
| 14 | 3 | .755 : 28.739 | (214 + 132 ):298 | 100 | 3.7 |
| 15 | 3 | .06 : 28.739 | (228 + 132 ):298 | 100 | .3 |
| 16 | 3 | .682 : 28.739 | (242 + 132 ):298 | 100 | 3.4 |
| 18 | 3 | 2.554 : 28.739 | (270 + 132 ):298 | 100 | 14.6 |
| TOTAL MICROGRAMS ALCOHOL ETHOXYLATE = | | | | | 239.3 |

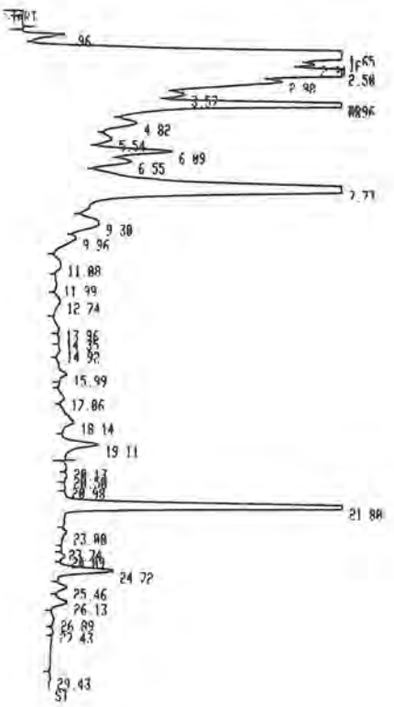
* FROM ASSUMED EO VALUE 3 . NOTE THAT THIS ASSUMED VALUE MAY NOT BE IN AGREEMENT WITH THE EXPERIMENTAL VALUE CALCULATED FROM THE AVAILABLE DATA.

LIST: ZERO = 0,-0.4

LIST: LIST
PEAK CAPACITY: 1151

ZERO = 0, 2.5
ATT 2^ = 9
CHT SP = 0.5
PK WD = 0.16
THRSH = 5
AR REJ = 1000000000

4D-1
20µl
Page 69L




RUN # 140 DEC/17/84 15:42:42

ISTD

| RT | AREA | TYPE | CAL# | AMOUNT |
|---|---|---|---|---|
| 7.73 | 1.1604E+08 | SPB | 1 | 438.100 |
| 9.30 | 8839500 | BB | 2 | 26.504 |
| 11.08 | 2637400 | BB | 3 | 7.880 |
| 12.74 | 2247800 | BB | 4 | 6.716 |
| 14.35 | 137120 | BB | 5 | 0.416 |
| 15.99 | 2008100 | BB | 6 | 5.994 |
| 19.11 | 8572300 | BB | 7 | 25.885 |
| 21.88 | 8.9340E+07 | SPB | 8S | 100.000 |

TOTAL AREA= 2.5983E+08
ISTD AMT= 1.0000E+02
MUL FACTOR= 1.0000E+00

RUN # 140 DEC/17/84 15:42:42

AREA%

| RT | AREA | TYPE | AR/HT | AREA% |
|---|---|---|---|---|
| 3.96 | 8.6812E+07 | †SPB | 0.288 | 21.641 |
| 4.82 | 5595100 | BB | 0.307 | 1.395 |
| 5.54 | 2935700 | BB | 0.314 | 0.732 |
| 6.09 | 1.1814E+07 | BB | 0.238 | 2.945 |
| 6.55 | 4755100 | BB | 0.269 | 1.185 |
| 7.73 | 1.4604E+08 | SPB | 0.512 | 36.406 |
| 9.30 | 8839500 | BB | 0.514 | 2.204 |
| 9.96 | 1911200 | BR | 0.344 | 0.476 |
| 11.08 | 2637400 | BB | 0.522 | 0.658 |
| 11.99 | 617560 | BR | 0.433 | 0.154 |
| 12.74 | 2247800 | BR | 0.494 | 0.560 |
| 13.96 | 528630 | BR | 0.284 | 0.132 |
| 14.35 | 137120 | BB | 0.211 | 0.034 |
| 14.92 | 624200 | BR | 0.312 | 0.156 |
| 15.99 | 2008100 | BB | 0.329 | 0.501 |
| 17.86 | 1291100 | PB | 0.332 | 0.322 |
| 18.14 | 5337300 | BB | 0.542 | 1.331 |
| 19.11 | 8572300 | BR | 0.311 | 2.137 |
| 20.13 | 292340 | PB | 0.222 | 0.073 |
| 20.58 | 291670 | BR | 0.198 | 0.073 |
| 20.98 | 111630 | BB | 0.203 | 0.028 |
| 21.88 | 8.9340E+07 | SPB | 0.241 | 22.271 |
| 23.88 | 768620 | BB | 0.254 | 0.192 |
| 23.74 | 80625 | BR | 0.169 | 0.020 |
| 24.09 | 613390 | BB | 0.195 | 0.153 |
| 24.72 | 1.1161E+07 | BB | 0.264 | 2.782 |
| 25.46 | 1834700 | BB | 0.244 | 0.457 |
| 26.13 | 2929600 | BR | 0.279 | 0.730 |
| 26.89 | 571610 | BR | 0.311 | 0.143 |
| 27.43 | 139880 | BB | 0.186 | 0.035 |
| 29.43 | 311910 | I PP | 0.253 | 0.078 |

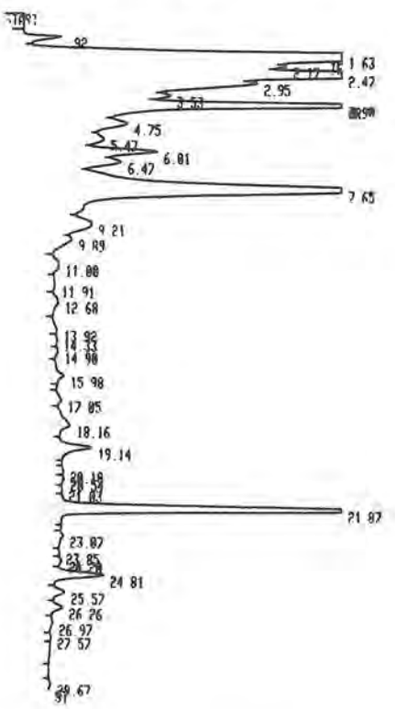
TOTAL AREA= 4.0116E+08
MUL FACTOR= 1.0000E+00

LIST: ZERO = 0, 2.7

LIST: LIST
PEAK CAPACITY: 1151

ZERO = 0, 2.7
ATT 2^ = 9
CHT SP = 0.5
PK WD = 0.16
THRSH = 5
AR REJ = 1000000000

4D-13
20µl
Page 69R




RUN # 139 DEC/17/84 14:57:36

ISTD

| RT | AREA | TYPE | CAL# | AMOUNT |
|---|---|---|---|---|
| 7.65 | 1.3028E+08 | SPB | 1 | 434.069 |
| 9.21 | 7691100 | BB | 2 | 25.613 |
| 11.00 | 2389900 | BB | 3 | 7.930 |
| 12.68 | 2112800 | BB | 4 | 7.011 |
| 14.33 | 169000 | BB | 5 | 0.569 |
| 15.98 | 1768400 | BB | 6 | 5.863 |
| 19.14 | 7148600 | BB | 7 | 23.900 |
| 21.87 | 8.0439E+07 | SPB | 8S | 100.000 |

TOTAL AREA= 2.3208E+08
ISTD AMT= 1.0000E+02
MUL FACTOR= 1.0000E+00

RUN # 139 DEC/17/84 14:57:36

AREA%

| RT | AREA | TYPE | AR/HT | AREA% |
|---|---|---|---|---|
| 4.75 | 4902200 | SPB | 0.383 | 1.751 |
| 5.47 | 2531000 | SPB | 0.311 | 0.904 |
| 6.01 | 1.0458E+07 | SPB | 0.248 | 3.736 |
| 6.47 | 3991400 | SPB | 0.266 | 1.426 |
| 7.65 | 1.3028E+08 | SPB | 0.514 | 46.546 |
| 9.21 | 7691100 | BB | 0.524 | 2.748 |
| 9.89 | 1650700 | BR | 0.337 | 0.590 |
| 11.00 | 2389900 | BB | 0.520 | 0.854 |
| 11.91 | 686140 | BB | 0.470 | 0.245 |
| 12.68 | 2112800 | BR | 0.485 | 0.755 |
| 13.92 | 442810 | BB | 0.309 | 0.158 |
| 14.33 | 169000 | BB | 0.243 | 0.060 |
| 14.98 | 490650 | BB | 0.297 | 0.175 |
| 15.98 | 1768400 | BB | 0.321 | 0.632 |
| 17.05 | 1056800 | PB | 0.346 | 0.378 |
| 18.16 | 4484700 | BB | 0.524 | 1.602 |
| 19.14 | 7148600 | BB | 0.382 | 2.554 |
| 20.18 | 195710 | PR | 0.210 | 0.070 |
| 20.54 | 231760 | BB | 0.195 | 0.083 |
| 21.03 | 84467 | BB | 0.197 | 0.030 |
| 21.87 | 8.0439E+07 | SPB | 0.246 | 28.739 |
| 23.87 | 762270 | PB | 0.271 | 0.272 |
| 23.85 | 132550 | BB | 0.179 | 0.047 |
| 24.20 | 492870 | BB | 0.202 | 0.176 |
| 24.81 | 9973500 | BB | 0.273 | 3.563 |
| 25.57 | 2299700 | BB | 0.270 | 0.822 |
| 26.26 | 2173600 | BB | 0.281 | 0.777 |
| 26.97 | 347810 | BB | 0.276 | 0.124 |
| 27.57 | 91757 | BB | 0.176 | 0.033 |
| 29.67 | 419630 | I PP | 0.275 | 0.150 |

TOTAL AREA= 2.7998E+08
MUL FACTOR= 1.0000E+00

INDUSTRIAL TESTING LABORATORIES, INC.
ALCOHOL ETHOXYLATE ANALYSIS
REPORT NUMBER 84-5-360, PAGE 70

| | |
|---|---|
| SAMPLE ID | 4E |
| SAMPLE TYPE | EFFLUENT SPIKE |
| SAMPLE VOLUME | 4000 MILLILITERS |
| ISTD AMOUNT | 200 MICROGRAMS |
| FINAL VOLUME | 500 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 385 * |
| ALCOHOL ETHOXYLATE CONC. = | .21 MG/L |

CALCULATIONS

| ALKYL CHAIN | AVG. EO | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 8 | 11,499 : 22,966 | (172 + 132 ):298 | 200 | 124.2 |
| 12 | 8 | 22,887 : 22,966 | (186 + 132 ):298 | 200 | 258.6 |
| 13 | 8 | 9,837 : 22,966 | (200 + 132 ):298 | 200 | 110 |
| 14 | 8 | 12,909 : 22,966 | (214 + 132 ):298 | 200 | 151.8 |
| 15 | 8 | 4,156 : 22,966 | (228 + 132 ):298 | 200 | 53.2 |
| 16 | 8 | 8,004 : 22,966 | (242 + 132 ):298 | 200 | 105.4 |
| 18 | 8 | 8,821 : 22,966 | (270 + 132 ):298 | 200 | 54.6 |
| | | | | | 858.8 |

TOTAL MICROGRAMS ALCOHOL ETHOXYLATE = 858.8

* FROM ASSUMED EO VALUE 8 . NOTE THAT THIS ASSUMED VALUE MAY NOT BE IN AGREEMENT WITH THE EXPERIMENTAL VALUE CALCULATED FROM THE AVAILABLE DATA.

INDUSTRIAL TESTING LABORATORIES, INC.
ALCOHOL ETHOXYLATE ANALYSIS
REPORT NUMBER 84-5-360, PAGE 71

| | |
|---|---|
| SAMPLE ID | 4E-B |
| SAMPLE TYPE | EFFLUENT SPIKE |
| SAMPLE VOLUME | 4000 MILLILITERS |
| ISTD AMOUNT | 200 MICROGRAMS |
| FINAL VOLUME | 500 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 386 * |
| ALCOHOL ETHOXYLATE CONC. = | .21 MG/L |

CALCULATIONS

| ALKYL CHAIN | AVG. EO | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 8 | 11.389 : 22.987 | (172 + 132 ):298 | 200 | 128.2 |
| 12 | 8 | 22.868 : 22.987 | (186 + 132 ):298 | 200 | 258.7 |
| 13 | 8 | 9.824 : 22.987 | (200 + 132 ):298 | 200 | 110.1 |
| 14 | 8 | 13.272 : 22.987 | (214 + 132 ):298 | 200 | 151.1 |
| 15 | 8 | 4.16 : 22.987 | (228 + 132 ):298 | 200 | 53.8 |
| 16 | 8 | 8.082 : 22.987 | (242 + 132 ):298 | 200 | 106.9 |
| 18 | 8 | 3.812 : 22.987 | (270 + 132 ):298 | 200 | 54.5 |
| TOTAL MICROGRAMS ALCOHOL ETHOXYLATE = | | | | | 857.8 |

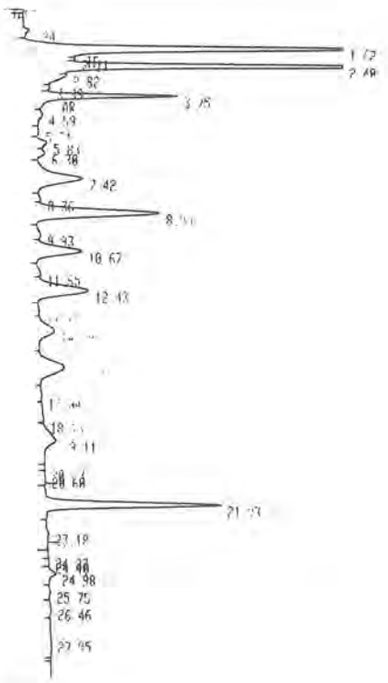
* FROM ASSUMED EO VALUE 8 . NOTE THAT THIS ASSUMED VALUE MAY NOT BE IN AGREEMENT WITH THE EXPERIMENTAL VALUE CALCULATED FROM THE AVAILABLE DATA.

LIST ZERO = 0, 1.2

LIST LIST
PEAK CAPACITY= 1151

ZERO = 0, 1.2
AFT 2† = 9
CHT SP = 0.5
PK WD = 0.16
THRSH = 5
AR REJ = 1000000000

4E-1
Page 72L




STOP

RUN # 60 NOV/27/84 19:35:57

ISTD
| RT | AREA | TYPE | CAL # | AMOUNT |
|---|---|---|---|---|
| 7.42 | 1.6958E+07 | BB | 1 | 134.190 |
| 8.95 | 3.3752E+07 | BB | 2 | 266.950 |
| 10.67 | 1.3755E+07 | BB | 3 | 108.480 |
| 12.43 | 1.8153E+07 | BB | 4 | 143.060 |
| 14.20 | 6129100 | BB | 5 | 49.037 |
| 15.82 | 1.1804E+07 | BB | 6 | 92.940 |
| 19.11 | 5634300 | BB | 7 | 44.379 |
| 21.93 | 3.3869E+07 | SBB | 8S | 100.000 |

TOTAL AREA= 1.4005E+08
ISTD AMT= 1.0000E+02
MUL FACTOR= 1.0000E+00

RUN # 60 NOV/27/84 19:35:57

AREA%
| RT | AREA | TYPE | AREA/WT | AREA% |
|---|---|---|---|---|
| 4.59 | 728340 | BB | 0.292 | 0.494 |
| 5.31 | 329860 | BB | 0.244 | 0.223 |
| 5.87 | 1435000 | BB | 0.251 | 0.973 |
| 6.38 | 927130 | BB | 0.247 | 0.629 |
| 7.42 | 1.6958E+07 | BB | 0.490 | 11.499 |
| 8.36 | 120010 | BB | 0.142 | 0.081 |
| 8.95 | 3.3752E+07 | BB | 0.360 | 22.882 |
| 9.93 | 586590 | BB | 0.308 | 0.398 |
| 10.67 | 1.3755E+07 | BB | 0.404 | 9.327 |
| 11.65 | 328700 | BB | 0.247 | 0.223 |
| 12.43 | 1.8153E+07 | BB | 0.473 | 12.309 |
| 13.37 | 123860 | BB | 0.305 | 0.084 |
| 14.20 | 6129100 | BB | 0.527 | 4.156 |
| 15.82 | 1.1804E+07 | BB | 0.628 | 8.004 |
| 17.04 | 146390 | BB | 0.320 | 0.099 |
| 18.13 | 206400 | BB | 0.563 | 0.140 |
| 19.11 | 5634300 | BB | 0.591 | 3.821 |
| 20.23 | 38549 | BP | 0.228 | 0.026 |
| 20.60 | 67558 | BB | 0.285 | 0.046 |
| 21.93 | 3.3869E+07 | SBB | 0.251 | 22.966 |
| 23.18 | 178980 | BB | 0.206 | 0.121 |
| 24.40 | 48988 | BB | 0.134 | 0.033 |
| 24.98 | 1388400 | BB | 0.274 | 0.942 |
| 25.75 | 197838 | BB | 0.267 | 0.134 |
| 26.46 | 302790 | BB | 0.320 | 0.205 |
| 27.85 | 273980 | BB | 0.652 | 0.186 |

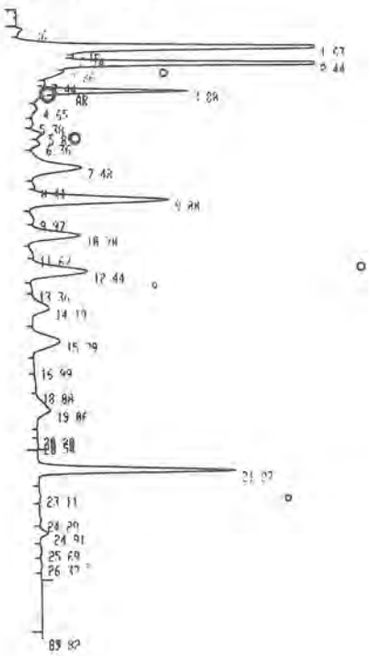
TOTAL AREA= 1.4747E+08
MUL FACTOR= 1.0000E+00

LIST ZERO = 0.-0.4

LIST LIST
PEAK CAPACITY= 1151

ZERO = 0, 0.5
AFT 2† = 9
CHT SP = 0.5
PK WD = 0.16
THRSH = 5
AR REJ = 1000000000

4E-1B
Page 72R




RUN # 61 NOV/27/84 19:22:11

ISTD
| RT | AREA | TYPE | CAL # | AMOUNT |
|---|---|---|---|---|
| 7.48 | 2.8219E+07 | BB | 1 | 133.870 |
| 9.00 | 4.8598E+07 | BB | 2 | 252.870 |
| 10.70 | 1.6553E+07 | BB | 3 | 108.500 |
| 12.44 | 2.1787E+07 | BP | 4 | 142.810 |
| 14.19 | 7384500 | BB | 5 | 49.140 |
| 15.79 | 1.4268E+07 | BB | 6 | 93.388 |
| 19.06 | 6767500 | BB | 7 | 44.695 |
| 21.87 | 4.8721E+07 | SBB | 8S | 100.000 |

TOTAL AREA= 1.6829E+08
ISTD AMT= 1.0000E+02
MUL FACTOR= 1.0000E+00

RUN # 61 NOV/27/84 19:22:11

AREA%
| RT | AREA | TYPE | AREA/WT | AREA% |
|---|---|---|---|---|
| 4.65 | 959970 | BB | 0.243 | 0.484 |
| 5.38 | 427500 | BB | 0.231 | 0.241 |
| 6.89 | 1707600 | BB | 0.250 | 0.962 |
| 8.36 | 1122900 | BP | 0.248 | 0.633 |
| 7.48 | 2.8219E+07 | BB | 0.488 | 11.789 |
| 8.41 | 129430 | BB | 0.171 | 0.073 |
| 9.00 | 4.8598E+07 | BB | 0.359 | 22.868 |
| 9.97 | 698190 | BB | 0.321 | 0.389 |
| 10.70 | 1.6553E+07 | BB | 0.463 | 9.324 |
| 11.67 | 484790 | BP | 0.297 | 0.217 |
| 12.44 | 2.1787E+07 | BB | 0.472 | 12.229 |
| 13.36 | 113130 | BP | 0.262 | 0.064 |
| 14.19 | 7384500 | BB | 0.521 | 4.168 |
| 15.79 | 1.4268E+07 | BP | 0.632 | 8.032 |
| 16.99 | 189840 | BB | 0.325 | 0.107 |
| 18.88 | 276180 | BB | 0.636 | 0.156 |
| 19.86 | 6767500 | BB | 0.588 | 3.813 |
| 20.28 | 42897 | BP | 0.248 | 0.024 |
| 20.54 | 78190 | BB | 0.149 | 0.044 |
| 21.87 | 4.8721E+07 | SBB | 0.240 | 27.437 |
| 23.11 | 505570 | BB | 0.359 | 0.285 |
| 24.29 | 427600 | BB | 0.400 | 0.238 |
| 24.91 | 1701000 | BB | 0.224 | 0.958 |
| 25.69 | 320640 | BB | 0.228 | 0.181 |
| 26.37 | 214540 | BB | 0.228 | 0.121 |
| 29.82 | 56166 | BH | 0.283 | 0.032 |

TOTAL AREA= 1.7753E+08
MUL FACTOR= 1.0000E+00

LIST ZERO = 0, 1.6

LIST ZERO = 0, -2.6

LIST ZERO = 0,-0.1

LIST ZERO = 0, 2.1

LIST LIST
PEAK CAPACITY= 1151

ZERO = 0, 2.1
AFT 2† = 9
CHT SP = 0.5
PK WD = 0.16
THRSH = 5
AR REJ = 1000000000

INDUSTRIAL TESTING LABORATORIES, INC.
ALCOHOL ETHOXYLATE ANALYSIS
REPORT NUMBER 84-5-360, PAGE 73

| | |
|---|---|
| SAMPLE ID | SA-1 |
| SAMPLE TYPE | EFFLUENT |
| SAMPLE VOLUME | 5000 MILLILITERS |
| ISTD AMOUNT | 100 MICROGRAMS |
| FINAL VOLUME | 250 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 314 * |
| ALCOHOL ETHOXYLATE CONC. = | .02 MG/L |

CALCULATIONS

| ALKYL CHAIN | AVG. EO | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 3 | 23,243 : 37,747 | (172 + 132 ):298 | 100 | 76.4 |
| 12 | 3 | 2,519 : 37,747 | (186 + 132 ):298 | 100 | 9 |
| 13 | 3 | 1,459 : 37,747 | (200 + 132 ):298 | 100 | 5.2 |
| 14 | 3 | ,687 : 37,747 | (214 + 132 ):298 | 100 | 2.4 |
| 15 | 0 | 0: 37,747 | (NO CALCULATION):298 | 100 | 0 |
| 16 | 3 | ,415 : 37,747 | (242 + 132 ):298 | 100 | 1.7 |
| 18 | 3 | 1,568 : 37,747 | (270 + 132 ):298 | 100 | 6.8 |
| TOTAL MICROGRAMS ALCOHOL ETHOXYLATE = | | | | | 101.5 |

* FROM ASSUMED EO VALUE 3 . NOTE THAT THIS ASSUMED VALUE MAY NOT BE IN AGREEMENT WITH THE EXPERIMENTAL VALUE CALCULATED FROM THE AVAILABLE DATA.

INDUSTRIAL TESTING LABORATORIES, INC.
ALCOHOL ETHOXYLATE ANALYSIS
REPORT NUMBER 84-5-360, PAGE 74

| | |
|---|---|
| SAMPLE ID | 5A-1B |
| SAMPLE TYPE | EFFLUENT |
| SAMPLE VOLUME | 5000 MILLILITERS |
| ISTD AMOUNT | 100 MICROGRAMS |
| FINAL VOLUME | 250 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 313 * |
| ALCOHOL ETHOXYLATE CONC. = | .02 MG/L |

CALCULATIONS

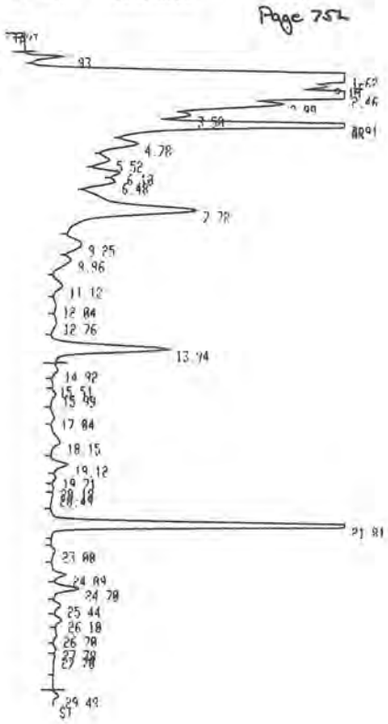
| ALKYL CHAIN | AVG. EO | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 3 | 16,773 : 26,772 | (172 + 132 ):298 | 100 | 77.7 |
| 12 | 3 | 1,991 : 26,772 | (186 + 132 ):298 | 100 | 9.6 |
| 13 | 3 | 1,098 : 26,772 | (200 + 132 ):298 | 100 | 5.6 |
| 14 | 3 | .412 : 26,772 | (214 + 132 ):298 | 100 | 2.2 |
| 15 | 0 | 0: 26,772 | (NO CALCULATION):298 | 100 | 0 |
| 16 | 3 | .275 : 26,772 | (242 + 132 ):298 | 100 | 1.6 |
| 18 | 3 | 1,12 : 26,772 | (270 + 132 ):298 | 100 | 6.9 |
| | | | | | 103.6 |

TOTAL MICROGRAMS ALCOHOL ETHOXYLATE =

* FROM ASSUMED EO VALUE 3 . NOTE THAT THIS ASSUMED VALUE MAY NOT BE IN AGREEMENT WITH THE EXPERIMENTAL VALUE CALCULATED FROM THE AVAILABLE DATA.

```
LIST: LIST
PEAK CAPACITY: 1151

ZERO   =  0, 2.6
ATT 2^ =  9
CHT SP =  0.5
PK WD  =  0.16
THRSH  =  5
AR REJ =  1000000000
```

SA-1
20µl
Page 752

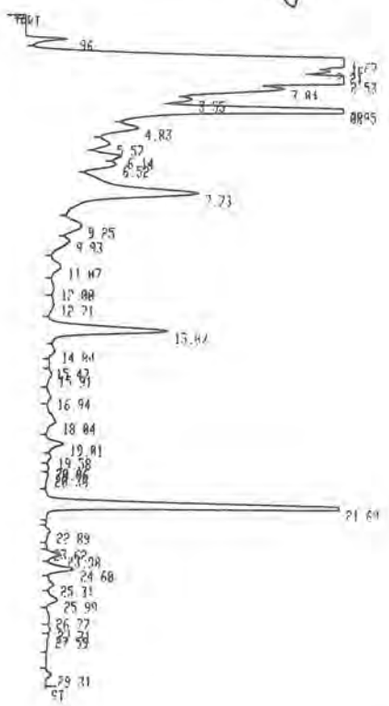



```
RUN #   92                DEC/04/84   10:35:01

ISTD
   RT          AREA TYPE   CAL #        AMOUNT
 7.72  5.0937E+07   BB       1        165.030
 9.25     5740300   BR       2         18.589
11.12     3197300   BR       3         10.317
12.76     1395200   BR       4          4.502
14.92      970010   BB       5          3.178
15.99      910000   BB       6          2.934
19.12     3436500   BR       7         11.172
21.81  8.2721E+07   SPB      8S       100.000

TOTAL AREA= 1.4931E+08
  ISTD AMT= 1.0000E+02
MUL FACTOR= 1.0000E+00
```

```
RUN #   92                DEC/04/84   10:35:01

AREA%
   RT          AREA TYPE   AR/HT        AREA%
 4.78     5943400   SPB    0.307        2.712
 5.52     3233600   SPB    0.321        1.476
 6.10     3169900   SPB    0.240        1.447
 6.48      258290   SPB    0.272        1.179
 7.72  5.0937E+07   BB     0.548       23.243
 9.25     5740300   BR     0.581        2.619
 9.96     2422100   BB     0.386        1.105
11.12     3197300   BB     0.450        1.459
12.84      645410   BR     0.483        0.295
12.76     1395200   BB     0.499        0.637
13.94  3.3193E+07   BB     0.371       15.146
14.92      970010   BB     0.312        0.443
15.51       92855   BR     0.226        0.042
15.99      910000   BR     0.299        0.415
17.84      991170   BB     0.369        0.452
18.15     3614400   BB     0.508        1.649
19.12     3436500   BB     0.287        1.568
19.71      450700   BR     0.206        0.206
20.18      201030   BB     0.187        0.092
20.49       89034   BB     0.131        0.041
21.81  8.2721E+07   SPB    0.246       37.747
23.00      969160   PB     0.299        0.442
24.89     2129600   BB     0.224        0.972
24.78     5176300   BR     0.271        2.362
25.44     1431300   BB     0.277        0.653
26.18     1391300   BB     0.284        0.635
26.78      589910   BB     0.351        0.269
27.38      309790   BB     0.197        0.141
27.70       54378   BB     0.101        0.025
29.49     1158600 I BP     0.260        0.529

TOTAL AREA= 2.1915E+08
MUL FACTOR= 1.0000E+00
```

```
LIST: ZERO =  0, 3.9

LIST: LIST
PEAK CAPACITY: 1151

ZERO   =  0, 3.9
ATT 2^ =  9
CHT SP =  0.5
PK WD  =  0.16
THRSH  =  5
AR REJ =  1000000000
```

SA-1B
20µl
Page 75




```
RUN #   93                DEC/04/84   11:12:44

ISTD
   RT          AREA TYPE   CAL #        AMOUNT
 7.73  5.1176E+07   BR       1        167.910
 9.25     6074000   BB       2         19.920
11.07     3350200   BB       3         10.942
12.71     1255600   BR       4          4.103
14.84     1039100   BB       5          3.442
15.91      839990   BR       6          2.742
19.01     3417400   BR       7         11.251
21.69  8.1682E+07   SPA      8S       100.000

TOTAL AREA= 1.4883E+08
  ISTD AMT= 1.0000E+02
MUL FACTOR= 1.0000E+00
```

```
RUN #   93                DEC/04/84   11:12:44

AREA%
   RT          AREA TYPE   AR/HT        AREA%
 3.95  8.5508E+07 ?SPR    0.210       28.826
 4.83     5939000   BR     0.312        1.947
 5.57     3079500   BR     0.314        1.009
 6.14     3134800   BR     0.240        1.027
 6.52     2582300   BR     0.266        0.846
 7.73  5.1176E+07   BR     0.548       16.773
 9.25     6074000   BB     0.488        1.991
 9.93     2525800   BR     0.402        0.828
11.07     3350200   BB     0.445        1.098
12.00      661820   BB     0.393        0.217
12.71     1255600   BR     0.489        0.412
13.87  3.3263E+07   BB     0.366       10.902
14.84     1039100   BB     0.318        0.341
15.47      115960   BB     0.246        0.038
15.91      839990   BB     0.296        0.275
16.94     1053000   BB     0.360        0.345
18.04     3694400   BB     0.516        1.211
19.01     3417400   BR     0.284        1.120
19.58      430500   BB     0.206        0.141
20.06      202670   BB     0.189        0.066
20.38      101340   BB     0.140        0.033
21.69  8.1682E+07   SPR    0.242       26.778
22.89      916090   PB     0.295        0.300
23.62       21377   BB     0.122        0.007
23.98     2257500   BB     0.222        0.740
24.68     5161600   BB     0.259        1.692
25.31     1099500   BB     0.264        0.360
25.99     2587900   BB     0.316        0.822
26.77      536990   BB     0.335        0.176
27.31      292380   BB     0.171        0.096
29.31     1183200   VB     0.262        0.388

TOTAL AREA= 3.0510E+08
MUL FACTOR= 1.0000E+00
```

INDUSTRIAL TESTING LABORATORIES, INC.
ALCOHOL ETHOXYLATE ANALYSIS
REPORT NUMBER 84-5-360, PAGE 76

| | |
|---|---|
| SAMPLE ID | 5A-2 |
| SAMPLE TYPE | EFFLUENT |
| SAMPLE VOLUME | 5000 MILLILITERS |
| ISTD AMOUNT | 100 MICROGRAMS |
| FINAL VOLUME | 250 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 312 * |
| ALCOHOL ETHOXYLATE CONC. = | .02 MG/L |

CALCULATIONS

| ALKYL CHAIN | AVG. EO | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 3 | 11.718 : 19.786 | (172 + 132 ):298 | 100 | 78.4 |
| 12 | 3 | 1.523 : 19.786 | (186 + 132 ):298 | 100 | 10.6 |
| 13 | 3 | 1.35 : 19.786 | (200 + 132 ):298 | 100 | 9.1 |
| 14 | 0 | 0: 19.786 | (NO CALCULATION):298 | 100 | 0 |
| 15 | 0 | 0: 19.786 | (NO CALCULATION):298 | 100 | 0 |
| 16 | 3 | .474 : 19.786 | (242 + 132 ):298 | 100 | 3.7 |
| 18 | 3 | .258 : 19.786 | (270 + 132 ):298 | 100 | 2.1 |
| | | | | | 98.9 |

TOTAL MICROGRAMS ALCOHOL ETHOXYLATE = 98.9

* FROM ASSUMED EO VALUE 3 . NOTE THAT THIS ASSUMED VALUE MAY NOT BE IN AGREEMENT WITH THE EXPERIMENTAL VALUE CALCULATED FROM THE AVAILABLE DATA.

| | |
|---|---|
| SAMPLE ID | 5A-2E |
| SAMPLE TYPE | EFFLUENT |
| SAMPLE VOLUME | 5000 MILLILITERS |
| ISTD AMOUNT | 100 MICROGRAMS |
| FINAL VOLUME | 250 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 317 * |
| ALCOHOL ETHOXYLATE CONC. = | .02 MG/L |

CALCULATIONS

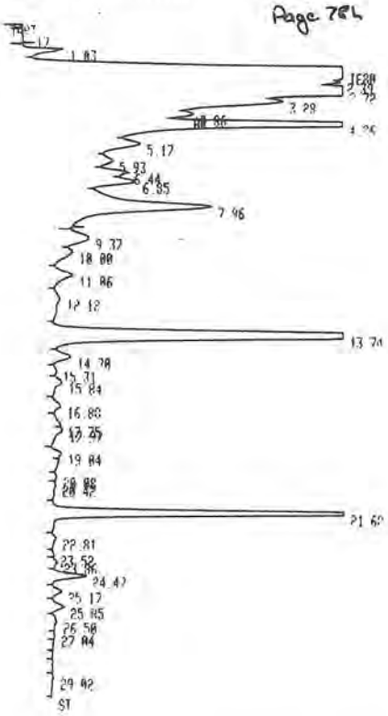
| ALKYL CHAIN | AVG. EO | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 8 | 14,188 : 26,825 | (172 + 132 ):298 | 100 | 66.8 |
| 12 | 3 | 1,895 : 26,825 | (186 + 132 ):298 | 100 | 8.9 |
| 13 | 3 | 1,621 : 26,825 | (200 + 132 ):298 | 100 | 8.8 |
| 14 | 0 | 0: 26,825 | (NO CALCULATION ):298 | 100 | 0 |
| 15 | 0 | 0: 26,825 | (NO CALCULATION):298 | 100 | 0 |
| 16 | 3 | 1,532 : 26,825 | (242 + 132 ):298 | 100 | 8.1 |
| 18 | 3 | 1,542 : 26,825 | (270 + 132 ):298 | 100 | 8.6 |
| TOTAL MICROGRAMS ALCOHOL ETHOXYLATE = | | | | | 97.1 |

* FROM ASSUMED EO VALUE 9 . NOTE THAT THIS ASSUMED VALUE MAY NOT BE IN AGREEMENT WITH THE EXPERIMENTAL VALUE CALCULATED FROM THE AVAILABLE DATA.

LIST: LIST
PEAK CAPACITY: 1151

ZERO = 0, 2.7
ATT SP = 9
CHT SP = 0.5
PK WD = 0.16
THRSH = 5
AR REJ = 1000000000

SA-2
20 µL
Page 78L




RUN # 95 DEC/04/04 12:31:03

ISTD

| RT | AREA | TYPE | CAL# | AMOUNT |
|---|---|---|---|---|
| 6.85 | 5365100 | BR | 1 | 17.618 |
| 9.37 | 6695100 | BR | 2 | 21.976 |
| 11.06 | 5487700 | BR | 3 | 17.948 |
| 12.12 | 3028300 | BR | 4 | 9.904 |
| 14.70 | 3803900 | BB | 5 | 12.630 |
| 15.84 | 1954300 | BR | 6 | 6.386 |
| 19.04 | 1067000 | BR | 7 | 3.516 |
| 21.68 | 8.1611E+07 | SPB | BS | 100.000 |

TOTAL AREA= 1.0901E+08
ISTD AMT= 1.0000E+02
MUL FACTOR= 1.0000E+00

RUN # 95 DEC/04/04 12:31:03

AREA%

| | RT | AREA | TYPE | AR/HT | AREA% |
|---|---|---|---|---|---|
| | 3.86 | 2162500 | BB | 0.197 | 0.524 |
| | 4.26 | 8.8094E+07 | SPB | 0.216 | 21.352 |
| | 5.17 | 5916400 | BR | 0.312 | 1.434 |
| | 5.93 | 2444900 | BR | 0.297 | 0.593 |
| | 6.44 | 2775900 | BB | 0.218 | 0.673 |
| | 6.85 | 5365100 | BR | 0.251 | 1.301 |
| 11 | 7.96 | 4.8314E+07 | BB | 0.489 | 11.713 |
| 12 | 9.37 | 6695100 | BB | 0.450 | 1.623 |
| | 10.00 | 2269200 | BB | 0.378 | 0.550 |
| 13 | 11.06 | 5487700 | BB | 0.490 | 1.330 |
| | 12.12 | 3028300 | BB | 0.664 | 0.734 |
| | 13.74 | 1.3531E+08 | SPB | 0.351 | 32.804 |
| | 14.70 | 3803900 | BB | 0.316 | 0.922 |
| | 15.31 | 331700 | BR | 0.242 | 0.080 |
| 16 | 15.84 | 1954300 | BR | 0.348 | 0.474 |
| | 16.88 | 1719700 | BB | 0.316 | 0.417 |
| | 17.97 | 587300 | BB | 0.196 | 0.142 |
| 18 | 19.04 | 1067000 | BR | 0.252 | 0.259 |
| | 20.08 | 219030 | PB | 0.196 | 0.053 |
| | 20.42 | 148288 | BB | 0.188 | 0.036 |
| — | 21.68 | 8.1611E+07 | SPB | 0.231 | 19.786 |
| | 22.81 | 827600 | BB | 0.262 | 0.201 |
| | 23.52 | 92100 | BB | 0.156 | 0.022 |
| | 23.86 | 587100 | BB | 0.210 | 0.142 |
| | 24.47 | 6357900 | BB | 0.253 | 1.541 |
| | 25.17 | 1701200 | BB | 0.251 | 0.412 |
| | 25.85 | 2401400 | BB | 0.281 | 0.582 |
| | 26.50 | 778740 | BB | 0.345 | 0.189 |
| | 27.04 | 126760 | BB | 0.253 | 0.031 |
| | 29.02 | 297390 | PB | 0.259 | 0.072 |

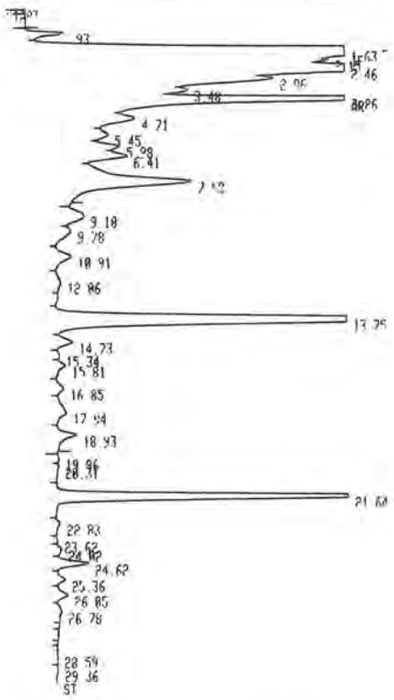
TOTAL AREA= 4.1248E+08
MUL FACTOR= 1.0000E+00

LIST: ZERO = 0, 5.4

LIST: LIST
PEAK CAPACITY: 1151

ZERO = 0, 5.2
ATT SP = 9
CHT SP = 0.5
PK WD = 0.16
THRSH = 5
AR REJ = 1000000000

SA-2B
20 µL
Page 78R




RUN # 99 DEC/04/04 16:11:58

ISTD

| RT | AREA | TYPE | CAL# | AMOUNT |
|---|---|---|---|---|
| 7.58 | 4.4949E+07 | BB | 1 | 144.390 |
| 9.10 | 6006500 | BR | 2 | 19.286 |
| 10.91 | 5135800 | BB | 3 | 16.491 |
| 12.86 | 1408300 | BR | 4 | 4.506 |
| 14.73 | 3552000 | BR | 5 | 11.537 |
| 15.81 | 1684600 | BR | 6 | 5.385 |
| 18.93 | 4885400 | BR | 7 | 15.748 |
| 21.64 | 8.3428E+07 | SPB | BS | 100.000 |

TOTAL AREA= 1.5105E+08
ISTD AMT= 1.0000E+02
MUL FACTOR= 1.0000E+00

RUN # 99 DEC/04/04 16:11:58

AREA%

| | RT | AREA | TYPE | AR/HT | AREA% |
|---|---|---|---|---|---|
| | 4.21 | 5222500 | SPB | 0.303 | 1.648 |
| | 5.45 | 2246700 | SPB | 0.304 | 0.709 |
| | 5.98 | 2438400 | SPB | 0.215 | 0.767 |
| | 6.41 | 5287700 | SPB | 0.271 | 1.669 |
| 11 | 7.58 | 4.4949E+07 | BB | 0.521 | 14.183 |
| 12 | 9.10 | 6006500 | BB | 0.492 | 1.895 |
| | 9.78 | 2111800 | BB | 0.408 | 0.666 |
| 13 | 10.91 | 5135800 | BB | 0.423 | 1.621 |
| | 12.86 | 1408300 | BB | 0.475 | 0.444 |
| | 13.75 | 1.2948E+08 | SPB | 0.365 | 40.856 |
| | 14.73 | 3552000 | BB | 0.326 | 1.121 |
| | 15.34 | 268480 | BB | 0.230 | 0.085 |
| 16 | 15.81 | 1684600 | BB | 0.296 | 0.532 |
| | 16.85 | 1640800 | BB | 0.327 | 0.518 |
| | 17.94 | 3688300 | BB | 0.548 | 1.161 |
| 18 | 18.93 | 4885400 | BB | 0.338 | 1.542 |
| | 19.96 | 174550 | BB | 0.205 | 0.055 |
| | 20.31 | 113400 | BB | 0.146 | 0.036 |
| — | 21.64 | 8.3428E+07 | SPB | 0.245 | 26.325 |
| | 22.83 | 834510 | BB | 0.273 | 0.263 |
| | 23.62 | 83046 | BB | 0.136 | 0.026 |
| | 24.02 | 727690 | BB | 0.234 | 0.230 |
| | 24.62 | 6158000 | BB | 0.261 | 1.943 |
| | 25.36 | 1473400 | BB | 0.263 | 0.465 |
| | 26.85 | 2448600 | BB | 0.306 | 0.773 |
| | 26.78 | 1040500 | BB | 0.397 | 0.328 |
| | 28.59 | 186290 | PB | 0.431 | 0.059 |
| | 29.36 | 259090 | I BP | 0.236 | 0.082 |

TOTAL AREA= 3.1691E+08
MUL FACTOR= 1.0000E+00

INDUSTRIAL TESTING LABORATORIES, INC.
ALCOHOL ETHOXYLATE ANALYSIS
REPORT NUMBER 84-5-360. PAGE 79

| | |
|---|---|
| SAMPLE ID | 5A-8 |
| SAMPLE TYPE | EFFLUENT |
| SAMPLE VOLUME | 5000 MILLILITERS |
| ISTD AMOUNT | 100 MICROGRAMS |
| FINAL VOLUME | 250 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 320 * |
| ALCOHOL ETHOXYLATE CONC. = | .02 MG/L |

CALCULATIONS

| ALKYL CHAIN | AVG. EO | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 8 | 28,207 : 44,78 | (172 + 132 ):298 | 100 | 64.8 |
| 12 | 8 | 8,524 : 44,78 | (186 + 132 ):298 | 100 | 19.2 |
| 13 | 8 | 1,889 : 44,78 | (200 + 132 ):298 | 100 | 4.2 |
| 14 | 8 | 1,79 : 44,78 | (214 + 132 ):298 | 100 | 2.5 |
| 15 | 0 | 0: 44,78 | (NO CALCULATION):298 | 100 | 0 |
| 16 | 8 | ,849 : 44,78 | (242 + 132 ):298 | 100 | 1.2 |
| 18 | 8 | 4,048 : 44,78 | (270 + 132 ):298 | 100 | 14.8 |
| | | | | | 97.2 |

TOTAL MICROGRAMS ALCOHOL ETHOXYLATE =

* FROM ASSUMED EO VALUE 8 . NOTE THAT THIS ASSUMED VALUE MAY NOT BE IN AGREEMENT WITH THE EXPERIMENTAL VALUE CALCULATED FROM THE AVAILABLE DATA.

INDUSTRIAL TESTING LABORATORIES, INC.
ALCOHOL ETHOXYLATE ANALYSIS
REPORT NUMBER 84-5-350, PAGE 80

| | |
|---|---|
| SAMPLE ID | 5A-3B |
| SAMPLE TYPE | EFFLUENT |
| SAMPLE VOLUME | 5000 MILLILITERS |
| ISTD AMOUNT | 100 MICROGRAMS |
| FINAL VOLUME | 250 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 321 * |
| ALCOHOL ETHOXYLATE CONC. = | .02 MG/L |

CALCULATIONS

| ALKYL CHAIN | AVG. EO | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 3 | 22.242 : 46.824 | (172 + 132 ):298 | 100 | 59.6 |
| 12 | 3 | 3.823 : 46.824 | (186 + 132 ):298 | 100 | 9.3 |
| 13 | 3 | 1.33 : 46.824 | (200 + 132 ):298 | 100 | 3.9 |
| 14 | 3 | .804 : 46.824 | (214 + .32 ):298 | 100 | 2.5 |
| 15 | 0 | 0: 46.824 | (NO CALCULATION):298 | 100 | 0 |
| 16 | 3 | .347 : 46.824 | (242 + 132 ):298 | 100 | 1.1 |
| 18 | 3 | 3.963 : 46.824 | (270 + 132 ):298 | 100 | 14 |
| | | | | | 90.4 |

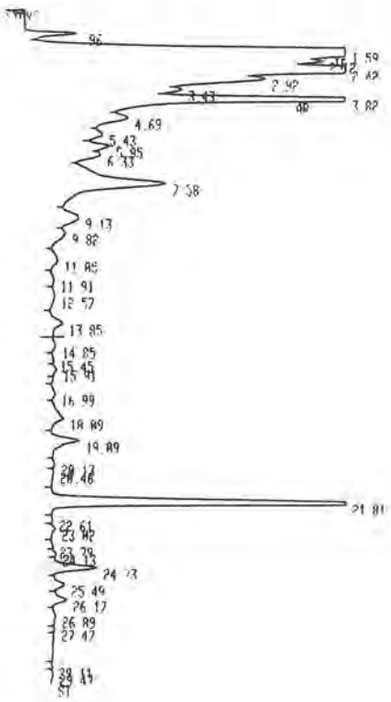
TOTAL MICROGRAMS ALCOHOL ETHOXYLATE = 90.4

* FROM ASSUMED EO VALUE 3 . NOTE THAT THIS ASSUMED VALUE MAY NOT BE IN AGREEMENT WITH THE EXPERIMENTAL VALUE CALCULATED FROM THE AVAILABLE DATA.

LIST: LIST
PEAK CAPACITY: 1151

ZERO = 0.25
ATT 2↑ = 9
CHT SP = 0.5
PK WD = 0.16
THRSH = 5
AR REJ = 1000000000

SA-3
20µl
Page 81L




RUN # 101 DEC/04/84 17:33:31

ISTD

| RT | AREA | TYPE | CAL # | AMOUNT |
|---|---|---|---|---|
| 7.58 | 4 1340E+07 | BB | 1 | 139.000 |
| 9.13 | 6276700 | BR | 2 | 31.101 |
| 11.85 | 2474200 | BB | 3 | 8.288 |
| 12.57 | 1389200 | BR | 4 | 4.654 |
| 14.85 | 827310 | BB | 5 | 2.813 |
| 15.91 | 619950 | BR | 6 | 2.075 |
| 19.89 | 7213100 | BB | 7 | 24.345 |
| 21.81 | 7 9683E+07 | SPB | 8S | 100.000 |

TOTAL AREA= 1.3982E+08
ISTD AMT= 1.0000E+02
MUL FACTOR= 1.0000E+00

RUN # 101 DEC/04/84 17:33:31

AREA%

| | RT | AREA | TYPE | AR/HT | AREA% |
|---|---|---|---|---|---|
| | 4.69 | 4349100 | SPB | 0.296 | 2.441 |
| | 5.43 | 2215200 | SPB | 0.296 | 1.244 |
| | 5.95 | 2627900 | BR | 0.223 | 1.475 |
| | 6.33 | 1789200 | BB | 0.274 | 1.004 |
| 11 | 7.58 | 4 1340E+07 | BR | 0.563 | 23.287 |
| 12 | 9.13 | 6276700 | BR | 0.499 | 3.524 |
| | 9.82 | 1948800 | BB | 0.439 | 1.094 |
| 13 | 11.85 | 2474200 | BB | 0.522 | 1.389 |
| | 11.91 | 613590 | BB | 0.358 | 0.344 |
| 14 | 12.57 | 1389200 | BR | 0.610 | 0.780 |
| | 13.85 | 3266600 | BB | 0.389 | 1.834 |
| | 14.85 | 827310 | BR | 0.338 | 0.464 |
| | 15.45 | 167690 | BR | 0.240 | 0.094 |
| 16 | 15.91 | 619950 | BB | 0.231 | 0.348 |
| | 16.99 | 839810 | PB | 0.341 | 0.471 |
| | 18.89 | 4744200 | BB | 0.529 | 2.663 |
| 18 | 19.89 | 7213100 | BB | 0.343 | 4.049 |
| | 20.13 | 286080 | BR | 0.224 | 0.161 |
| | 20.46 | 99972 | BB | 0.189 | 0.056 |
| — | 21.81 | 7 9683E+07 | SPB | 0.243 | 44.730 |
| | 22.61 | 103030 | BB | 0.198 | 0.058 |
| | 23.02 | 613240 | BR | 0.234 | 0.344 |
| | 23.79 | 79950 | BB | 0.151 | 0.045 |
| | 24.13 | 282800 | BB | 0.169 | 0.159 |
| | 24.73 | 8825600 | BB | 0.269 | 4.954 |
| | 25.49 | 1881500 | BB | 0.253 | 1.056 |
| | 26.17 | 2648600 | BR | 0.275 | 1.487 |
| | 26.89 | 578900 | BR | 0.330 | 0.325 |
| | 27.47 | 93685 | BB | 0.176 | 0.053 |
| | 29.11 | 46167 | PB | 0.186 | 0.026 |
| | 29.47 | 215340 I | BP | 0.220 | 0.121 |

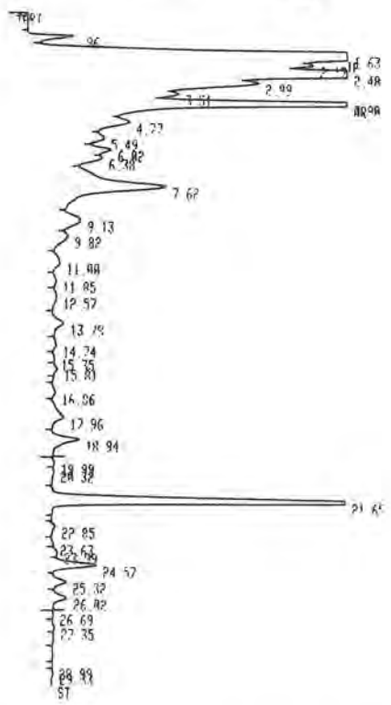
TOTAL AREA= 1.7814E+08
MUL FACTOR= 1.0000E+00

LIST: ZERO = 0. -1.3

LIST: LIST
PEAK CAPACITY: 1151

ZERO = 0.28
ATT 2↑ = 9
CHT SP = 0.5
PK WD = 0.16
THRSH = 5
AR REJ = 1000000000

SA-3B
20µl
Page 81R




RUN # 102 DEC/04/84 18:16:43

ISTD

| RT | AREA | TYPE | CAL # | AMOUNT |
|---|---|---|---|---|
| 7.62 | 3.9830E+07 | BB | 1 | 128.680 |
| 9.13 | 5951000 | BR | 2 | 19.217 |
| 11.88 | 2381300 | BB | 3 | 7.662 |
| 12.57 | 1440200 | BR | 4 | 4.634 |
| 14.74 | 792540 | BB | 5 | 2.589 |
| 15.81 | 621220 | BB | 6 | 1.997 |
| 18.94 | 7096000 | BB | 7 | 23.005 |
| 21.65 | 8 2955E+07 | SPB | 8S | 100.000 |

TOTAL AREA= 1.4107E+08
ISTD AMT= 1.0000E+02
MUL FACTOR= 1.0000E+00

RUN # 102 DEC/04/84 18:16:43

AREA%

| | RT | AREA | TYPE | AR/HT | AREA% |
|---|---|---|---|---|---|
| | 4.77 | 4124000 | SPB | 0.291 | 2.383 |
| | 5.49 | 2297800 | SPR | 0.298 | 1.283 |
| | 6.02 | 2646800 | BR | 0.224 | 1.478 |
| | 6.38 | 1471800 | BR | 0.276 | 0.822 |
| 11 | 7.62 | 3.9830E+07 | BR | 0.553 | 22.242 |
| 12 | 9.13 | 5951000 | BB | 0.489 | 3.323 |
| | 9.82 | 1932300 | BB | 0.424 | 1.079 |
| 13 | 11.88 | 2381300 | BB | 0.514 | 1.330 |
| | 11.85 | 610040 | BB | 0.349 | 0.341 |
| 14 | 12.57 | 1440200 | BB | 0.541 | 0.804 |
| | 13.78 | 3086100 | BB | 0.389 | 1.723 |
| | 14.24 | 792540 | BB | 0.336 | 0.443 |
| | 15.35 | 181820 | BB | 0.236 | 0.102 |
| 16 | 15.81 | 621220 | BR | 0.233 | 0.347 |
| | 16.86 | 815960 | PR | 0.342 | 0.456 |
| | 17.96 | 4618200 | BB | 0.525 | 2.579 |
| 17 | 18.94 | 7096000 | BB | 0.341 | 3.963 |
| | 19.99 | 245390 | PB | 0.210 | 0.137 |
| | 20.32 | 144680 | BB | 0.234 | 0.081 |
| — | 21.65 | 8.2955E+07 | SPB | 0.248 | 46.324 |
| | 22.85 | 756840 | PB | 0.261 | 0.423 |
| | 23.63 | 162050 | BR | 0.176 | 0.091 |
| | 24.99 | 460000 | BB | 0.230 | 0.257 |
| | 24.57 | 8512400 | BR | 0.266 | 4.754 |
| | 25.32 | 2584700 | BB | 0.268 | 1.443 |
| | 26.02 | 2832400 | BB | 0.279 | 1.582 |
| | 26.69 | 102400 | BB | 0.185 | 0.057 |
| | 27.35 | 187840 | BR | 0.253 | 0.105 |
| | 28.99 | 43783 | PB | 0.185 | 0.025 |
| | 29.33 | 191570 I | BP | 0.217 | 0.107 |

TOTAL AREA= 1.7907E+08
MUL FACTOR= 1.0000E+00

INDUSTRIAL TESTING LABORATORIES, INC.
ALCOHOL ETHOXYLATE ANALYSIS
REPORT NUMBER 84-5-360, PAGE 82

| | |
|---|---|
| SAMPLE ID | 5C |
| SAMPLE TYPE | EFFLUENT |
| SAMPLE VOLUME | 5000 MILLILITERS |
| ISTD AMOUNT | 100 MICROGRAMS |
| FINAL VOLUME | 250 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 471 ** |
| ALCOHOL ETHOXYLATE CONC. = | .02 MG/L |

CALCULATIONS

| ALKYL CHAIN | AVG. EO ** | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 6.5 | 17,892 : 38,214 | (172 + 285.574 ):298 | 100 | 87.4 |
| 12 | 6.5 | 1,959 : 38,214 | (186 + 285.574 ):298 | 100 | 9.9 |
| 13 | 6.5 | 1,144 : 38,214 | (200 + 285.574 ):298 | 100 | 5.9 |
| 14 | 6.5 | 0 : 38,214 | (NO CALCULATION):298 | 100 | 0 |
| 15 | 6.5 | 0 : 38,214 | (NO CALCULATION):298 | 100 | 0 |
| 16 | 6.5 | .665 : 38,214 | (242 + 285.574 ):298 | 100 | 3.7 |
| 18 | 6.5 | 2,105 : 38,214 | (270 + 285.574 ):298 | 100 | 12.5 |
| TOTAL MICROGRAMS ALCOHOL ETHOXYLATE = | | | | | 119.4 |

** FROM EXPERIMENTAL EO VALUE. DUE TO INTERFERENCES FROM THE PHENYL ISOCYANATE, REVERSE PHASE FRACTIONATION WAS NECESSARY FOR ACCURATE EO ISOMER IDENTIFICATION BY NORMAL PHASE LIQUID CHROMATOGRAPHY.

INDUSTRIAL TESTING LABORATORIES, INC.
ALCOHOL ETHOXYLATE ANALYSIS
REPORT NUMBER 84-5-360, PAGE 83

| | |
|---|---|
| SAMPLE ID | 5C-B |
| SAMPLE TYPE | EFFLUENT |
| SAMPLE VOLUME | 5000 MILLILITERS |
| ISTD AMOUNT | 100 MICROGRAMS |
| FINAL VOLUME | 250 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 471 ** |
| ALCOHOL ETHOXYLATE CONC. = | .02 MG/L |

CALCULATIONS

| ALKYL CHAIN | AVG. EO ** | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 6.5 | 13,126 : 28,367 | (172 + 285.574 ):298 | 100 | 86.4 |
| 12 | 6.5 | 1,298 : 28,367 | (186 + 285.574 ):298 | 100 | 8.8 |
| 13 | 6.5 | .782 : 28,367 | (200 + 285.574 ):298 | 100 | 5.5 |
| 14 | 6.5 | 0 : 28,367 | (NO CALCULATION):298 | 100 | 0 |
| 15 | 6.5 | 0 : 28,367 | (NO CALCULATION):298 | 100 | 0 |
| 16 | 6.5 | .268 : 28,367 | (242 + 285.574 ):298 | 100 | 2 |
| 18 | 6.5 | 1,739 : 28,367 | (270 + 285.574 ):298 | 100 | 13.9 |
| | | | | | 116.6 |

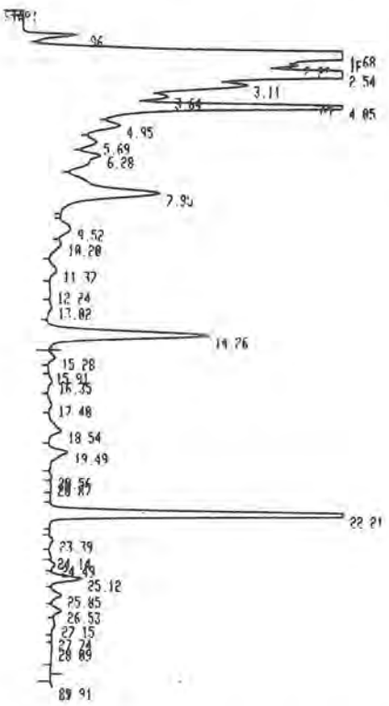
TOTAL MICROGRAMS ALCOHOL ETHOXYLATE = 116.6

** FROM EXPERIMENTAL EO VALUE. DUE TO INTERFERENCES FROM THE PHENYL ISOCYANATE, REVERSE PHASE FRACTIONATION WAS NECESSARY FOR ACCURATE EO ISOMER IDENTIFICATION BY NORMAL PHASE LIQUID CHROMATOGRAPHY.

LIST: LIST
PEAK CAPACITY: 1151

ZERO = 0, 2 3
ATT 2↑ = 9
CHT SP = 0.5
PK WD = 0.16
THRSH = 5
AR REJ = 1000000000

5C-8
20µl
Page 84R




RUN # 134 DEC/17/84 11:14:16

ISTD

| RT | AREA | TYPE | CAL# | AMOUNT |
|---|---|---|---|---|
| 7.95 | 4.1218E+07 | BB | 1 | 124.010 |
| 9.52 | 4076500 | PB | 2 | 12.259 |
| 11.37 | 2455500 | BB | 3 | 7.358 |
| 12.24 | 314170 | BB | 4 | 0.941 |
| 14.26 | 4.7617E+07 | BB | 5 | 144.850 |
| 15.91 | 68584 | BR | 6 | 0.205 |
| 19.49 | 5460200 | BB | 7 | 16.485 |
| 22.21 | 8.9079E+07 | SPR | 8S | 198.000 |

TOTAL AREA= 1.9829E+08
ISTD AMT= 1.0000E+02
MUL FACTOR= 1.0000E+00

RUN # 134 DEC/17/84 11:14:16

AREA%

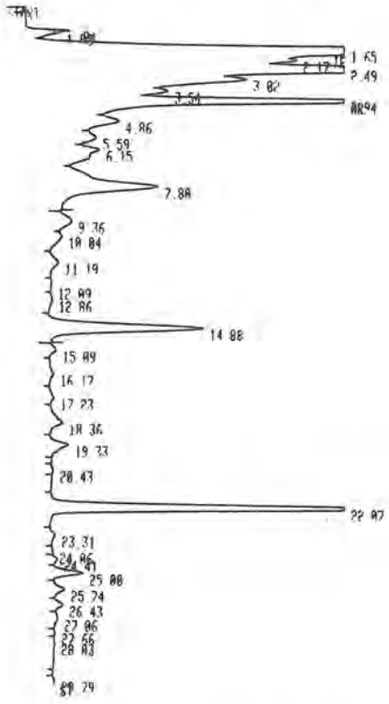
| RT | AREA | TYPE | AR/HT | AREA% |
|---|---|---|---|---|
| 4.05 | 8.2951E+07 | SPB | 0.202 | 26.415 |
| 4.95 | 5018100 | SPR | 0.311 | 1.598 |
| 5.69 | 3241200 | BH | 0.336 | 1.032 |
| 6.28 | 9459700 | BB | 0.527 | 3.012 |
| 7.95 | 4.1218E+07 | BB | 0.560 | 13.126 |
| 9.52 | 4076500 | PR | 0.487 | 1.298 |
| 10.20 | 1257500 | BB | 0.368 | 0.400 |
| 11.37 | 2455500 | BB | 0.430 | 0.782 |
| 12.24 | 314170 | BB | 0.392 | 0.100 |
| 13.02 | 952850 | BR | 0.426 | 0.303 |
| 14.26 | 4.7617E+07 | BR | 0.383 | 15.163 |
| 15.28 | 1537000 | BB | 0.315 | 0.490 |
| 15.91 | 68584 | BR | 0.202 | 0.022 |
| 16.35 | 841110 | BB | 0.297 | 0.268 |
| 17.48 | 928330 | BB | 0.369 | 0.296 |
| 18.54 | 4332000 | BR | 0.447 | 1.380 |
| 19.49 | 5460200 | BB | 0.375 | 1.739 |
| 20.56 | 211990 | BB | 0.283 | 0.068 |
| 20.87 | 77416 | BR | 0.197 | 0.025 |
| 22.21 | 8.9079E+07 | SPR | 0.240 | 28.367 |
| 23.39 | 815600 | PR | 0.263 | 0.260 |
| 24.14 | 135560 | BB | 0.226 | 0.043 |
| 24.49 | 732010 | BB | 0.211 | 0.233 |
| 25.12 | 6220200 | BB | 0.266 | 1.981 |
| 25.85 | 2102400 | BB | 0.278 | 0.670 |
| 26.53 | 1785600 | BB | 0.273 | 0.569 |
| 27.15 | 665270 | BB | 0.334 | 0.212 |
| 27.74 | 72747 | BR | 0.175 | 0.023 |
| 28.09 | 155140 | BB | 0.280 | 0.049 |
| 29.91 | 245710 I | BH | 0.183 | 0.078 |

TOTAL AREA= 3.1403E+08
MUL FACTOR= 1.0000E+00

LIST: LIST
PEAK CAPACITY: 1151

ZERO = 0, 1 3
ATT 2↑ = 9
CHT SP = 0.5
PK WD = 0.16
THRSH = 5
AR REJ = 1000000000

5C
20µl
Page 84L




RUN # 131 DEC/14/84 17:14:49

ISTD

| RT | AREA | TYPE | CAL# | AMOUNT |
|---|---|---|---|---|
| 7.80 | 3.9701E+07 | BB | 1 | 125.480 |
| 9.36 | 4347600 | BB | 2 | 13.735 |
| 11.19 | 2537800 | BB | 3 | 7.989 |
| 12.86 | 791820 | BB | 4 | 2.493 |
| 14.88 | 4.5590E+07 | BB | 5 | 145.690 |
| 16.17 | 1474400 | BB | 6 | 4.637 |
| 19.33 | 4670600 | BB | 7 | 14.814 |
| 22.07 | 8.4792E+07 | SPR | 8S | 198.000 |

TOTAL AREA= 1.8391E+08
ISTD AMT= 1.0000E+02
MUL FACTOR= 1.0000E+00

RUN # 131 DEC/14/84 17:14:49

AREA%

| RT | AREA | TYPE | AR/HT | AREA% |
|---|---|---|---|---|
| 4.86 | 5311000 | SPB | 0.321 | 2.394 |
| 5.59 | 2848900 | BB | 0.328 | 1.284 |
| 6.15 | 8651600 | BB | 0.536 | 3.899 |
| 7.80 | 3.9701E+07 | BR | 0.556 | 17.892 |
| 9.36 | 4347600 | BB | 0.486 | 1.959 |
| 10.04 | 1331900 | BR | 0.480 | 0.600 |
| 11.19 | 2537800 | BB | 0.426 | 1.144 |
| 12.09 | 236070 | BR | 0.418 | 0.106 |
| 12.86 | 791820 | BB | 0.435 | 0.357 |
| 14.88 | 4.5590E+07 | BR | 0.382 | 20.546 |
| 15.09 | 1466900 | BB | 0.316 | 0.661 |
| 16.17 | 1474400 | BB | 0.456 | 0.665 |
| 17.23 | 941170 | BB | 0.365 | 0.424 |
| 18.36 | 4361200 | BR | 0.465 | 1.966 |
| 19.33 | 4670600 | BB | 0.348 | 2.105 |
| 20.43 | 219970 | PR | 0.210 | 0.099 |
| 22.07 | 8.4792E+07 | SPB | 0.248 | 38.214 |
| 23.31 | 973140 | BB | 0.281 | 0.439 |
| 24.86 | 110620 | BB | 0.204 | 0.050 |
| 24.41 | 632130 | BR | 0.285 | 0.285 |
| 25.00 | 5802200 | BB | 0.260 | 2.615 |
| 25.74 | 2298500 | BR | 0.298 | 1.036 |
| 26.43 | 1577900 | BB | 0.268 | 0.711 |
| 27.86 | 706380 | BB | 0.344 | 0.318 |
| 27.66 | 73754 | BB | 0.174 | 0.033 |
| 28.03 | 230680 | BR | 0.465 | 0.104 |
| 29.79 | 210640 I | PH | 0.204 | 0.095 |

TOTAL AREA= 2.2189E+08
MUL FACTOR= 1.0000E+00

INDUSTRIAL TESTING LABORATORIES, INC.
ALCOHOL ETHOXYLATE ANALYSIS
REPORT NUMBER 84-5-960, PAGE 85

| | |
|---|---|
| SAMPLE ID | 5C |
| SAMPLE TYPE | EFFLUENT |
| SAMPLE VOLUME | 5000 MILLILITERS |
| ISTD AMOUNT | 100 MICROGRAMS |
| FINAL VOLUME | 250 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 317 * |
| ALCOHOL ETHOXYLATE CONC. = | .02 MG/L |

CALCULATIONS

| ALKYL CHAIN | AVG. EO | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 3 | 17,892 : 38,214 | (172 + 132 ):298 | 100 | 58.1 |
| 12 | 3 | 1,959 : 38,214 | (186 + 132 ):298 | 100 | 6.7 |
| 13 | 3 | 1,144 : 38,214 | (200 + 132 ):298 | 100 | 4.1 |
| 14 | 0 | 0: 38,214 | (NO CALCULATION):298 | 100 | 0 |
| 15 | 0 | 0: 38,214 | (NO CALCULATION):298 | 100 | 0 |
| 16 | 3 | ,665 : 38,214 | (242 + 132 ):298 | 100 | 2.7 |
| 18 | 3 | 2,105 : 38,214 | (270 + 132 ):298 | 100 | 9 |
| TOTAL MICROGRAMS ALCOHOL ETHOXYLATE = | | | | | 80.6 |

* FROM ASSUMED EO VALUE 3 . NOTE THAT THIS ASSUMED VALUE MAY NOT BE IN AGREEMENT WITH THE EXPERIMENTAL VALUE CALCULATED FROM THE AVAILABLE DATA.

INDUSTRIAL TESTING LABORATORIES, INC.
ALCOHOL ETHOXYLATE ANALYSIS
REPORT NUMBER 84-5-360, PAGE 86

| | |
|---|---|
| SAMPLE ID | SC-B |
| SAMPLE TYPE | EFFLUENT |
| SAMPLE VOLUME | 5000 MILLILITERS |
| ISTD AMOUNT | 100 MICROGRAMS |
| FINAL VOLUME | 250 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 317 * |
| ALCOHOL ETHOXYLATE CONC. = | .02 MG/L |

CALCULATIONS

| ALKYL CHAIN | AVG. EO | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 3 | 13.126 : 28.867 | (172 + 132 ):298 | 100 | 57.4 |
| 12 | 3 | 1.298 : 28.867 | (186 + 132 ):298 | 100 | 5.9 |
| 13 | 3 | .782 : 28.867 | (200 + 132 ):298 | 100 | 3.7 |
| 14 | 0 | 0: 28.867 | (NO CALCULATION):298 | 100 | 0 |
| 15 | 0 | 0: 28.867 | (NO CALCULATION):298 | 100 | 0 |
| 16 | 3 | .268 : 28.867 | (242 + 132 ):298 | 100 | 1.4 |
| 18 | 3 | 1.739 : 28.867 | (270 + 132 ):298 | 100 | 10.1 |
| | | | | | 78.5 |

TOTAL MICROGRAMS ALCOHOL ETHOXYLATE = 78.5

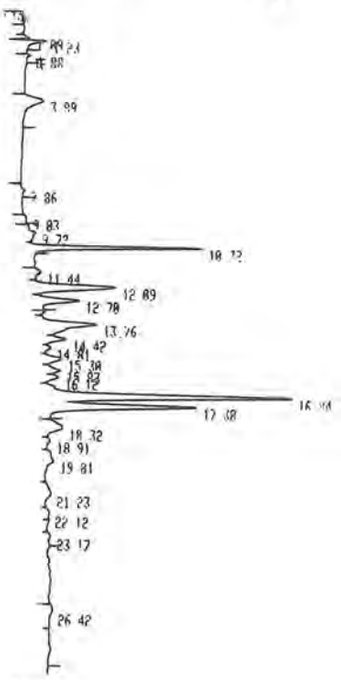
* FROM ASSUMED EO VALUE 3 . NOTE THAT THIS ASSUMED VALUE MAY NOT BE IN AGREEMENT WITH THE EXPERIMENTAL VALUE CALCULATED FROM THE AVAILABLE DATA.

LIST: ZERO = 0, 1.7

LIST: LIST
PEAK CAPACITY: 1159

ZERO = 0, 1.5
ATT 2↑ = 7
CHT SP = 0.5
PK WD = 0.16
THRSH = 6
AR REJ = 1000

Fractioned
SC
25µl/100µl
Page 87L




STOP

RUN # 166 DEC/28/84 17:31:55

AREA%

| RT | AREA | TYPE | AR/HT | AREA% |
|---|---|---|---|---|
| 1.89 | 430120 | VP | 0.139 | 1.209 |
| 1.23 | 1074400 | PR | 0.181 | 3.019 |
| 1.88 | 68253 | D BR | 0.098 | 0.192 |
| 3.89 | 1610600 | BR | 0.418 | 4.526 |
| 7.86 | 69972 | PR | 0.108 | 0.197 |
| 9.83 | 4032 | PR | 0.011 | 0.011 |
| 9.72 | 422230 | BR | 0.315 | 1.187 |
| 10.32 | 4294100 | BR | 0.131 | 12.067 |
| 11.44 | 256920 | PR | 0.235 | 0.722 |
| 12.09 | 4039600 | BR | 0.364 | 11.352 |
| 12.78 | 1697500 | BB | 0.224 | 4.770 |
| 13.76 | 2943180 | PR | 0.341 | 8.271 |
| 14.42 | 530560 | BR | 0.122 | 1.491 |
| 14.81 | 118220 | BP | 0.157 | 0.318 |
| 15.30 | 677480 | BR | 0.240 | 1.904 |
| 15.83 | 300480 | BB | 0.180 | 0.844 |
| 16.12 | 281680 | BR | 0.186 | 0.792 |
| 16.94 | 8885800 | BB | 0.292 | 24.969 |
| 17.38 | 4756280 | BR | 0.190 | 13.366 |
| 18.32 | 1072480 | BR | 0.394 | 3.014 |
| 18.91 | 122410 | BB | 0.195 | 0.344 |
| 19.81 | 767220 | BR | 0.507 | 2.156 |
| 21.23 | 645760 | BB | 0.508 | 1.815 |
| 22.12 | 97076 | BP | 0.252 | 0.273 |
| 23.17 | 101350 | PR | 0.199 | 0.285 |
| 26.42 | 325860 | BB | 0.449 | 0.916 |

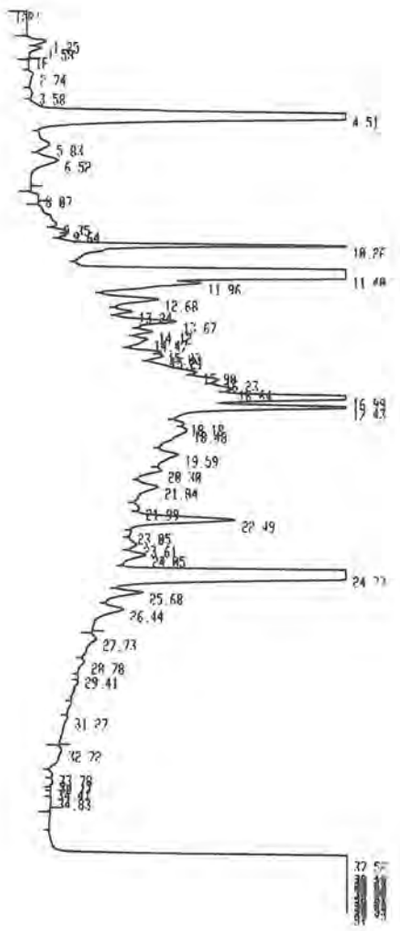
TOTAL AREA= 3.5585E+07
MUL FACTOR= 1.0000E+00

LIST: ZERO = 0, 5.5

LIST: LIST
PEAK CAPACITY: 1159

ZERO = 0, 5.5
ATT 2↑ = 9
CHT SP = 0.5
PK WD = 0.16
THRSH = 6
AR REJ = 1000

Unfractioned
SC
25µl/100µl
Page 87R




RUN # 173 JAN/03/85 14:54:07

AREA%

| RT | AREA | TYPE | AR/HT | AREA% |
|---|---|---|---|---|
| 1.25 | 3532100 | PV | 0.240 | 0.457 |
| 1.58 | 2208600 | VR | 0.223 | 0.286 |
| 2.24 | 916580 | PB | 0.279 | 0.119 |
| 3.58 | 370940 | BR | 0.234 | 0.048 |
| 4.51 | 1.6477E+08 | †SPR | 0.327 | 21.337 |
| 5.83 | 3438500 | BR | 0.379 | 0.445 |
| 6.52 | 6160700 | BB | 0.366 | 0.798 |
| 8.07 | 392590 | PR | 0.121 | 0.051 |
| 9.35 | 1717700 | PR | 0.395 | 0.222 |
| 9.64 | 444250 | BR | 0.124 | 0.058 |
| 10.26 | 4.1188E+07 | SPB | 0.175 | 5.332 |
| 11.40 | 1.8027E+08 | †SPR | 0.497 | 23.343 |
| 11.96 | 5222100 | BR | 0.207 | 0.676 |
| 12.68 | 1.0233E+07 | BB | 0.262 | 1.325 |
| 13.24 | 1945900 | BR | 0.154 | 0.252 |
| 13.67 | 8477100 | BP | 0.219 | 1.098 |
| 14.12 | 1818900 | BB | 0.157 | 0.236 |
| 14.47 | 3162500 | BR | 0.283 | 0.410 |
| 15.03 | 1047200 | BB | 0.121 | 0.136 |
| 15.21 | 1023300 | BR | 0.157 | 0.133 |
| 15.90 | 2421900 | BB | 0.253 | 0.314 |
| 16.23 | 2303600 | BB | 0.197 | 0.298 |
| 16.64 | 1637600 | BR | 0.183 | 0.212 |
| 16.99 | 3.8802E+07 | SPB | 0.196 | 5.025 |
| 17.43 | 2.0648E+07 | SPB | 0.175 | 2.674 |
| 18.18 | 615900 | SPB | 0.146 | 0.080 |
| 18.48 | 2804800 | SPB | 0.405 | 0.363 |
| 19.59 | 4995800 | SPB | 0.335 | 0.647 |
| 20.30 | 1336100 | SPB | 0.182 | 0.173 |
| 21.04 | 6064800 | SPB | 0.373 | 0.785 |
| 21.99 | 454020 | SPB | 0.225 | 0.059 |
| 22.49 | 2.1672E+07 | SPB | 0.279 | 2.806 |
| 23.05 | 109490 | SPR | 0.143 | 0.014 |
| 23.61 | 1587700 | SPB | 0.252 | 0.195 |
| 24.05 | 3671400 | SPR | 0.253 | 0.475 |
| 24.77 | 1.9402E+08 | †SPB | 0.436 | 25.123 |
| 25.68 | 5239700 | BB | 0.227 | 0.679 |
| 26.44 | 4628800 | BB | 0.281 | 0.599 |
| 27.73 | 2356100 | BB | 0.423 | 0.305 |
| 28.78 | 592080 | BP | 0.229 | 0.077 |
| 29.41 | 78199 | BB | 0.156 | 0.010 |
| 31.27 | 553990 | PB | 0.397 | 0.072 |
| 32.72 | 3197980 | BR | 0.797 | 0.414 |
| 33.78 | 257440 | BR | 0.175 | 0.033 |
| 34.11 | 342760 | BB | 0.233 | 0.044 |
| 34.41 | 27344 | BR | 0.077 | 0.004 |
| 34.83 | 68586 | VB | 0.101 | 0.009 |
| 38.18 | 3731900 | SPR | 0.179 | 0.483 |
| 38.33 | 323210 | DSPB | 0.056 | 0.042 |
| 38.51 | 576700 | SPR | 0.064 | 0.075 |
| 38.68 | 564720 | SPB | 0.073 | 0.073 |
| 38.80 | 2084600 | DSPR | 0.178 | 0.270 |
| 39.21 | 829750 | SPB | 0.088 | 0.107 |
| 39.39 | 721200 | SPB | 0.068 | 0.093 |
| 39.53 | 1443300 | DSPR | 0.081 | 0.187 |
| 39.73 | 3251500 | SPB | 0.189 | 0.421 |

TOTAL AREA= 7.7226E+08
MUL FACTOR= 1.0000E+00

INDUSTRIAL TESTING LABORATORIES, INC.
ALCOHOL ETHOXYLATE ANALYSIS
REPORT NUMBER 84-5-360, PAGE 88

| | |
|---|---|
| SAMPLE ID | 14A-1 |
| SAMPLE TYPE | INFLUENT |
| SAMPLE VOLUME | 1000 MILLILITERS |
| ISTD AMOUNT | 100 MICROGRAMS |
| FINAL VOLUME | 250 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 587 * |
| ALCOHOL ETHOXYLATE CONC. = | .73 MG/L |

CALCULATIONS

| ALKYL CHAIN | AVG. EO | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 9 | 23.52 : 17.483 | (172 + 396 ):298 | 100 | 311.8 |
| 12 | 9 | 12.478 : 17.483 | (186 + 396 ):298 | 100 | 169.5 |
| 13 | 9 | 5.169 : 17.483 | (200 + 396 ):298 | 100 | 71.9 |
| 14 | 9 | 6.037 : 17.483 | (214 + 396 ):298 | 100 | 85.9 |
| 15 | 9 | 2.426 : 17.483 | (228 + 396 ):298 | 100 | 35.8 |
| 16 | 9 | 1.459 : 17.483 | (242 + 396 ):298 | 100 | 21.7 |
| 18 | 9 | 1.996 : 17.483 | (270 + 396 ):298 | 100 | 31 |
| TOTAL MICROGRAMS ALCOHOL ETHOXYLATE = | | | | | 727.1 |

* FROM ASSUMED EO VALUE 9 . NOTE THAT THIS ASSUMED VALUE MAY NOT BE IN AGREEMENT WITH THE EXPERIMENTAL VALUE CALCULATED FROM THE AVAILABLE DATA.

INDUSTRIAL TESTING LABORATORIES, INC.
ALCOHOL ETHOXYLATE ANALYSIS
REPORT NUMBER 84-5-360, PAGE 89

| | |
|---|---|
| SAMPLE ID | 14A-1B |
| SAMPLE TYPE | INFLUENT |
| SAMPLE VOLUME | 1000 MILLILITERS |
| ISTD AMOUNT | 100 MICROGRAMS |
| FINAL VOLUME | 250 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 587 * |
| ALCOHOL ETHOXYLATE CONC. = | .69 MG/L |

CALCULATIONS

| ALKYL CHAIN | AVG EO | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 9 | 37,675 : 21,615 | (172 + 396 ):298 | 100 | 296.7 |
| 12 | 9 | 14,618 : 21,615 | (186 + 396 ):298 | 100 | 160.5 |
| 13 | 9 | 6,041 : 21,615 | (200 + 396 ):298 | 100 | 68 |
| 14 | 9 | 7,091 : 21,615 | (214 + 396 ):298 | 100 | 81.6 |
| 15 | 9 | 2,802 : 21,615 | (228 + 396 ):298 | 100 | 33 |
| 16 | 9 | 1,629 : 21,615 | (242 + 396 ):298 | 100 | 19.6 |
| 18 | 9 | 2,827 : 21,615 | (270 + 396 ):298 | 100 | 29.3 |
| TOTAL MICROGRAMS ALCOHOL ETHOXYLATE = | | | | | 688.7 |

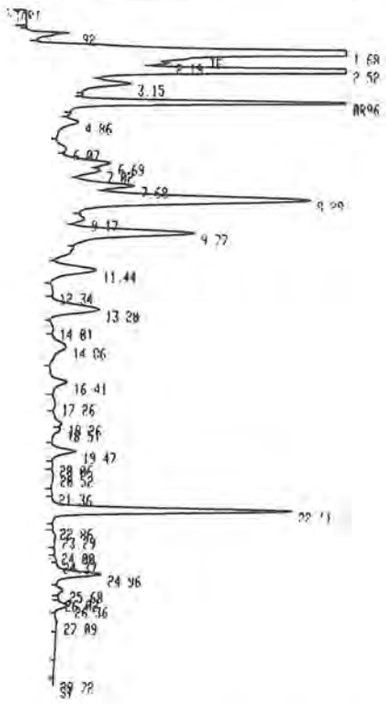
* FROM ASSUMED EO VALUE 9 . NOTE THAT THIS ASSUMED VALUE MAY NOT BE IN AGREEMENT WITH THE EXPERIMENTAL VALUE CALCULATED FROM THE AVAILABLE DATA.

LIST: ZERO = 0, 3.8

LIST: LIST
PEAK CAPACITY= 1151

ZERO = 0, 3.8
ATT 2^ = 9
CHT SP = 0.5
PK WD = 0.16
THRSH = 5
AR REJ = 1000000000

14A-1
10μl
Page 90L




RUN # 111 DEC/12/84 11:48:42

ISTD

| RT | AREA | TYPE | CAL# | AMOUNT |
|---|---|---|---|---|
| 7.02 | 1524200 | BB | 1 | 8.927 |
| 9.17 | 1507900 | BP | 2 | 8.823 |
| 11.44 | 1.3536E+07 | PB | 3 | 78.918 |
| 12.34 | 304060 | BB | 4 | 1.773 |
| 14.86 | 6353400 | BB | 5 | 37.685 |
| 16.41 | 3820700 | BB | 6 | 22.256 |
| 19.47 | 5225300 | BB | 7 | 30.695 |
| 22.11 | 4.5781E+07 | SPB | 8S | 100.000 |

TOTAL AREA= 7.8653E+07
ISTD AMT= 1.0000E+02
MUL FACTOR= 1.0000E+00

RUN # 111 DEC/12/84 11:48:42

AREA%

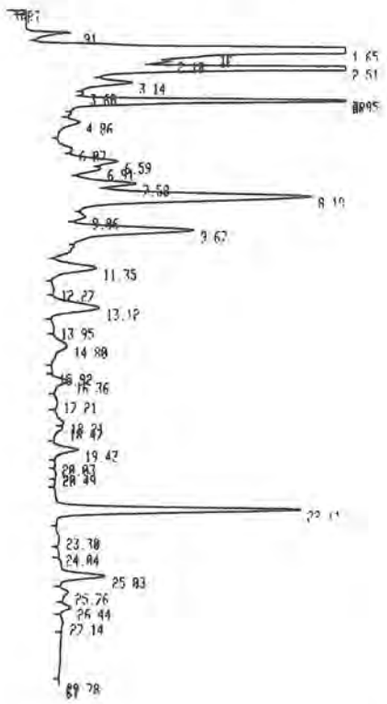
| | RT | AREA | TYPE | AR/HT | AREA% |
|---|---|---|---|---|---|
| | 3.96 | 4.3523E+07 | SPB | 0.185 | 16.621 |
| | 4.86 | 2503700 | PB | 0.234 | 0.956 |
| | 6.07 | 680450 | BB | 0.194 | 0.260 |
| | 6.69 | 4284400 | BB | 0.227 | 1.636 |
| | 7.02 | 1524200 | BB | 0.221 | 0.582 |
| | 7.68 | 6875900 | BB | 0.285 | 2.626 |
| 11 | 8.28 | 6.1590E+07 | SPB | 0.370 | 23.520 |
| | 9.17 | 1507900 | BP | 0.232 | 0.576 |
| 12 | 9.72 | 3.2675E+07 | BB | 0.349 | 12.478 |
| 13 | 11.44 | 1.3536E+07 | PB | 0.480 | 5.169 |
| | 12.34 | 304060 | BB | 0.324 | 0.116 |
| 14 | 13.20 | 1.5807E+07 | BP | 0.427 | 6.037 |
| | 14.01 | 383180 | BB | 0.306 | 0.146 |
| 15 | 14.86 | 6353400 | BP | 0.555 | 2.426 |
| 16 | 16.41 | 3820700 | BB | 0.317 | 1.459 |
| | 17.26 | 708950 | BB | 0.432 | 0.271 |
| | 18.26 | 332480 | BB | 0.137 | 0.127 |
| 17 | 19.47 | 5225300 | BP | 0.283 | 1.996 |
| | 20.06 | 100890 | BB | 0.182 | 0.039 |
| | 20.52 | 510630 | BB | 0.471 | 0.195 |
| | 21.36 | 45706 | BB | 0.160 | 0.018 |
| - | 22.11 | 4.5781E+07 | SPB | 0.247 | 17.483 |
| | 22.86 | 36522 | BB | 0.149 | 0.014 |
| | 23.29 | 540300 | BB | 0.319 | 0.206 |
| | 24.08 | 65937 | BB | 0.165 | 0.025 |
| | 24.37 | 44593 | BB | 0.126 | 0.017 |
| | 24.96 | 9712000 | BB | 0.283 | 3.709 |
| | 25.68 | 903490 | BP | 0.213 | 0.345 |
| | 26.02 | 16158 | BB | 0.105 | 0.006 |
| | 26.36 | 2104300 | BB | 0.240 | 0.804 |
| | 27.09 | 277820 | BB | 0.262 | 0.106 |
| | 29.72 | 83454 | T PP | 0.212 | 0.032 |

TOTAL AREA= 2.6186E+08
MUL FACTOR= 1.0000E+00

LIST: LIST
PEAK CAPACITY= 1151

ZERO = 0, 2.6
ATT 2^ = 9
CHT SP = 0.5
PK WD = 0.16
THRSH = 5
AR REJ = 1000000000

14A-1B
Page 90R




RUN # 113 DEC/12/84 17:06:48

ISTD

| RT | AREA | TYPE | CAL # | AMOUNT |
|---|---|---|---|---|
| 7.58 | 6967100 | BB | 1 | 38.628 |
| 9.86 | 1550300 | BB | 2 | 8.591 |
| 11.35 | 1.3589E+07 | PB | 3 | 74.596 |
| 12.27 | 350360 | BP | 4 | 1.935 |
| 14.88 | 6266800 | BB | 5 | 35.130 |
| 15.92 | 52408 | BB | 6 | 0.289 |
| 19.43 | 5203100 | BB | 7 | 28.948 |
| 22.11 | 4.8339E+07 | SPB | 8S | 100.000 |

TOTAL AREA= 8.2238E+07
ISTD AMT= 1.0000E+02
MUL FACTOR= 1.0000E+00

RUN # 113 DEC/12/84 17:06:48

AREA%

| | RT | AREA | TYPE | AR/HT | AREA% |
|---|---|---|---|---|---|
| | 4.86 | 2579200 | PB | 0.233 | 1.153 |
| | 6.07 | 486140 | BB | 0.127 | 0.217 |
| | 6.59 | 5364900 | BB | 0.234 | 2.399 |
| | 6.91 | 1125400 D | BB | 0.226 | 0.503 |
| | 7.58 | 6967100 | BB | 0.226 | 3.116 |
| 11 | 8.18 | 6.1890E+07 | SPB | 0.370 | 27.675 |
| | 9.86 | 1550300 | BB | 0.235 | 0.693 |
| 12 | 9.67 | 3.2680E+07 | BP | 0.352 | 14.613 |
| 13 | 11.35 | 1.3509E+07 | PB | 0.485 | 6.041 |
| | 12.27 | 350360 | BB | 0.348 | 0.157 |
| 14 | 13.12 | 1.5859E+07 | BB | 0.432 | 7.091 |
| | 13.95 | 405800 | BB | 0.324 | 0.182 |
| 15 | 14.88 | 6266800 | BB | 0.559 | 2.802 |
| | 15.92 | 52408 | BB | 0.198 | 0.023 |
| 16 | 16.36 | 3639900 | BB | 0.306 | 1.628 |
| | 17.21 | 700960 | BB | 0.436 | 0.313 |
| | 18.21 | 318970 | BB | 0.132 | 0.143 |
| 17 | 19.43 | 5203100 | BB | 0.284 | 2.327 |
| | 20.03 | 101650 | BB | 0.182 | 0.046 |
| | 20.49 | 116060 | BB | 0.215 | 0.052 |
| - | 22.11 | 4.8339E+07 | SPB | 0.253 | 21.615 |
| | 23.38 | 809070 | BB | 0.398 | 0.362 |
| | 24.94 | 248130 | BB | 0.263 | 0.111 |
| | 25.03 | 1.1034E+07 | BB | 0.310 | 4.934 |
| | 25.76 | 1632800 | BB | 0.276 | 0.730 |
| | 26.44 | 1788508 | BB | 0.244 | 0.800 |
| | 27.14 | 594130 | BB | 0.329 | 0.266 |
| | 29.78 | 19066 | T PP | 0.129 | 0.009 |

TOTAL AREA= 2.2363E+08
MUL FACTOR= 1.0000E+00

INDUSTRIAL TESTING LABORATORIES, INC.
ALCOHOL ETHOXYLATE ANALYSIS
REPORT NUMBER 84-5-360, PAGE 9!

| | |
|---|---|
| SAMPLE ID | 14A-2 |
| SAMPLE TYPE | INFLUENT |
| SAMPLE VOLUME | 1000 MILLILITERS |
| ISTD AMOUNT | 100 MICROGRAMS |
| FINAL VOLUME | 250 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 594 * |
| ALCOHOL ETHOXYLATE CONC. = | 1.14 MG/L |

CALCULATIONS

| ALKYL CHAIN | AVG. EO | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 9 | 16,438 : 12,836 | (172 + 396 ):298 | 100 | 308.8 |
| 12 | 9 | 13,965 : 12,836 | (186 + 396 ):298 | 100 | 268.8 |
| 13 | 9 | 8,804 : 12,836 | (200 + 396 ):298 | 100 | 184.1 |
| 14 | 9 | 11,209 : 12,836 | (214 + 396 ):298 | 100 | 226.1 |
| 15 | 9 | 5,223 : 12,836 | (228 + 396 ):298 | 100 | 107.8 |
| 16 | 9 | 2,485 : 12,836 | (242 + 396 ):298 | 100 | 51.4 |
| 18 | 9 | 1,85 : 12,836 | (270 + 396 ):298 | 100 | 40.7 |
| TOTAL MICROGRAMS ALCOHOL ETHOXYLATE = | | | | | 1137.7 |

* FROM ASSUMED EO VALUE 9 . NOTE THAT THIS ASSUMED VALUE MAY NOT BE IN AGREEMENT WITH THE EXPERIMENTAL VALUE CALCULATED FROM THE AVAILABLE DATA.

INDUSTRIAL TESTING LABORATORIES, INC.
ALCOHOL ETHOXYLATE ANALYSIS
REPORT NUMBER 84-5-360, PAGE 92

| | |
|---|---|
| SAMPLE ID | 14A-2B |
| SAMPLE TYPE | INFLUENT |
| SAMPLE VOLUME | 1000 MILLILITERS |
| ISTD AMOUNT | 100 MICROGRAMS |
| FINAL VOLUME | 250 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 593 * |
| ALCOHOL ETHOXYLATE CONC. = | 1.07 MG/L |

CALCULATIONS

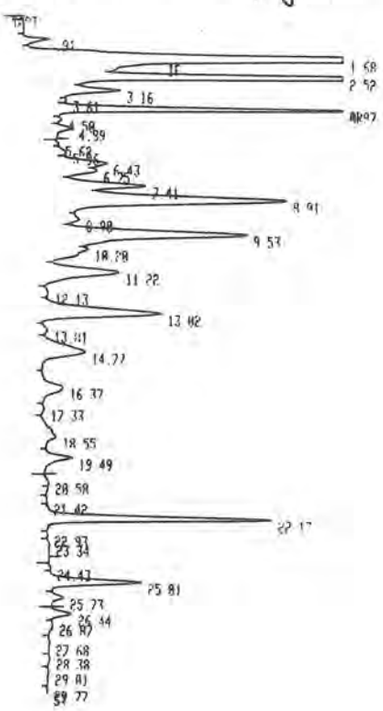
| ALKYL CHAIN | AVG. EO | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 9 | 16.517 : 18.024 | (173 + 396 ):298 | 100 | 293.9 |
| 12 | 9 | 14.048 : 18.024 | (186 + 396 ):298 | 100 | 256.1 |
| 13 | 9 | 6.952 : 18.024 | (200 + 396 ):298 | 100 | 127.9 |
| 14 | 9 | 11.196 : 18.024 | (214 + 396 ):298 | 100 | 213.5 |
| 15 | 9 | 4.92 : 18.024 | (229 + 396 ):298 | 100 | 96.2 |
| 16 | 9 | 2.387 : 18.024 | (242 + 396 ):298 | 100 | 45.7 |
| 18 | 9 | 1.691 : 18.024 | (270 + 396 ):298 | 100 | 35.9 |
| | | | | | 1069 |

TOTAL MICROGRAMS ALCOHOL ETHOXYLATE = 1069

* FROM ASSUMED EO VALUE 9 . NOTE THAT THIS ASSUMED VALUE MAY NOT BE IN AGREEMENT WITH THE EXPERIMENTAL VALUE CALCULATED FROM THE AVAILABLE DATA.

```
LIST: ZERO =  0, 4.7

LIST: LIST
PEAK CAPACITY: 1151

ZERO   =  0, 4.7
ATT 2↑ =  9
CHT SP =  0.5
PK WD  =  0.16
THRSH  =  5
AR REJ =  1000000000
```

14A-2
10µl
Page 93L

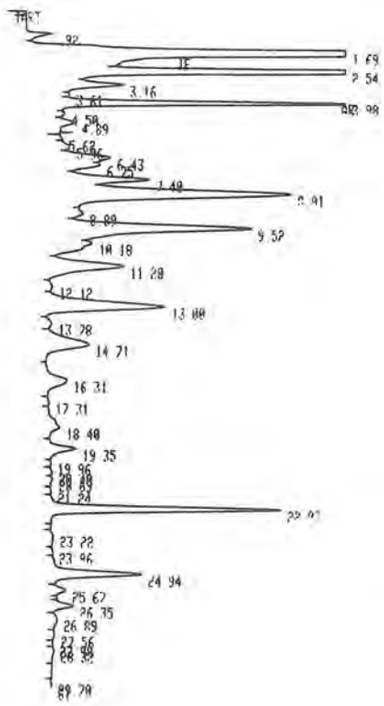



```
RUN # 114                DEC/12/84  17:44:13

ISTD
   RT          AREA TYPE   CAL#        AMOUNT
 7.41  1.0906E+07   BB      1          59.417
 8.90     1324500   BP      2           8.427
11.22  2.3225E+07   BB      3         147.238
12.13      456790   BB      4           2.896
14.77  1.7828E+07   BB      5         114.740
16.37     8311000   BB      6          52.639
19.49     6314000   BB      7          40.329
22.17  4.2105E+07   SPB     85        100.000

TOTAL AREA= 1.1047E+08
  ISTD AMT= 1.0000E+02
MUL FACTOR= 1.0000E+00
```

```
RUN # 114                DEC/12/84  17:44:13

AREA%
   RT          AREA TYPE   AR/HT       AREA%
 3.97  4.1987E+07   SPB     0.177      12.381
 4.50     392150   BP      0.153       0.115
 4.89    2720100   BB      0.234       0.797
 5.62      59335   PP      0.137       0.017
 5.96     589580   BB      0.204       0.172
 6.43    4230000   BB      0.230       1.239
 6.75    1602300   BB      0.220       0.469
 7.41  1.0906E+07   BB      0.240       3.195
 8.01  5.6189E+07   SPB     0.366      16.438
 8.90    1324500   BB      0.237       0.388
 9.53  4.7665E+07   BB      0.361      13.965
10.20     3540900   BB      0.503       1.037
11.22  2.3225E+07   BB      0.430       6.804
12.13      456790   BB      0.276       0.134
13.02  3.8260E+07   BB      0.424      11.209
13.81      737130   BB      0.253       0.216
14.77  1.7828E+07   BB      0.550       5.223
16.37     8311000   BB      0.517       2.435
17.33      469120   BB      0.285       0.137
18.55     5288300   BB      0.579       1.549
19.49     6314000   BB      0.307       1.850
20.58      333480   PB      0.244       0.098
21.42       57604   PB      0.186       0.017
22.17  4.2105E+07   SPB     0.242      12.336
22.93       61898   BB      0.179       0.018
23.34      413880   BB      0.291       0.121
24.43      111060   PB      0.162       0.033
25.81  1.8928E+07   BB      0.272       5.545
25.73     2130280   BB      0.232       0.624
26.44     3808200   PB      0.247       1.116
26.87      600090   BB      0.356       0.176
27.68      259050   BB      0.391       0.076
28.38      282520   BB      0.256       0.083
29.01      163680   BB      0.339       0.048
29.77       60554 1 BM     0.185       0.018

TOTAL AREA= 3.4133E+08
MUL FACTOR= 1.0000E+00
```

```
LIST: ZERO =  0, 3.8

LIST: LIST
PEAK CAPACITY: 1151

ZERO   =  0, 3.7
ATT 2↑ =  9
CHT SP =  0.5
PK WD  =  0.16
THRSH  =  5
AR REJ =  1000000000
```

14A-2B
10µl
Page 93R




```
RUN # 115                DEC/12/84  14:23:26

ISTD
   RT          AREA TYPE   CAL#        AMOUNT
 7.40  1.0979E+07   BB      1          56.166
 8.89     1287600   BB      2           7.757
11.20  2.3394E+07   BB      3         148.420
12.12      458980   BP      4           2.755
14.71  1.6797E+07   BB      5         102.360
16.31     7810200   BB      6          46.838
19.35     5772280   BB      7          34.909
22.02  4.4469E+07   SPB     85        100.000

TOTAL AREA= 1.1097E+08
  ISTD AMT= 1.0000E+02
MUL FACTOR= 1.0000E+00
```

```
RUN # 115                DEC/12/84  14:23:26

AREA%
   RT          AREA TYPE   AR/HT       AREA%
 3.98  4.1762E+07   SPB     0.179      12.231
 4.50     385480   BB      0.154       0.113
 4.89    2636500   BB      0.233       0.770
 5.62      46611   PB      0.150       0.014
 5.96     618750   BB      0.201       0.181
 6.43    4335200   BB      0.233       1.270
 6.75    1431400   BB      0.216       0.419
 7.40  1.0979E+07   BB      0.239       3.215
 8.01  5.6397E+07   SPB     0.365      16.517
 8.89    1287600   BB      0.235       0.377
 9.52  4.7965E+07   BB      0.361      14.048
10.18     3818000   BB      0.495       1.118
11.20  2.3394E+07   BB      0.430       6.852
12.12      458980   BB      0.277       0.134
13.00  3.8230E+07   BB      0.423      11.196
13.78      762290   BB      0.252       0.223
14.71  1.6797E+07   BB      0.522       4.920
16.31     7810200   BB      0.502       2.287
17.31      135380   BB      0.224       0.040
18.40     4007400   BP      0.493       1.174
19.35     5772280   BB      0.291       1.691
19.96       68355   BB      0.161       0.020
20.40      139990   BB      0.191       0.041
20.69      145960   BB      0.184       0.043
21.24       67226   BB      0.171       0.020
22.02  4.4469E+07   SPB     0.249      13.024
23.22      538070   PB      0.356       0.158
23.96       69270   BB      0.181       0.020
24.94  1.9988E+07   BB      0.295       5.854
25.67     1756800   BB      0.238       0.515
26.35     3444080   VB      0.246       1.009
26.89     1076600   BP      0.400       0.315
27.56      274570   BB      0.360       0.080
27.98       34590   BB      0.144       0.010
28.32      277560   BB      0.247       0.081
29.70       71317 1 PP     0.210       0.021

TOTAL AREA= 3.4144E+08
MUL FACTOR= 1.0000E+00
```

INDUSTRIAL TESTING LABORATORIES, INC.
ALCOHOL ETHOXYLATE ANALYSIS
REPORT NUMBER 84-5-360, PAGE 94

| | |
|---|---|
| SAMPLE ID | 14A-3 |
| SAMPLE TYPE | INFLUENT |
| SAMPLE VOLUME | 1000 MILLILITERS |
| ISTD AMOUNT | 100 MICROGRAMS |
| FINAL VOLUME | 250 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 593 * |
| ALCOHOL ETHOXYLATE CONC. = | .97 MG/L |

CALCULATIONS

| ALKYL CHAIN | AVG. EO | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 9 | 22,351 : 16,623 | (172 + 396 ):298 | 100 | 311.6 |
| 12 | 9 | 16,209 : 16,623 | (186 + 396 ):298 | 100 | 231.5 |
| 13 | 9 | 6,892 : 16,623 | (200 + 396 ):298 | 100 | 100.8 |
| 14 | 9 | 9,671 : 16,623 | (214 + 396 ):298 | 100 | 144.8 |
| 15 | 9 | 4,083 : 16,623 | (228 + 396 ):298 | 100 | 62.5 |
| 16 | 9 | 3,915 : 16,623 | (242 + 396 ):298 | 100 | 61.3 |
| 18 | 9 | 3,293 : 16,623 | (270 + 396 ):298 | 100 | 53.9 |
| TOTAL MICROGRAMS ALCOHOL ETHOXYLATE = | | | | | 966.3 |

* FROM ASSUMED EO VALUE 9 . NOTE THAT THIS ASSUMED VALUE MAY NOT BE IN AGREEMENT WITH THE EXPERIMENTAL VALUE CALCULATED FROM THE AVAILABLE DATA.

INDUSTRIAL TESTING LABORATORIES, INC.
ALCOHOL ETHOXYLATE ANALYSIS
REPORT NUMBER 84-5-360, PAGE 95

| | |
|---|---|
| SAMPLE ID | 14A-3B |
| SAMPLE TYPE | INFLUENT |
| SAMPLE VOLUME | 1000 MILLILITERS |
| ISTD AMOUNT | 100 MICROGRAMS |
| FINAL VOLUME | 250 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 592 * |
| ALCOHOL ETHOXYLATE CONC. = | .94 MG/L |

CALCULATIONS

| ALKYL CHAIN | AVG. EO | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 9 | 18.895 : 14.11 | (172 + 396 ):298 | 100 | 310.8 |
| 12 | 9 | 13.805 : 14.11 | (186 + 396 ):298 | 100 | 232.8 |
| 13 | 9 | 5.862 : 14.11 | (200 + 396 ):298 | 100 | 101 |
| 14 | 9 | 7.879 : 14.11 | (214 + 396 ):298 | 100 | 139 |
| 15 | 9 | 2.89 : 14.11 | (228 + 396 ):298 | 100 | 52.1 |
| 16 | 9 | 2.758 : 14.11 | (242 + 396 ):298 | 100 | 50.9 |
| 18 | 9 | 2.823 : 14.11 | (270 + 396 ):298 | 100 | 54.4 |
| | | | | | --- |
| TOTAL MICROGRAMS ALCOHOL ETHOXYLATE = | | | | | 940 |

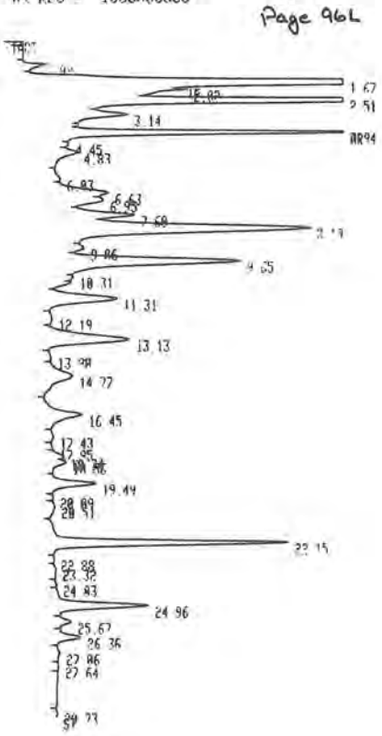
* FROM ASSUMED EO VALUE 9 . NOTE THAT THIS ASSUMED VALUE MAY NOT BE IN AGREEMENT WITH THE EXPERIMENTAL VALUE CALCULATED FROM THE AVAILABLE DATA.

LIST: ZERO = 0, -1.3

LIST: LIST
PEAK CAPACITY: 1151

ZERO = 0, 2.6
ATT 2^ = 9
CHT SP = 0.5
PK WD = 0.16
THRSH = 5
AR REJ = 1000000000

14A-3
10µl
Page 96L



RUN # 116 DEC/12/84 15:24:53

ISTD

| RT | AREA | TYPE | CAL# | AMOUNT |
|---|---|---|---|---|
| 7.60 | 7039900 | BB | 1 | 41.259 |
| 9.06 | 1247000 | BR | 2 | 7.305 |
| 11.31 | 1.8958E+07 | PB | 3 | 110.668 |
| 12.19 | 599670 | BR | 4 | 3.500 |
| 14.77 | 1.1232E+07 | BB | 5 | 65.560 |
| 16.45 | 1.0769E+07 | BR | 6 | 62.803 |
| 19.49 | 9058300 | BR | 7 | 53.273 |
| 22.15 | 4.5728E+07 | SPB | 8S | 100.000 |

TOTAL AREA= 1.0463E+08
ISTD AMT= 1.0000E+02
MUL FACTOR= 1.0000E+00

RUN # 116 DEC/12/84 15:24:53

AREA%

| | RT | AREA | TYPE | AR/HT | AREA% |
|---|---|---|---|---|---|
| | 4.45 | 161460 | D BB | 0.132 | 0.059 |
| | 4.83 | 2540800 | BR | 0.232 | 0.924 |
| | 6.03 | 36192 | BB | 0.037 | 0.013 |
| | 6.63 | 2879300 | BB | 0.195 | 1.047 |
| | 6.95 | 2209900 | BB | 0.237 | 0.803 |
| | 7.60 | 7039900 | BR | 0.220 | 2.559 |
| 11 | 8.19 | 6.1485E+07 | SPB | 0.366 | 22.351 |
| | 9.06 | 1247000 | BB | 0.208 | 0.453 |
| 12 | 9.65 | 4.4589E+07 | BB | 0.345 | 16.209 |
| | 10.31 | 102460 | D BR | 0.125 | 0.037 |
| 13 | 11.31 | 1.8958E+07 | PB | 0.381 | 6.892 |
| | 12.19 | 599670 | BB | 0.372 | 0.218 |
| 14 | 13.13 | 2.6603E+07 | BB | 0.429 | 9.671 |
| | 13.98 | 252550 | BB | 0.226 | 0.092 |
| 15 | 14.77 | 1.1232E+07 | BB | 0.589 | 4.083 |
| 16 | 16.45 | 1.0769E+07 | BB | 0.486 | 3.915 |
| | 17.43 | 496510 | BB | 0.295 | 0.181 |
| | 17.95 | 59626 | BB | 0.147 | 0.022 |
| | 18.34 | 295890 | BB | 0.168 | 0.108 |
| | 18.56 | 274370 | BB | 0.072 | 0.100 |
| 18 | 19.49 | 9058300 | BB | 0.270 | 3.293 |
| | 20.89 | 84344 | BB | 0.154 | 0.031 |
| | 20.51 | 1095800 | BB | 0.431 | 0.398 |
| | 22.15 | 4.5728E+07 | SPB | 0.251 | 16.623 |
| | 22.88 | 86004 | BB | 0.186 | 0.031 |
| | 23.32 | 444340 | BB | 0.285 | 0.162 |
| | 24.03 | 92338 | BB | 0.169 | 0.034 |
| | 24.96 | 1.9638E+07 | BB | 0.282 | 7.139 |
| | 25.67 | 1949000 | BB | 0.227 | 0.709 |
| | 26.36 | 4323600 | BB | 0.254 | 1.572 |
| | 27.06 | 413460 | BB | 0.257 | 0.150 |
| | 27.64 | 159990 | BB | 0.236 | 0.058 |
| | 29.73 | 189660 | I PP | 0.239 | 0.069 |

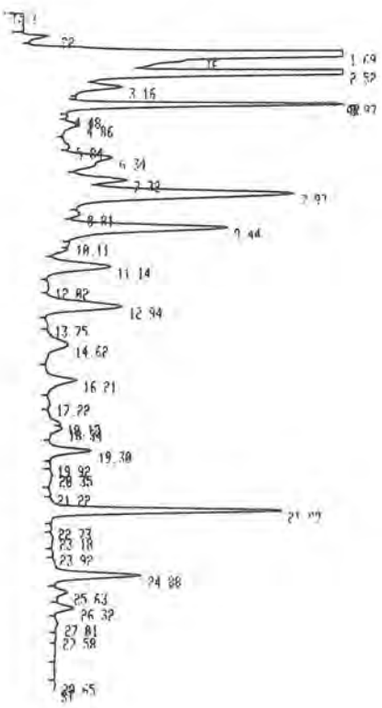
TOTAL AREA= 2.7509E+08
MUL FACTOR= 1.0000E+00

LIST: ZERO = 0, 3.6

LIST: LIST
PEAK CAPACITY: 1151

ZERO = 3.6
ATT 2^ =
CHT SP = 0.5
PK WD = 0.16
THRSH = 5
AR REJ = 1000000000

14A-3B
Page 96R



RUN # 117 DEC/12/84 16:02:29

ISTD

| RT | AREA | TYPE | CAL# | AMOUNT |
|---|---|---|---|---|
| 7.32 | 6698400 | BB | 1 | 40.138 |
| 8.81 | 1135100 | BR | 2 | 6.799 |
| 11.14 | 1.8581E+07 | PB | 3 | 110.890 |
| 12.02 | 435560 | BB | 4 | 2.599 |
| 14.62 | 9159300 | BB | 5 | 55.494 |
| 16.21 | 8742000 | BR | 6 | 52.125 |
| 19.30 | 8947900 | BR | 7 | 53.385 |
| 21.99 | 4.4725E+07 | SPB | 8S | 100.000 |

TOTAL AREA= 9.8424E+07
ISTD AMT= 1.0000E+02
MUL FACTOR= 1.0000E+00

RUN # 117 DEC/12/84 16:02:29

AREA%

| | RT | AREA | TYPE | AR/HT | AREA% |
|---|---|---|---|---|---|
| | 3.97 | 4.8959E+07 | SPB | 0.189 | 12.922 |
| | 4.48 | 117410 | D BR | 0.125 | 0.037 |
| | 4.86 | 3158100 | BB | 0.263 | 0.996 |
| | 5.84 | 621810 | BB | 0.208 | 0.196 |
| | 6.34 | 1.5740E+07 | BR | 0.473 | 4.966 |
| | 7.32 | 6698400 | BR | 0.230 | 2.113 |
| 11 | 7.93 | 5.9894E+07 | SPB | 0.378 | 18.895 |
| | 8.81 | 1135100 | BB | 0.215 | 0.358 |
| 12 | 9.44 | 4.3759E+07 | BB | 0.359 | 13.805 |
| | 10.11 | 92981 | D BB | 0.123 | 0.029 |
| 13 | 11.14 | 1.8581E+07 | PB | 0.393 | 5.862 |
| | 12.02 | 435560 | BB | 0.353 | 0.137 |
| 14 | 12.94 | 2.4973E+07 | BB | 0.424 | 7.879 |
| | 13.75 | 217510 | BB | 0.233 | 0.069 |
| 15 | 14.62 | 9159300 | BB | 0.542 | 2.890 |
| 16 | 16.21 | 8742000 | BB | 0.375 | 2.758 |
| | 17.22 | 452660 | BB | 0.299 | 0.143 |
| | 18.34 | 309858 | BB | 0.088 | 0.098 |
| 17 | 19.30 | 8947900 | BB | 0.276 | 2.823 |
| | 19.92 | 89865 | BB | 0.169 | 0.028 |
| | 20.35 | 755380 | BB | 0.378 | 0.238 |
| | 21.22 | 68856 | BB | 0.163 | 0.022 |
| | 21.99 | 4.4725E+07 | SPB | 0.250 | 14.119 |
| | 22.73 | 85957 | BB | 0.203 | 0.027 |
| | 23.18 | 447088 | BB | 0.286 | 0.141 |
| | 23.92 | 134970 | BB | 0.198 | 0.043 |
| | 24.88 | 1.9822E+07 | BB | 0.294 | 6.254 |
| | 25.63 | 2360900 | BB | 0.256 | 0.745 |
| | 26.32 | 3544400 | BB | 0.251 | 1.118 |
| | 27.01 | 637090 | BB | 0.294 | 0.201 |
| | 27.58 | 115840 | BB | 0.199 | 0.037 |
| | 29.65 | 194970 | I PP | 0.246 | 0.062 |

TOTAL AREA= 3.1698E+08
MUL FACTOR= 1.0000E+00

INDUSTRIAL TESTING LABORATORIES, INC.
ALCOHOL ETHOXYLATE ANALYSIS
REPORT NUMBER 84-5-360, PAGE 97

| | |
|---|---|
| SAMPLE ID | 15A |
| SAMPLE TYPE | BLANK |
| SAMPLE VOLUME | 2000 MILLILITERS |
| ISTD AMOUNT | 100 MICROGRAMS |
| FINAL VOLUME | 250 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 633 * |
| ALCOHOL ETHOXYLATE CONC. = | .01 MG/L |

CALCULATIONS

| ALKYL CHAIN | AVG. EO | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 9 | 1,293 : 72,822 | (172 + 396 ):298 | 100 | 4.1 |
| 12 | 9 | ,386 : 72,822 | (186 + 396 ):298 | 100 | 1.3 |
| 13 | 0 | 0: 72,822 | (NO CALCULATION):298 | 100 | 0 |
| 14 | 0 | 0: 72,822 | (NO CALCULATION):298 | 100 | 0 |
| 15 | 0 | 0: 72,822 | (NO CALCULATION):298 | 100 | 0 |
| 16 | 0 | 0: 72,822 | (NO CALCULATION):298 | 100 | 0 |
| 18 | 9 | 3,178 : 72,822 | (270 + 396 ):298 | 100 | 11.9 |
| | | | | | 17.3 |

TOTAL MICROGRAMS ALCOHOL ETHOXYLATE = 17.3

* FROM ASSUMED EO VALUE 9 . NOTE THAT THIS ASSUMED VALUE MAY NOT BE IN AGREEMENT WITH THE EXPERIMENTAL VALUE CALCULATED FROM THE AVAILABLE DATA.

INDUSTRIAL TESTING LABORATORIES, INC.
ALCOHOL ETHOXYLATE ANALYSIS
REPORT NUMBER 84-5-360, PAGE 98

| | |
|---|---|
| SAMPLE ID | 15A-1 |
| SAMPLE TYPE | BLANK |
| SAMPLE VOLUME | 2000 MILLILITERS |
| ISTD AMOUNT | 100 MICROGRAMS |
| FINAL VOLUME | 250 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 603 * |
| ALCOHOL ETHOXYLATE CONC. = | .01 MG/L |

CALCULATIONS

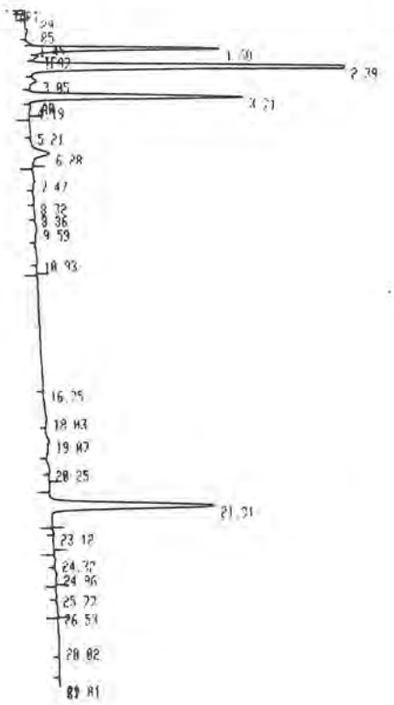
| ALKYL CHAIN | AVG. EO | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 9 | 1.467 : 80.135 | (172 + 396 ):298 | 100 | 4.2 |
| 12 | 9 | .754 : 80.135 | (186 + 396 ):298 | 100 | 2.2 |
| 13 | 0 | 0: 80.135 | (NO CALCULATION):298 | 100 | 0 |
| 14 | 0 | 0: 80.135 | (NO CALCULATION):298 | 100 | 0 |
| 15 | 0 | 0: 80.135 | (NO CALCULATION):298 | 100 | 0 |
| 16 | 0 | 0: 80.135 | (NO CALCULATION):298 | 100 | 0 |
| 18 | 9 | 1.082 : 80.135 | (270 + 396 ):298 | 100 | 3.7 |
| TOTAL MICROGRAMS ALCOHOL ETHOXYLATE = | | | | | 10.1 |

* FROM ASSUMED EO VALUE 9 . NOTE THAT THIS ASSUMED VALUE MAY NOT BE IN AGREEMENT WITH THE EXPERIMENTAL VALUE CALCULATED FROM THE AVAILABLE DATA.

LIST LIST
PEAK CAPACITY: 1151

ZERO = 0, 4.2
ATT 2^ = 9
CHT SP = 0.5
PK WD = 0.16
THRSH = 5
AR REJ = 1000000000

15A
7.5 pl/250 pl
Page 99L




RUN # 43 NOV/26/84 15:17:17

ISTD

| RT | AREA | TYPE | CAL# | AMOUNT |
|---|---|---|---|---|
| 8.32 | 87233 | BB | 1 | 0.748 |
| 9.59 | 623580 | BR | 2 | 5.284 |
| 10.93 | 127710 | BR | 3 | 1.078 |
| 16.25 | 1491000 | BR | 6 | 12.579 |
| 19.07 | 1379300 | BR | 7 | 11.735 |
| 21.91 | 3.1611E+07 | SBB | 9S | 100.000 |

TOTAL AREA= 3.5319E+07
ISTD AMT= 1.0000E+02
MUL FACTOR= 1.0000E+00

RUN # 43 NOV/26/84 15:17:17

AREA%

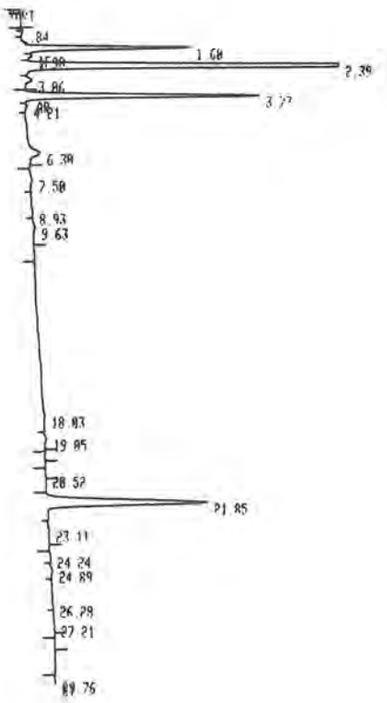
| RT | AREA | TYPE | AR/HT | AREA% |
|---|---|---|---|---|
| 4.19 | 95016 | BB | 0.110 | 0.219 |
| 5.21 | 126920 | PB | 0.291 | 0.292 |
| 6.28 | 4654400 | BR | 0.358 | 10.722 |
| 7.47 | 561700 | PP | 0.423 | 1.293 |
| 8.32 | 87233 | BB | 0.269 | 0.201 |
| 8.86 | 167370 | BP | 0.311 | 0.386 |
| 9.59 | 623580 | BB | 0.433 | 1.437 |
| 10.93 | 127710 | BB | 0.239 | 0.294 |
| 16.25 | 1491000 | BR | 2.544 | 3.435 |
| 18.03 | 817930 | BR | 0.742 | 1.884 |
| 19.07 | 1379300 | BB | 0.524 | 3.178 |
| 20.25 | 241540 | BB | 0.323 | 0.556 |
| 21.91 | 3.1611E+07 | SBB | 9.249 | 72.829 |
| 23.12 | 56601 | PB | 0.101 | 0.130 |
| 24.32 | 195790 | PB | 0.248 | 0.451 |
| 24.96 | 359520 | BB | 0.284 | 0.828 |
| 25.72 | 69089 | PB | 0.306 | 0.159 |
| 26.53 | 169700 | BP | 0.441 | 0.391 |
| 28.02 | 412320 | BB | 1.004 | 0.950 |
| 29.81 | 161210 | I VH | 0.279 | 0.371 |

TOTAL AREA= 4.3408E+07
MUL FACTOR= 1.0000E+00

LIST LIST
PEAK CAPACITY: 1151

ZERO = 0, 2.8
ATT 2^ = 9
CHT SP = 0.5
PK WD = 0.16
THRSH = 5
AR REJ = 1000000000

15A-1
7.5 pl/250 pl
Page 99R




RUN # 42 NOV/26/84 14:39:42

ISTD

| RT | AREA | TYPE | CAL# | AMOUNT |
|---|---|---|---|---|
| 7.50 | 573290 | PB | 1 | 4.985 |
| 9.63 | 648620 | BB | 2 | 5.547 |
| 19.05 | 422950 | BB | 7 | 3.631 |
| 21.85 | 3.1325E+07 | SBB | 8S | 100.000 |

TOTAL AREA= 3.2970E+07
ISTD AMT= 1.0000E+02
MUL FACTOR= 1.0000E+00

RUN # 42 NOV/26/84 14:39:42

AREA%

| RT | AREA | TYPE | AR/HT | AREA% |
|---|---|---|---|---|
| 4.21 | 148220 | BB | 0.142 | 0.379 |
| 6.38 | 3382000 | BP | 0.329 | 8.647 |
| 7.50 | 573290 | PB | 0.393 | 1.467 |
| 8.93 | 294610 | BB | 0.475 | 0.754 |
| 9.63 | 648620 | BB | 0.413 | 1.659 |
| 18.03 | 1668300 | PP | 1.242 | 4.268 |
| 19.05 | 422950 | BB | 0.248 | 1.082 |
| 20.52 | 35018 | PP | 0.179 | 0.090 |
| 21.85 | 3.1325E+07 | SBB | 9.251 | 98.135 |
| 23.11 | 171330 | BB | 0.282 | 0.438 |
| 24.24 | 170730 | BB | 0.242 | 0.437 |
| 24.89 | 246670 | BP | 0.278 | 0.631 |
| 26.28 | 20160 | BB | 0.096 | 0.052 |
| 29.76 | 63603 | I PP | 0.217 | 0.163 |

TOTAL AREA= 3.9091E+07
MUL FACTOR= 1.0000E+00

INDUSTRIAL TESTING LABORATORIES, INC.
ALCOHOL ETHOXYLATE ANALYSIS
REPORT NUMBER 84-5-360, PAGE 100

| | |
|---|---|
| SAMPLE ID | 15B |
| SAMPLE TYPE | STANDARD |
| SAMPLE VOLUME | 2000 MILLILITERS |
| ISTD AMOUNT | 100 MICROGRAMS |
| FINAL VOLUME | 250 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 656 * |
| ALCOHOL ETHOXYLATE CONC. = | .44 MG/L |

CALCULATIONS

| ALKYL CHAIN | AVG. EO | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 0 | 0: 17,594 | (NO CALCULATION):298 | 100 | 0 |
| 12 | 10.1 | 20,272 : 17,594 | (186 + 444.4 ):298 | 100 | 296.3 |
| 13 | 10.1 | 7,927 : 17,594 | (200 + 444.4 ):298 | 100 | 118.5 |
| 14 | 10.1 | 12,378 : 17,594 | (214 + 444.4 ):298 | 100 | 189 |
| 15 | 10.1 | 4,235 : 17,594 | (228 + 444.4 ):298 | 100 | 66 |
| 16 | 10.1 | 7,694 : 17,594 | (242 + 444.4 ):298 | 100 | 122.5 |
| 18 | 10.1 | 4,753 : 17,594 | (270 + 444.4 ):298 | 100 | 78.7 |
| TOTAL MICROGRAMS ALCOHOL ETHOXYLATE = | | | | | 871 |

* FROM ASSUMED EO VALUE 10.1

BASED UPON THE THREE CONCENTRATIONS OF ALCOHOL ETHOXYLATE STANDARD DERIVITIZED, THE DERIVITIZATION FACTOR IS CALCULATED TO BE 82.25%.

INDUSTRIAL TESTING LABORATORIES, INC.
ALCOHOL ETHOXYLATE ANALYSIS
REPORT NUMBER 84-5-360, PAGE 101

| | |
|---|---|
| SAMPLE ID | 15B-1 |
| SAMPLE TYPE | STANDARD |
| SAMPLE VOLUME | 2000 MILLILITERS |
| ISTD AMOUNT | 100 MICROGRAMS |
| FINAL VOLUME | 250 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 654 * |
| ALCOHOL ETHOXYLATE CONC. = | .38 MG/L |

CALCULATIONS

| ALKYL CHAIN | AVG. EO | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 0 | 0: 18,513 | (NO CALCULATION):298 | 100 | 0 |
| 12 | 10.1 | 20,118 : 18,513 | (186 + 444.4 ):298 | 100 | 279.5 |
| 13 | 10.1 | 7,907 : 18,513 | (200 + 444.4 ):298 | 100 | 112.3 |
| 14 | 10.1 | 11,79 : 18,513 | (214 + 444.4 ):298 | 100 | 171.1 |
| 15 | 10.1 | 3,482 : 18,513 | (228 + 444.4 ):298 | 100 | 50.9 |
| 16 | 10.1 | 6,482 : 18,513 | (242 + 444.4 ):298 | 100 | 98.1 |
| 18 | 10.1 | 3,683 : 18,513 | (270 + 444.4 ):298 | 100 | 57.2 |
| TOTAL MICROGRAMS ALCOHOL ETHOXYLATE = | | | | | 769.1 |

* FROM ASSUMED EO VALUE 10.1

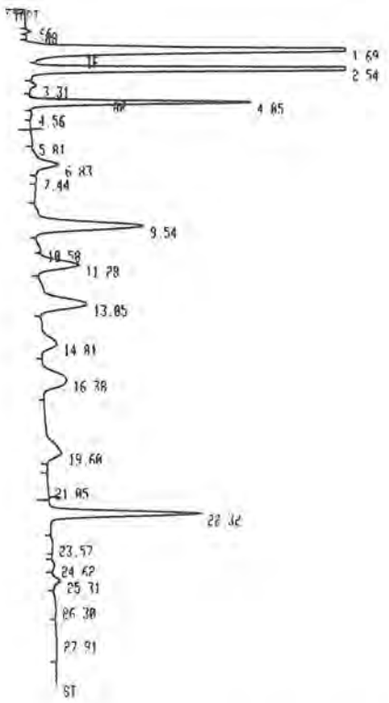
BASED UPON THE THREE CONCENTRATIONS OF ALCOHOL ETHOXYLATE STANDARD DERIVITIZED, THE DERIVITIZATION FACTOR IS CALCULATED TO BE 82.25%.

LIST: ZERO = 0, 3.6

LIST: LIST
PEAK CAPACITY: 1151

ZERO = 0, 3.7
ATT 2^ = 9
CHT SP = 0.5
PK WD = 0.16
THRSH = 5
AR REJ = 1000000000

15B
Page 102L




RUN # 146 DEC/18/84 11:28:35

ISTD

| RT | AREA | TYPE | CAL # | AMOUNT |
|---|---|---|---|---|
| 7.44 | 96985 | BB | 1 | 0.875 |
| 9.54 | 3.4218E+07 | PB | 2 | 308.650 |
| 10.58 | 225150 | BB | 3 | 2.024 |
| 13.05 | 2.0894E+07 | BB | 4 | 187.790 |
| 14.81 | 7148400 | BB | 5 | 65.226 |
| 16.38 | 1.2988E+07 | BB | 6 | 116.630 |
| 19.68 | 8821900 | BB | 7 | 79.646 |
| 22.32 | 2.9697E+07 | SBB | 8S | 100.000 |

TOTAL AREA= 1.1329E+08
ISTD AMT= 1.0000E+02
MUL FACTOR= 1.0000E+00

RUN # 146 DEC/18/84 11:28:35

AREA%

| RT | AREA | TYPE | AR/HT | AREA% |
|---|---|---|---|---|
| 4.05 | 3.0483E+07 | SPB | 0.179 | 18.859 |
| 4.56 | 168650 | BB | 0.157 | 0.100 |
| 5.81 | 281940 | PB | 0.387 | 0.167 |
| 6.83 | 7017900 | BB | 0.375 | 4.158 |
| 7.44 | 96985 | BB | 0.165 | 0.057 |
| 9.54 | 3.4218E+07 | PB | 0.489 | 20.272 — |
| 10.58 | 225150 | BB | 0.223 | 0.133 |
| 11.28 | 1.3390E+07 | BB | 0.436 | 7.927 — |
| 13.05 | 2.0894E+07 | BB | 0.571 | 12.378 — |
| 14.81 | 7148400 | BB | 0.686 | 4.235 — |
| 16.38 | 1.2988E+07 | BB | 0.716 | 7.694 — |
| 19.68 | 8021900 | BB | 0.703 | 4.753 — |
| 21.05 | 143420 | PB | 0.536 | 0.085 |
| 22.32 | 2.9697E+07 | SBB | 0.254 | 17.594 — |
| 23.57 | 217050 | BB | 0.266 | 0.129 |
| 24.62 | 591620 | VB | 0.289 | 0.351 |
| 25.31 | 1787200 | BB | 0.306 | 1.059 |
| 26.38 | 726800 | BB | 0.689 | 0.431 |
| 27.91 | 708950 | BB | 0.849 | 0.420 |

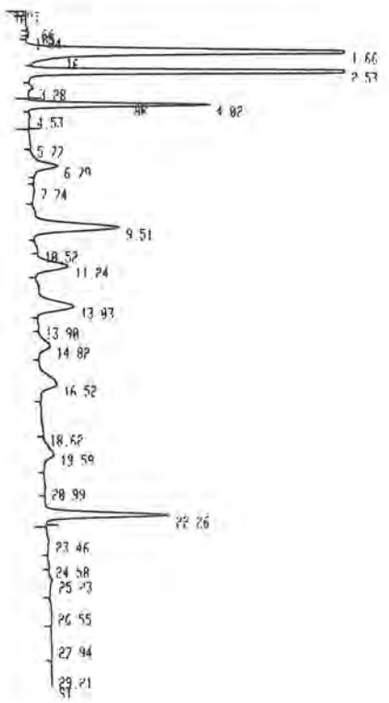
TOTAL AREA= 1.6879E+08
MUL FACTOR= 1.0000E+00

LIST: ZERO = 0, 4.2

LIST: LIST
PEAK CAPACITY: 1151

ZERO = 0, 4.8
ATT 2^ = 9
CHT SP = 0.5
PK WD = 0.16
THRSH = 5
AR REJ = 1000000000

15B-1
Page 102R




RUN # 147 DEC/18/84 12:05:49

ISTD

| RT | AREA | TYPE | CAL # | AMOUNT |
|---|---|---|---|---|
| 7.74 | 238550 | PB | 1 | 2.212 |
| 9.51 | 2.5622E+07 | BB | 2 | 291.110 |
| 10.52 | 204460 | BB | 3 | 2.315 |
| 13.03 | 1.5016E+07 | BB | 4 | 159.990 |
| 14.82 | 4370600 | BB | 5 | 50.231 |
| 16.52 | 8255800 | BB | 6 | 93.329 |
| 19.59 | 4627400 | BB | 7 | 52.282 |
| 22.26 | 2.3577E+07 | BB | 8S | 100.000 |

TOTAL AREA= 8.1913E+07
ISTD AMT= 1.0000E+02
MUL FACTOR= 1.0000E+00

RUN # 147 DEC/18/84 12:05:49

AREA%

| RT | AREA | TYPE | AR/HT | AREA% |
|---|---|---|---|---|
| 4.82 | 2.4703E+07 | SBR | 0.175 | 19.396 |
| 4.53 | 196990 | BR | 0.194 | 0.155 |
| 5.77 | 251330 | PB | 0.426 | 0.197 |
| 6.79 | 7099300 | BB | 0.367 | 5.574 |
| 7.74 | 238550 | PB | 0.528 | 0.187 |
| 9.51 | 2.5622E+07 | BB | 0.386 | 20.118 — |
| 10.52 | 204460 | BR | 0.221 | 0.161 |
| 11.24 | 1.0078E+07 | BB | 0.489 | 7.907 — |
| 13.03 | 1.5016E+07 | BB | 0.527 | 11.790 — |
| 13.90 | 112180 | BR | 0.286 | 0.088 |
| 14.82 | 4370600 | BB | 0.498 | 3.432 — |
| 16.52 | 8255800 | BR | 0.639 | 6.482 — |
| 19.59 | 4627400 | BR | 0.579 | 3.633 — |
| 20.99 | 131020 | BR | 0.425 | 0.103 |
| 22.26 | 2.3577E+07 | BB | 0.247 | 18.513 — |
| 23.46 | 513190 | PR | 0.398 | 0.403 |
| 24.58 | 119080 | BB | 0.263 | 0.094 |
| 25.23 | 912470 | BB | 0.395 | 0.717 |
| 26.55 | 715290 | BB | 0.621 | 0.562 |
| 27.94 | 386870 | BR | 0.738 | 0.303 |
| 29.21 | 235930 | BH | 0.908 | 0.185 |

TOTAL AREA= 1.2736E+08
MUL FACTOR= 1.0000E+00

INDUSTRIAL TESTING LABORATORIES, INC.
ALCOHOL ETHOXYLATE ANALYSIS
REPORT NUMBER 84-5-360, PAGE 103

| | |
|---|---|
| SAMPLE ID | 500MG |
| SAMPLE TYPE | STANDARD |
| SAMPLE VOLUME | 1000 MILLILITERS |
| ISTD AMOUNT | 100 MICROGRAMS |
| FINAL VOLUME | 250 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 656 * |
| PERCENT DERIVITIZATION | 81.52 |

CALCULATIONS

| ALKYL CHAIN | AVG. EO | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 0 | 0: 34.611 | (NO CALCULATION):298 | 100 | 0 |
| 12 | 10.1 | 23.468 : 34.611 | (186 + 444.4 ):298 | 100 | 143.4 |
| 13 | 10.1 | 9.591 : 34.611 | (200 + 444.4 ):298 | 100 | 58.7 |
| 14 | 10.1 | 12.424 : 34.611 | (214 + 444.4 ):298 | 100 | 79.8 |
| 15 | 10.1 | 4.606 : 34.611 | (228 + 444.4 ):298 | 100 | 28.1 |
| 16 | 10.1 | 8.953 : 34.611 | (242 + 444.4 ):298 | 100 | 59.6 |
| 18 | 10.1 | 5.553 : 34.611 | (270 + 444.4 ):298 | 100 | 38.5 |
| | | | | | 407.6 |

TOTAL MICROGRAMS ALCOHOL ETHOXYLATE =

* FROM ASSUMED EO VALUE 10.1

BASED UPON THE THREE CONCENTRATIONS OF ALCOHOL ETHOXYLATE STANDARD DERIVITIZED, THE DERIVITIZATION FACTOR IS CALCULATED TO BE 82.25%.

INDUSTRIAL TESTING LABORATORIES, INC.
ALCOHOL ETHOXYLATE ANALYSIS
REPORT NUMBER 84-5-360, PAGE 104

| | |
|---|---|
| SAMPLE ID | 1000MG |
| SAMPLE TYPE | STANDARD |
| SAMPLE VOLUME | 1000 MILLILITERS |
| ISTD AMOUNT | 100 MICROGRAMS |
| FINAL VOLUME | 250 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 656 * |
| PERCENT DERIVITIZATION | 83.71 |

CALCULATIONS

| ALKYL CHAIN | AVG. EO | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 0 | 0: 20,547 | (NO CALCULATION):298 | 100 | 0 |
| 12 | 10.1 | 25,526 : 20,547 | (186 + 444.4 ):298 | 100 | 293.7 |
| 13 | 10.1 | 11,388 : 20,547 | (200 + 444.4 ):298 | 100 | 119.9 |
| 14 | 10.1 | 15,066 : 20,547 | (214 + 444.4 ):298 | 100 | 162 |
| 15 | 10.1 | 6,079 : 20,547 | (228 + 444.4 ):298 | 100 | 66.7 |
| 16 | 10.1 | 10,861 : 20,547 | (242 + 444.4 ):298 | 100 | 121.8 |
| 18 | 10.1 | 6,26 : 20,547 | (270 + 444.4 ):298 | 100 | 73 |
| | | | | | 837.1 |

TOTAL MICROGRAMS ALCOHOL ETHOXYLATE =

* FROM ASSUMED EO VALUE 10.1

BASED UPON THE THREE CONCENTRATIONS OF ALCOHOL ETHOXYLATE STANDARD DERIVITIZED, THE DERIVITIZATION FACTOR IS CALCULATED TO BE 82.25%.

INDUSTRIAL TESTING LABORATORIES, INC.
ALCOHOL ETHOXYLATE ANALYSIS
REPORT NUMBER 84-5-360, PAGE 105

| | |
|---|---|
| SAMPLE ID | 2000MG |
| SAMPLE TYPE | STANDARD |
| SAMPLE VOLUME | 1000 MILLILITERS |
| ISTD AMOUNT | 100 MICROGRAMS |
| FINAL VOLUME | 250 MICROLITERS |
| AVG. ALCOHOL ETHOXYLATE M.W. | 656 * |
| PERCENT DERIVITIZATION | 81.51 |

CALCULATIONS

| ALKYL CHAIN | AVG. EO | ALKYL:ISTD AREA | (ALC. + ETHOXY):298 MOLECULAR WEIGHT | ISTD | MICROGRAMS AE (CHAIN) |
|---|---|---|---|---|---|
| 11 | 0 | 0: 11.671 | (NO CALCULATION):298 | 100 | 0 |
| 12 | 10.1 | 31.889 : 11.671 | (186 + 444.4 ):298 | 100 | 578 |
| 13 | 10.1 | 12.704 : 11.671 | (200 + 444.4 ):298 | 100 | 235.4 |
| 14 | 10.1 | 16.756 : 11.671 | (214 + 444.4 ):298 | 100 | 317.2 |
| 15 | 10.1 | 5.767 : 11.671 | (228 + 444.4 ):298 | 100 | 111.5 |
| 16 | 10.1 | 12.088 : 11.671 | (242 + 444.4 ):298 | 100 | 238.6 |
| 18 | 10.1 | 7.28 : 11.671 | (270 + 444.4 ):298 | 100 | 149.5 |
| TOTAL MICROGRAMS ALCOHOL ETHOXYLATE = | | | | | 1630.2 |

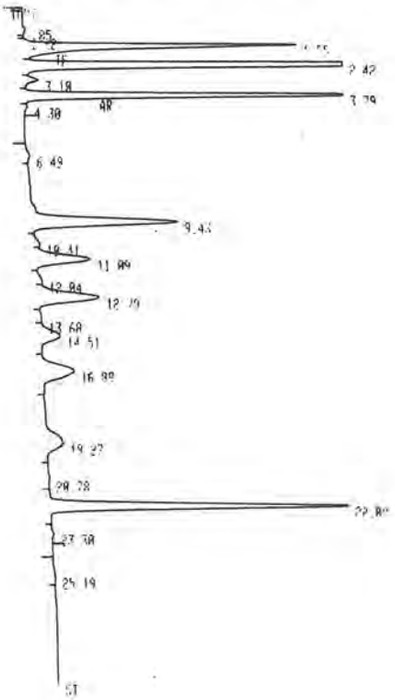
* FROM ASSUMED EO VALUE 10.1

BASED UPON THE THREE CONCENTRATIONS OF ALCOHOL ETHOXYLATE STANDARD DERIVITIZED, THE DERIVITIZATION FACTOR IS CALCULATED TO BE 82.25%.

LIST: LIST
PEAK CAPACITY: 1158

ZERO = 0, 5 6
ATT 2^ = 9
CHT SP = 0 5
PK WD = 0.16
THRSH = 5
AR REJ = 100000000

500 mg Stud.
Page 106-L



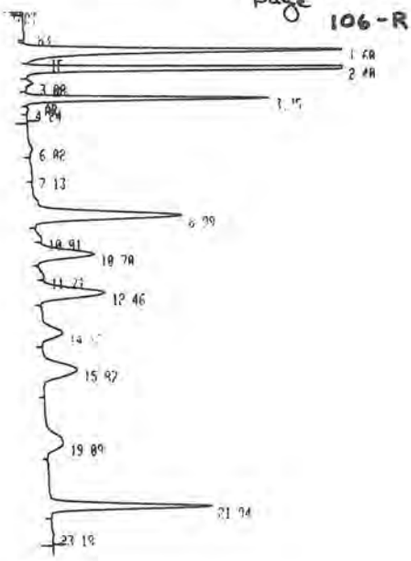

RUN # 35 NOV/13/84 12:16:32

AREA%

| RT | AREA | TYPE | AR/HT | | AREA% | |
|---|---|---|---|---|---|---|
| 4.30 | 120880 | BB | 0.099 | | 0.071 | |
| 6.49 | 686038 | PB | 0.309 | | 0.400 | |
| 9.43 | 4.0212E+07 | BB | 0.368 | 36.6 | 23.468 | — |
| 10.41 | 293100 | BB | 0.239 | | 0.171 | |
| 11.09 | 1.6092E+07 | BB | 0.349 | 14.7 | 9.391 | — |
| 12.04 | 291620 | BB | 0.290 | | 0.170 | |
| 12.79 | 2.1288E+07 | BB | 0.468 | 19.4 | 12.424 | — |
| 13.68 | 172330 | BP | 0.305 | | 0.101 | |
| 14.51 | 7378600 | BB | 0.515 | 6.7 | 4.306 | — |
| 16.89 | 1.5341E+07 | BP | 0.638 | 14.0 | 8.953 | — |
| 19.27 | 9514800 | BB | 0.259 | 8.7 | 5.553 | — |
| 20.78 | 218850 | BP | 0.355 | | 0.123 | |
| 22.88 | 5.9306E+07 | SPB | 0.248 | | 34.611 | — |
| 23.38 | 329570 | BB | 0.216 | | 0.192 | |
| 25.19 | 113600 | PB | 0.275 | | 0.066 | |

TOTAL AREA= 1.7135E+08
MUL FACTOR= 1.0000E+00

1000 mg Stud.
Page 106-R




STOP

RUN # 36 NOV/13/84 11:08:31

AREA%

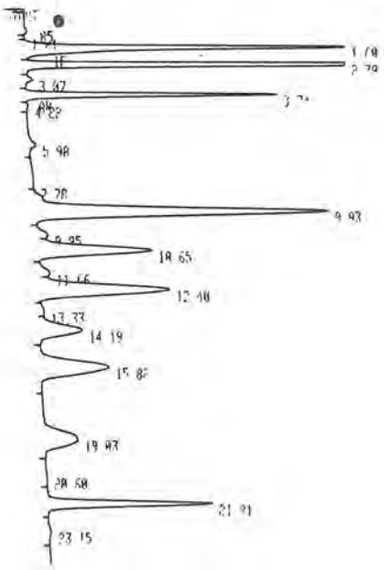
| RT | AREA | TYPE | AR/HT | | AREA% | |
|---|---|---|---|---|---|---|
| 4.24 | 181810 | BB | 0.148 | | 0.119 | |
| 6.82 | 664890 | PB | 0.274 | | 0.436 | |
| 7.13 | 84877 | BB | 0.235 | | 0.056 | |
| 8.99 | 4.3519E+07 | BP | 0.382 | 36.5 | 28.526 | — |
| 10.01 | 396430 | BB | 0.243 | | 0.260 | |
| 10.70 | 1.7374E+07 | BB | 0.412 | 14.6 | 11.388 | — |
| 11.71 | 441210 | BB | 0.283 | | 0.289 | |
| 12.46 | 2.2985E+07 | BB | 0.472 | 19.3 | 15.066 | — |
| 14.23 | 9265400 | BB | 0.578 | 7.8 | 6.073 | — |
| 15.87 | 1.6570E+07 | BP | 0.630 | 13.9 | 10.861 | — |
| 19.09 | 9551000 | BB | 0.246 | 8.0 | 6.260 | — |
| 21.94 | 3.1347E+07 | SPB | 0.252 | | 20.547 | — |
| 23.18 | 180770 | BB | 0.229 | | 0.119 | |

TOTAL AREA= 1.5256E+08
MUL FACTOR= 1.0000E+00

LIST: LIST
PEAK CAPACITY: 1158

ZERO = A, 9.3
ATT 2^ = 9
CHT SP = A.5
PK WD = A.16
THRSH = 5
AR REJ = 1000000000

2000mg Std.
Page 107-L




STOP

RUN # 32 NOV/19/84 14:42:24

AREA%

| RT | AREA | TYPE | AR/HT | | AREA% |
|---|---|---|---|---|---|
| 4.22 | 195540 | BB | A.150 | | A.071 |
| 5.98 | 1561000 | BP | A.385 | | A.567 |
| 7.78 | 507800 | BR | 1.225 | | A.185 |
| 8.93 | 8.7781E+07 | SPR | A.389 | 36.9 | 31.889 — |
| 9.95 | 868230 | BR | A.236 | | A.315 |
| 10.65 | 3.4970E+07 | BR | A.416 | 14.7 | 12.704 — |
| 11.66 | 854390 | BR | A.284 | | A.310 |
| 12.40 | 4.6126E+07 | BP | A.477 | 19.4 | 16.756 — |
| 13.33 | 362610 | KB | A.313 | | A.132 |
| 14.19 | 1.5874E+07 | BP | A.518 | 6.7 | 5.767 — |
| 15.82 | 3.3276E+07 | BR | A.635 | 14.0 | 12.089 — |
| 19.83 | 2.0039E+07 | BR | A.778 | 8.4 | 7.280 — |
| 20.68 | 230470 | BR | A.481 | | A.084 |
| 21.91 | 3.2126E+07 | SPR | A.252 | | 11.671 — |
| 23.15 | 500300 | KR | A.344 | | A.182 |

TOTAL AREA= 2.7527E+08
MUL FACTOR= 1.0000E+00

LIST: ZERO = A, -3.5

LIST: ZERO = A,-A.4

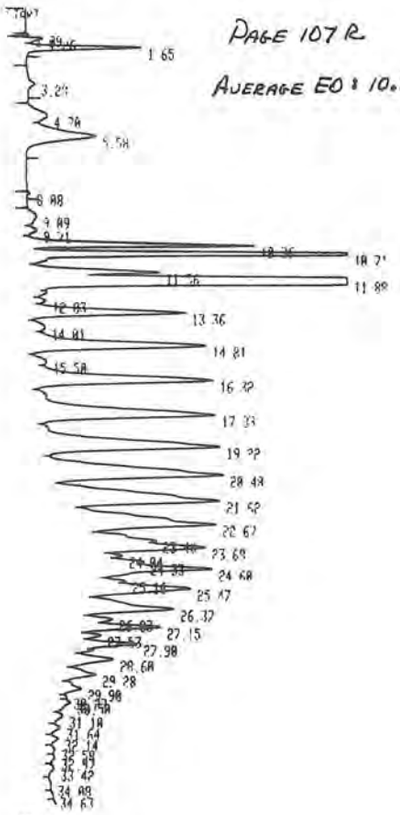
LIST: ZERO = A, 1.9

LIST: LIST
PEAK CAPACITY: 1158

ZERO = A, 1.9
ATT 2^ = 8
CHT SP = A.5
PK WD = A.16
THRSH = 6
AR REJ = 1000

PAGE 107 R

AVERAGE EO = 10.1




STOP

RUN # 218 JAN/21/85 16:30:15

AREA%

| RT | AREA | TYPE | AR/HT | AREA% | |
|---|---|---|---|---|---|
| 1.09 | 1073400 | D BP | A.189 | A.128 | |
| 1.26 | 2358800 | PV | A.215 | A.280 | |
| 1.65 | 8542600 | VB | A.184 | 1.014 | |
| 3.28 | 863120 | BB | A.327 | A.103 | |
| 4.70 | 4019700 | BV | A.527 | A.477 | |
| 5.58 | 1.3917E+07 | VP | A.525 | 1.652 | |
| 8.08 | 96702 | D BR | A.887 | A.012 | |
| 9.09 | 1920000 | BV | A.515 | A.228 | |
| 9.71 | 1054000 | VV | A.272 | A.125 | |
| 10.36 | 1.5875E+07 | VH | A.180 | 1.885 | |
| 10.71 | 4.1216E+07 | SHH | A.212 | 4.894 | |
| 11.56 | 5352400 | TBR | A.175 | A.636 | 2 |
| 11.88 | 2.6916E+08 | ↑SHH | A.519 | 31.958 | |
| 12.83 | 573200 | TPV | A.191 | A.068 | |
| 13.36 | 1.5997E+07 | TVP | A.278 | 1.899 | 3 |
| 14.01 | 1543700 | TPV | A.351 | A.183 | |
| 14.81 | 2.2459E+07 | TVP | A.339 | 2.667 | 4 |
| 15.58 | 1627900 | TPV | A.331 | A.193 | |
| 16.32 | 2.6688E+07 | TVV | A.389 | 3.169 | 5 |
| 17.83 | 3.2626E+07 | TVV | A.473 | 3.874 | 6 |
| 19.22 | 3.6437E+07 | TVV | A.518 | 4.326 | 7 |
| 20.48 | 3.9524E+07 | TVV | A.555 | 4.693 | 8 |
| 21.62 | 4.0590E+07 | TVV | A.583 | 4.819 | 9 |
| 22.67 | 4.3048E+07 | TVV | A.635 | 5.110 | 10 |
| 23.40 | 1.6488E+07 | TVV | A.371 | 1.958 | 11 |
| 23.68 | 2.2636E+07 | TVV | A.357 | 2.688 | |
| 24.84 | 6144900 | TVV | A.196 | A.730 | |
| 24.33 | 8978500 | TVV | A.228 | 1.066 | 12 |
| 24.68 | 2.6339E+07 | TVV | A.408 | 3.127 | |
| 25.16 | 6363500 | TVV | A.197 | A.756 | 13 |
| 25.47 | 2.5198E+07 | TVV | A.442 | 2.992 | |
| 26.32 | 2.6114E+07 | TVV | A.519 | 3.101 | 14 |
| 26.83 | 7664600 | TVV | A.288 | A.910 | 15 |
| 27.15 | 1.3352E+07 | TVV | A.298 | 1.585 | |
| 27.53 | 5781100 | TVV | A.258 | A.677 | 16 |
| 27.98 | 1.1319E+07 | TVV | A.318 | 1.344 | |
| 28.60 | 1.1536E+07 | TVV | A.436 | 1.370 | 17 |
| 29.28 | 8598600 | TVV | A.443 | 1.021 | 18 |
| 29.90 | 6249700 | TVV | A.458 | A.742 | 19 |
| 30.27 | 1488000 | TVV | A.189 | A.177 | |
| 30.58 | 4172800 | TVV | A.454 | A.495 | 20 |
| 31.10 | 2400400 | TVV | A.395 | A.285 | 21 |
| 31.64 | 1660400 | TVV | A.346 | A.197 | 22 |
| 32.14 | 1175600 | TVV | A.300 | A.140 | 23 |
| 32.58 | 673630 | TVV | A.268 | A.080 | |
| 32.97 | 822230 | TVV | A.349 | A.098 | |
| 33.42 | 574630 | TVP | A.301 | A.068 | |
| 34.08 | 34371 | TPP | A.881 | A.004 | |

TOTAL AREA= 8.4224E+08
MUL FACTOR= 1.0000E+00

10.1

LIST LIST
PEAK CAPACITY= 1158

ZERO = 0.42
ATT 2↑ = 9
CHT SP = 0.5
PK WD = 0.16
THRSH = 6
AR REJ = 1000

$C_8 - C_{20}$ Alcohols

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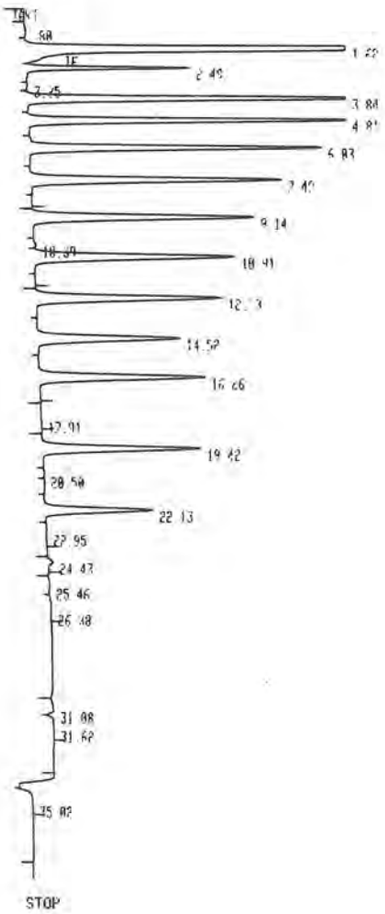


LIST LIST
PEAK CAPACITY= 1158

ZERO = 0.51
ATT 2↑ = 9
CHT SP = 0.5
PK WD = 0.16
THRSH = 6
AR REJ = 1000

Normal Phase
10µL Blank Derivitization
(20µL phenyl isocyanate)

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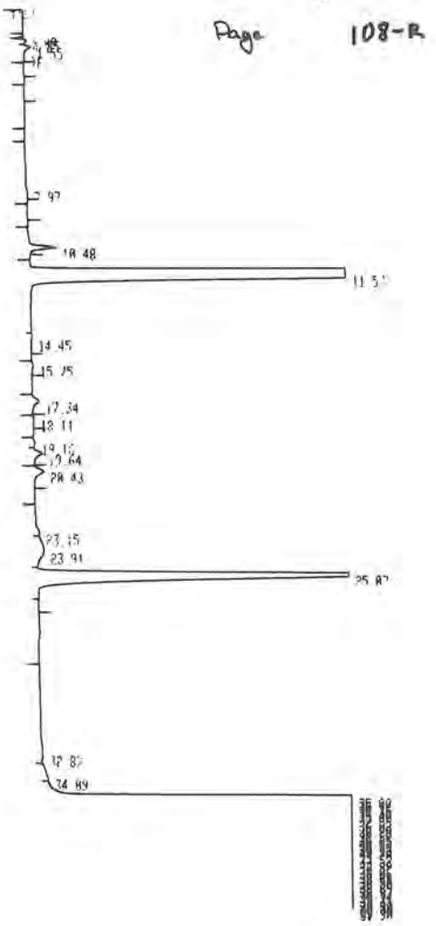



RUN # 190 JAN/14/85 13:32:22

AREA%

| RT | AREA | TYPE | AR/HT | AREA% |
|---|---|---|---|---|
| 0.80 | 230600 | BM | 0.243 | 0.039 |
| 1.62 | 1.1690E+08 | †SHP | 0.229 | 19.544 |
| 2.49 | 1.7701E+07 | SPB | 0.142 | 2.960 |
| 3.25 | 141750 | BB | 0.167 | 0.024 |
| 3.84 | 5.9933E+07 | SPB | 0.196 | 10.021 |
| 4.81 | 5.2617E+07 | SPP | 0.200 | 8.797 |
| 6.03 | 5.0508E+07 | SPB | 0.224 | 8.444 |
| 7.49 | 4.6863E+07 | SPB | 0.243 | 7.835 |
| 9.14 | 4.4625E+07 | SBB | 0.261 | 7.461 |
| 10.39 | 35377 | BR | 0.046 | 0.006 |
| 10.91 | 4.1424E+07 | SPR | 0.268 | 6.926 |
| 12.73 | 3.9318E+07 | SBR | 0.275 | 6.574 |
| 14.52 | 3.8017E+07 | SPB | 0.274 | 5.019 |
| 16.26 | 3.4668E+07 | SPB | 0.271 | 5.796 |
| 17.91 | 184710 | BB | 0.434 | 0.031 |
| 19.42 | 3.1658E+07 | SBB | 0.260 | 5.293 |
| 20.50 | 62156 | BB | 0.116 | 0.010 |
| 22.13 | 2.0405E+07 | PB | 0.245 | 3.412 |
| 22.95 | 330360 | BR | 0.395 | 0.055 |
| 24.43 | 890170 | BB | 0.240 | 0.149 |
| 25.46 | 308520 | PB | 0.420 | 0.052 |
| 26.38 | 534880 | BB | 0.586 | 0.089 |
| 31.08 | 1728100 | BB | 0.436 | 0.289 |
| 31.62 | 1971100 | BB | 0.629 | 0.330 |
| 35.02 | 5061300 ↓ | PB | 1.041 | 0.846 |

TOTAL AREA= 5.9810E+08
NUL FACTOR= 1.0000E+00

RUN # 176 JAN/14/85 12:37:54

AREA%

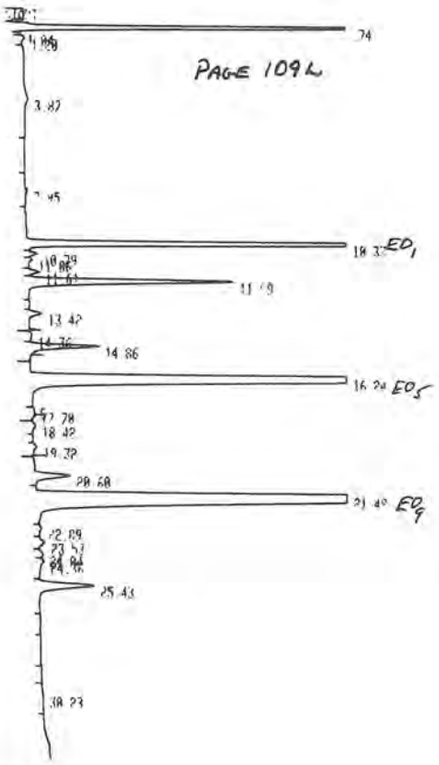
| RT | AREA | TYPE | AR/HT | AREA% |
|---|---|---|---|---|
| 1.09 | 606360 | D BP | 0.119 | 0.162 |
| 1.25 | 1563500 | PV | 0.189 | 0.419 |
| 1.55 | 2619600 | VP | 0.296 | 0.702 |
| 10.48 | 3084800 | PB | 0.155 | 0.826 |
| 11.53 | 2.3591E+08 | †SBB | 0.458 | 63.184 |
| 14.45 | 200480 | BP | 0.267 | 0.054 |
| 15.75 | 216670 | PB | 0.203 | 0.058 |
| 17.34 | 1417400 | PB | 0.276 | 0.380 |
| 18.11 | 197620 | BB | 0.229 | 0.053 |
| 19.16 | 188890 | PB | 0.218 | 0.051 |
| 19.64 | 1435600 | BB | 0.247 | 0.385 |
| 20.43 | 2049100 | BB | 0.286 | 0.549 |
| 23.91 | 3315000 | BB | 0.240 | 0.888 |
| 25.87 | 9.7811E+07 | SPP | 0.300 | 26.197 |
| 32.87 | 1105200 | PB | 1.093 | 0.318 |
| 34.89 | 469200 | BR | 0.508 | 0.126 |
| 35.14 | 96614 | DSPB | 0.035 | 0.026 |
| 35.35 | 310050 | DSPB | 0.093 | 0.083 |
| 35.49 | 1439400 | DSPB | 0.050 | 0.039 |
| 35.60 | 902350 | DSPR | 0.149 | 0.242 |
| 36.02 | 122540 | SPB | 0.054 | 0.033 |
| 36.20 | 482100 | SPB | 0.122 | 0.129 |
| 36.52 | 2153900 | SPB | 0.283 | 0.577 |
| 36.65 | 201130 | DSPB | 0.066 | 0.054 |
| 36.87 | 712810 | SPB | 0.133 | 0.191 |
| 36.99 | 165810 | DSPB | 0.059 | 0.044 |
| 37.10 | 366730 | DSPB | 0.086 | 0.098 |
| 37.26 | 542750 | SPB | 0.073 | 0.145 |
| 37.52 | 1926300 | SPB | 0.170 | 0.516 |
| 37.82 | 1545300 | SPB | 0.125 | 0.414 |
| 38.06 | 2735300 | SPB | 0.190 | 0.733 |
| 38.31 | 885080 | DSPB | 0.090 | 0.237 |
| 38.50 | 979340 | SPB | 0.075 | 0.262 |
| 38.69 | 1723900 | SPB | 0.139 | 0.462 |
| 38.97 | 1349600 | SPB | 0.137 | 0.362 |
| 39.14 | 425770 | DSPB | 0.072 | 0.114 |
| 39.31 | 1507400 | DSPB | 0.096 | 0.404 |
| 39.59 | 920120 | SPB | 0.126 | 0.246 |
| 39.78 | 616160 | DSPB | 0.087 | 0.165 |
| 39.90 | 285570 | ISPP | 0.068 | 0.077 |

TOTAL AREA= 3.7337E+08
NUL FACTOR= 1.0000E+00

LIST: LIST
PEAK CAPACITY: 1159

ZERO = 0, 0.3
ATT 2↑ = 8
CHT SP = 0.5
PK WD = 0.16
THRSH = 5
AR REJ = 1000

$C_{12}$ $EO_1$
$C_{12}$ $EO_5$
$C_{12}$ $EO_9$




STOP

RUN # 220 JAN/22/85 14:36:52

AREA%

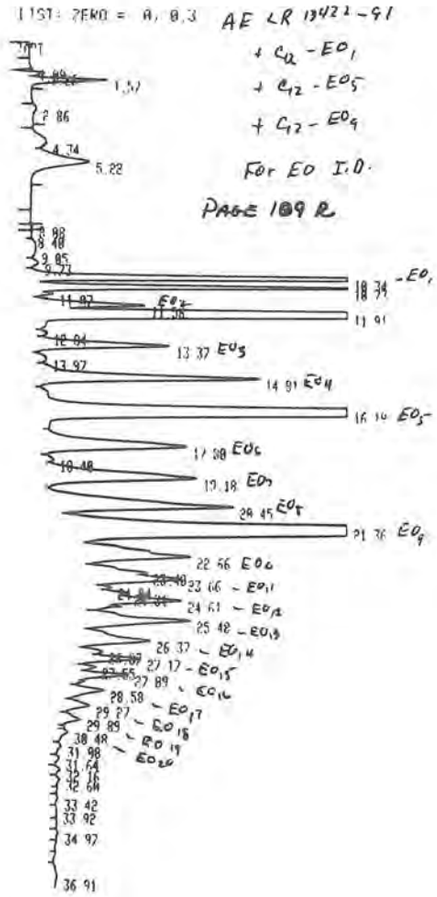
| RT | AREA | TYPE | AR/HT | AREA% |
|---|---|---|---|---|
| 0.74 | 6.1728E+07 | SPH | 0.293 | 17.883 |
| 1.04 | 109240 | TBV | 0.078 | 0.025 |
| 1.20 | 756870 | TVV | 0.269 | 0.170 |
| 3.87 | 7253200 | TVV | 2.397 | 1.631 |
| 7.95 | 586560 | TVB | 0.634 | 0.132 |
| 18.33 | 7.8545E+07 | SHH | 0.165 | 17.666 |
| 10.79 | 477540 | TBV | 0.154 | 0.107 |
| 11.06 | 191330 | TVP | 0.159 | 0.043 |
| 11.61 | 545980 | TPR | 0.149 | 0.123 |
| 11.99 | 2.4152E+07 | SHB | 0.283 | 5.432 |
| 13.42 | 916310 | TVB | 0.196 | 0.206 |
| 14.36 | 227520 | PV | 0.244 | 0.051 |
| 14.86 | 5095000 | VB | 0.195 | 1.146 |
| 16.24 | 1.0540E+08 | SPB | 0.242 | 23.707 |
| 17.70 | 35502 | BR | 0.037 | 0.008 |
| 18.42 | 292030 | PV | 0.224 | 0.066 |
| 19.32 | 289110 | VB | 0.217 | 0.065 |
| 20.68 | 3579400 | BH | 0.253 | 0.805 |
| 21.48 | 1.4708E+08 | ↑SHH | 0.414 | 33.079 |
| 22.89 | 215220 | TBV | 0.216 | 0.048 |
| 23.53 | 561140 | TVV | 0.263 | 0.126 |
| 24.04 | 364000 | TVV | 0.247 | 0.082 |
| 24.36 | 613740 | TVV | 0.343 | 0.138 |
| 25.43 | 5532000 | TVP | 0.264 | 1.244 |
| 30.23 | 68638 | TPP | 0.285 | 0.015 |

TOTAL AREA= 4.4462E+08
MUL FACTOR= 1.0000E+00

LIST: LIST
PEAK CAPACITY: 1159

ZERO = 0, 0.0
ATT 2↑ = 8
CHT SP = 0.5
PK WD = 0.16
THRSH = 5
AR REJ = 1000

LIST: ZERO = 0, 0.3 AE LR 13422-91
+ $C_{12}$ - $EO_1$
+ $C_{12}$ - $EO_5$
+ $C_{12}$ - $EO_9$
For EO I.D.
PAGE 109R




STOP

RUN # 222 JAN/22/85 15:59:47

AREA%

| RT | AREA | TYPE | AR/HT | AREA% | |
|---|---|---|---|---|---|
| 1.89 | 1904400 | D RP | 0.329 | 0.221 | |
| 1.26 | 1916400 | PV | 0.188 | 0.222 | |
| 1.57 | 6520900 | VB | 0.201 | 0.756 | |
| 2.86 | 551050 | BR | 0.327 | 0.064 | |
| 4.34 | 3004900 | BV | 0.533 | 0.348 | |
| 5.22 | 1.2037E+07 | VB | 0.537 | 1.395 | |
| 8.08 | 61277 | D PB | 0.082 | 0.007 | |
| 8.40 | 99372 | PV | 0.193 | 0.012 | |
| 9.05 | 1464700 | VV | 0.637 | 0.170 | |
| 9.73 | 863080 | VH | 0.276 | 0.100 | |
| 10.34 | 6.2827E+07 | SHH | 0.127 | 7.281 | - EO1 |
| 10.73 | 3.0898E+07 | SHP | 0.226 | 3.581 | |
| 11.07 | 336110 | DTBP | 0.122 | 0.039 | |
| 11.58 | 5729500 | TPP | 0.187 | 0.664 | |
| 11.91 | 1.3861E+08 | ↑SHH | 0.267 | 16.064 | |
| 12.84 | 468770 | TBV | 0.194 | 0.054 | |
| 13.37 | 1.3485E+07 | TVP | 0.267 | 1.563 | |
| 13.97 | 991640 | TPV | 0.317 | 0.115 | |
| 14.81 | 2.4262E+07 | TVB | 0.286 | 2.812 | |
| 16.19 | 1.9365E+08 | ↑SHH | 0.373 | 22.443 | - EO5 |
| 17.80 | 2.1766E+07 | TBP | 0.485 | 2.523 | |
| 18.40 | 503550 | TPV | 0.213 | 0.058 | |
| 19.18 | 2.4599E+07 | TVP | 0.430 | 2.851 | |
| 20.45 | 2.7445E+07 | TPR | 0.418 | 3.181 | |
| 21.36 | 2.0353E+08 | SHB | 0.420 | 23.588 | - EO9 |
| 22.66 | 1.6645E+07 | TBP | 0.433 | 1.929 | |
| 23.48 | 5249100 | TPV | 0.266 | 0.608 | |
| 23.66 | 9026100 | TVV | 0.281 | 1.046 | |
| 24.04 | 472310 | TVV | 0.130 | 0.055 | |
| 24.31 | 1589300 | TVV | 0.181 | 0.184 | |
| 24.61 | 6585700 | TVB | 0.232 | 0.763 | |
| 25.48 | 1.2185E+07 | PP | 0.329 | 1.412 | |
| 26.37 | 8504400 | PP | 0.350 | 0.986 | |
| 26.87 | 1605600 | PV | 0.222 | 0.186 | |
| 27.17 | 5380600 | VV | 0.235 | 0.624 | |
| 27.55 | 1211700 | VV | 0.191 | 0.140 | |
| 27.89 | 4576400 | VV | 0.229 | 0.530 | |
| 28.58 | 3553100 | VV | 0.293 | 0.412 | |
| 29.27 | 2398600 | VP | 0.285 | 0.278 | |
| 29.89 | 1650100 | PV | 0.267 | 0.191 | |
| 30.48 | 649050 | VP | 0.258 | 0.075 | |
| 31.08 | 284270 | PP | 0.232 | 0.033 | |
| 31.64 | 334420 | PP | 0.238 | 0.039 | |
| 32.16 | 516680 | PV | 0.253 | 0.060 | |
| 32.60 | 597760 | VV | 0.308 | 0.069 | |
| 33.42 | 481290 | VV | 0.325 | 0.056 | |
| 33.92 | 413830 | VV | 0.354 | 0.048 | |
| 34.97 | 617810 | VV | 0.358 | 0.072 | |
| 36.91 | 801870 | I PP | 0.625 | 0.093 | |

TOTAL AREA= 8.6285E+08
MUL FACTOR= 1.0000E+00