

## CONCLUSION

By a combination of microdesulfurization and gas-liquid chromatographic techniques, five alkyl cycloalkyl sulfides were identified in a 150° to 220° C. boiling range fraction from Wasson, Texas, crude oil. The individual compounds identified were ethylcyclohexyl sulfide, isopropylcyclohexyl sulfide, *tert*-butylcyclohexyl sulfide, *sec*-butylcyclopentyl sulfide, and isobutylcyclopentyl sulfide. This is the first reported identification of this type compound in any crude oil. Here, as in other ring types, the six member ring appears to predominate over the five-member ring. The concentrations, on a crude oil basis, of the five compounds identified range from 0.00000003 to 0.000009%. This represents but 0.3 to 90 parts-per-billion. These are minimum values influenced possibly by significant but not unreasonable processing losses.

## LITERATURE CITED

- (2) Bateman, L., Hargrave, K.R., *Proc. Royal Soc. (London)* **224**, 339 (1954).
- (3) Birch, S.F., *J. Inst. Petrol.* **37**, 185 (1953).
- (4) Birch, S.F., private communication, British Petroleum Co., Ltd., Sunbury-on-Thames, Middlesex, England, 1954.
- (5) Birch, S.F., Dean, R.A., Hunter, H.J., *J. Org. Chem.* **23**, 1026 (1958).

## CORRECTION

In the article "Buffer Systems of Natural Fresh Waters" [J. CHEM. ENG. DATA **8**, 464 (1963)] by Walter J. Weber, Jr., and Werner Stumm, there are a number of errors. On page 466, column 1, paragraph 5, line 7, the word "production" should be "reduction." In Table I, the term " $\alpha_2$ " in the denominator of Equation E should be " $\alpha_1$ ". The term "-1.15" before the large bracket in Equation G should be:

$$\alpha_1 \left( 1 + \frac{2K_2}{[H^+]} \right)^{-2.3}$$

Under nomenclature the term " $K_s$ " should be " $K_3$ ".

## CORRECTION

In the article "Vapor Pressure of Ammonia in Aqueous Potassium Hydroxide Solutions" by T. Katan and A.B. Campa, published in the J. CHEM. ENG. DATA **8**, 574 (1963), a portion of the first sentence in the second paragraph is incomplete. The sentence should read "To extend these data regarding the vapor pressure of ammonia over aqueous KOH-NH<sub>3</sub> solutions to higher temperatures and concentrations, and to obtain further information of the thermodynamic properties (7), the solutions of ammonia at known vapor pressures is determined in 5.35*m* KOH solutions from 30° to 80° C."

## CORRECTION:

In the article "Liquid Phase Enthalpy Values for the Ethane-*n*-Pentane System" by A.J. Vennix and J.H. Weber [J. CHEM. ENG. DATA **7**, 169 (1962)] there is an error in one of the figures. The ordinate values on Figure 1, "enthalpy-composition diagram for liquid phase mixtures of ethane-*n*-pentane," are 2000 B.t.u./lb. mole too high. Subtract this amount from values given on this figure to obtain correct enthalpy values.

- (6) Coleman, H.J., Adams, N.G., Eccleston, B.H., Hopkins, R.L., Mikkelsen, Louis, Rall, H.T., Richardson, Dorothy, Thompson, C.J., Smith, H.M., *Anal. Chem.* **28**, 1380 (1956).
- (7) Coleman, H.J., Thompson, C.J., Ward, C.C., Rall, H.T., *Anal. Chem.* **30**, 1592 (1958).
- (8) Hopkins, R.L., Coleman, H.J., Thompson, C.J., Rall, H.T., "Extraction of Sulfides from Petroleum Fractions by Conversion to Sulfonium Salts," *U. S. Bur. Mines Rep. Invest. No. 6458* (1964).
- (9) Hopkins, R.L., Smith, H.M., *Anal. Chem.* **26**, 206 (1954).
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- (11) Thompson, C.J., Coleman, H.J., Hopkins, R.L., Rall, H.T., U. S. Bureau of Mines Rept. Inv. 6252 (1963).
- (12) Thompson, C.J., Coleman, H.J., Rall, H.T., Smith, H.M., *Anal. Chem.* **27**, 175 (1955).
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## CORRECTION:

Several corrections are to be made in the article "Activities in Alkali-Ammonia Solutions" by Philip R. Marshall [J. CHEM. ENG. DATA **7**, 399 (1962)]. Two references in Table VI are incorrect. Reference (12, p. 1806) should be (3, p. 4806) and Reference (13) should be (11). In Table IV the Na column is unlabeled and the Li column is headed Na. The molality, Li, and Na columns are reproduced below. (The K, Rb, and Cs columns are correct as they appear.)

Molality	Li	Na
0.02	5.54	...
0.03	5.15	...
0.04	4.97	8.52
0.06	4.68	6.36
0.08	4.38	5.23
0.10	4.11	4.58
0.15	3.48	3.48
0.20	3.02	2.92
0.30	2.42	2.30
0.40	1.99	1.93
0.60	1.46	1.52
0.80	1.17	1.18
1.00	1.00	1.00
1.50	0.745	0.715
2.00	0.596	0.556
3.00	0.434	0.372
4.00	0.365	0.296
6.00	0.347	0.270
8.00	0.386	0.387
10.00	0.530	0.786
10.84	...	1.14
12.00	0.999	...
14.00	3.52	...
15.70	9.220	...