TABLE 2

Effect of 95% Ethanol on Assays of Pure Zwitterionic Surfactants

Surfactant	ml of 95% ethanol	% assay
C_{12}BMG	5.0	98_0
C_{12}BMG	5.9	100_0
C_{12}BMG	6.2	101_3
2PT	4.0	97_3
2PT	5.0	100_2
2PT	5.5	101_1
2PH	5.5	97_1
2PH	6.3	100_2
2PH	6.8	101_4

TABLE 3

Effect of 95% Ethanol on Assay of Commercial Zwitterionic Surfactants (30% active)

Surfactant	ml 95% ethanol	Experimental % actives
LMAB	3.2	29.2
LMAB	4.2	30.1
LMAB	5.8	31.7
CDMB	5.0	27.8
CDMB	6.5	30.1
CDMB	7.3	30.7
CAO	6.0	27.6
CAO	7.6	30.0
CAO	8.0	30.7

(according to the rough guide of 0.3 ml of 95% ethanol to cause a change of 1% in the assay) in subsequent trials. If the initial run gives an assay that is below 100%, more 95% ethanol is needed; if the assay is initially greater than 100%, some 95% ethanol must be removed.

Based on the drop volume of titrant and the error in reading the buret, this method is accurate to approximately $\pm 1_0$% once the optimal amount of 95% ethanol has been determined. A caveat is in order, however, because we noticed that a small amount of long-chain alcohol impurity in the titration makes the percent assay too high. For titrating commercial materials, therefore, a pure compound should not be used for determining the optimal 95% ethanol volume. Rather, a sample of the reaction product should be used for this purpose.

REFERENCES

1. Reid, V.W., T. Alston and E. Heinerth, *Tenside 4*:292 (1967).
2. Reid, V.W., T. Alston and E. Heinerth, *Ibid. 5*:90 (1968).
3. Li, Z-p, and M.J. Rosen, *Anal. Chem. 53*:1516 (1981).
4. Cross, J.T., *Analyst 90*:315 (1965).
5. Pifer, W., and F.W. Wollisch, *Anal. Chem. 24*:300 (1952).
6. Anderson, N.H., and J. Girling, *Analyst 107*:836 (1982).
7. Tsubouchi, M., N. Yamasaki and K. Yanigasawa, *Anal. Chem. 57*:783 (1985).
8. Dahanayake, M., and M.J. Rosen, in *Relation Between Structure and Performance of Surfactants*, edited by M.J. Rosen, ACS Symposium Series 253, Amer. Chem. Soc., Washington, D.C., 1984, p. 49.
9. Zhao, F., and M.J. Rosen, *J. Phys. Chem. 88*:6041 (1984).

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ERRATUM

Several lines of type were inadvertently omitted from the last paragraph of "Biodegradation and Fish Toxicity of Nonionic Surfactants," written by Koichi Yoshimura and published on pages 1590 through 1596 of the December 1986 issue of the *Journal of the American Oil Chemists' Society*.

The paper should end this way:

. . . Although a quantitative explanation of the fish toxicity in the course of the river die-away test is not possible because of the lack of data of residual Met 1 and 2, the contribution of Met 1 and 2 is inferred to be high. Since 48-hr LC_{50} values of Met 1 and 2 were almost at the same level as intact APE, it is believed that little change in fish toxicity might have occurred within the biodegradation pathway from intact C_9APE_9 to Met 1. Because the fish survival rate attained 100% after 14 days, biodegradation intermediates such as Met 1 and 2 are considered to be further biodegraded (Fig. 2).