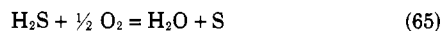


for example, to exist at conditions that otherwise would promote formation of higher sulfides. The same is true for pyrrhotite (FeS<sub>1.14</sub>). Marcasite, then, is found only where the rate of formation from FeS and H<sub>2</sub>S in a solid phase reaction overrides the rate of reduction by the metal walls. Pyrite, which requires slower rates of formation than marcasite, would be formed only rarely.

In addition to iron sulfides, small quantities of sulfur are occasionally found, especially in the marcasite deposits, probably formed by the accidental admission of oxygen, which causes the reaction:



The presence of such free sulfur doubtless aids the formation of higher iron sulfides.

Pursuant to the above calculations and reasoning, a calculated amount of sodium hydrosulfide was added to the feed water of the plant process stream. A rapid and stable reduction of the iron content of the process streams was observed at all points. The troublesome deposits thereafter formed only very slowly, confirming the analysis.

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#### LITERATURE CITED

- (1) Abegg, I., Auerbach, F., Koppel, I., "Handbuch der anorganischen Chemie," vol. 4, p. 248, S. Herzog, Leipzig, 1927.
- (2) Anderson, J.S., *Proc. Roy. Soc. (London)* **A185**, 69-89 (1946).
- (3) Bebbington, W.P., Thayer, V.R., *Chem. Eng. Progr.* **55**, No. 9, 70-78 (1959).
- (4) Bonhoeffer, K.F., Jena, W., *Z. Elektrochem.* **55**, 151-4 (1951).
- (5) Bruner, L., Zawadski, I., *Z. anorg. Chem.* **65**, 136 (1910).
- (6) Conway, B.B., "Electrochemical Data," Elsevier Press, New York, 1952.

- (7) Dippy, J.F.J., Jenkins, H.O., *Trans. Faraday Soc.* **37**, 366-73, 373-375 (1941).
- (8) Epprecht, A.G., *Helv. Chim. Acta* **21**, 205-11 (1938).
- (9) Harned, H.S., Embree, N.D., *J. Am. Chem. Soc.* **56**, 1050 (1934).
- (10) Harned, H.S., Robinson, R.A., *Trans. Faraday Soc.* **36**, 973-8 (1940).
- (11) International Critical Tables of Numerical Data, Physics, Chemistry, and Technology, McGraw-Hill, New York, 1926-33.
- (12) Jellinek, K., Czerwinski, J., *Z. physik. Chem.* **102**, 438-79 (1922).
- (13) Kapustinski, A.F., *Compt. rend. acad. sci., U.R.S.S.* **28**, 144-7 (1940).
- (14) Kelley, K.K., *Bur. Mines Bull.* **406** (1937).
- (15) Kolthoff, I.M., *J. Phys. Chem.* **35**, 2711-21 (1931).
- (16) Kolthoff, I.M., Griffith, F.S., *J. Am. Chem. Soc.* **60**, 2038 (1938).
- (17) Konopik, N., Leberl, O., *Monatsh. Chem.* **80**, 781, 788 (1949).
- (18) Kubli, H., *Helv. Chim. Acta* **29**, 1962-73 (1946).
- (19) Latimer, W.M., Kury, J.W., Zielen, A.J., U. S. Atomic Energy Comm. Rept., UCRL-2108 (Feb. 12, 1953).
- (20) Lipin, S.V., Uskov, V.S., Klokman, V.R., *J. Appl. Chem. U.S.S.R.* **15**, 411-21 (1942).
- (21) Lukes, J.J., Prutton, C.F., Turnbull, D., *J. Am. Chem. Soc.* **67**, 697-700 (1945).
- (22) Osborn, C.J., *J. Metals, Trans. Am. Inst. Mech. Engrs.* **188**, 600-7 (1950).
- (23) Patrick, W.A., *J. Am. Chem. Soc.* **75**, 1184-7 (1953).
- (24) Pohl, H.A., *Ibid.*, **76**, 2182 (1954).
- (25) Rossini, F.D., Wagman, D.D., Evans, E.H., Levine, S., Jaffe, I., *Natl. Bur. Standards, Circ.* **500** (Feb. 1, 1952).
- (26) Selleck, F.T., Carmichael, L.T., Sage, B.H., *Ind. Eng. Chem.* **44**, 2219 (1952).
- (27) Treadwell, W.D., Gubeli, O., *Helv. Chim. Acta* **24**, 173 (1941).
- (28) Van Rysseberghe, P., and Gropp, A.H., *J. Chem. Educ.* **21**, 96-9 (1944).
- (29) Verhoogen, J., *Econ. Geol.* **33**, 34 (1938).
- (30) *Ibid.*, p. 775.
- (31) Wright, R.H., Maass, O., *Can. J. Research* **6**, 588-95 (1932).

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#### CORRECTION

In the article, "Prediction of Boiling Points of Liquid Mixtures," by Isamu Nagata [*J. CHEM. ENG. DATA* **6**, 1961], the following changes should be made:

On page 586, Equation 1 should read

$$\frac{y_i}{y_j} = \frac{x_i}{x_j} \left( \frac{x_i + x_j a_{ij}}{x_j b_{ij} + x_i c_{ij}} \right)$$

On page 587, Equation 24 should read

$$b_{12} \cdot b_{23} \dots b_{ij} \dots b_{n1} = 1$$

On page 588, the data source for *n*-heptane under cyclohexane should be (29, 36); for toluene (28, 36).

On page 589, the first words in the fourth line of the sixth paragraph should be methanol-ethanol.

On page 590, the third paragraph from the bottom (second column) should read: Hence  $T_{12} = 361.9$ .

On page 591, in Table III, the  $T_3$  value for toluene should be 383.8.

#### CORRECTION

In the article, "New Generalized Equation for Gas Diffusion Coefficient," by Ning Hsing Chen and Donald F. Othmer [*J. CHEM. ENG. DATA* **7**, 37 (1962)], the following changes should be made:

On page 38, the third line from the bottom (second column) and on page 40 (Equation 19) 0.3666 should be 2.326.

On page 39 (Table II, No. 22, column 6) 0.0733 should be 0.0773.

On page 41, fifth line from the bottom (second column), the name should be Ning Hsing Chen.