

Summary

Ferric chloride reagent is compared with cupric potassium chloride as a gravimetric reagent for sulfur. The advantages of ferric chloride are noted in the case of bronze and metallic copper. Possible use in the determination of the composition of non-ferrous furnace metals is mentioned.

X-ray diffraction patterns of the ferric chloride and the cupric potassium chloride residues show that sulfur remains as cuprous sulfide and elementary sulfur.

The procedure described has been in use for approximately one year and has given satisfactory results.

LITERATURE CITED

- (1) American Society for Testing Materials, "X-Ray Diffraction Data for Chemical Analysis, Supplement."
- (2) Holler, A. C., and Yeager, J. P., *Ind. Eng. Chem., Anal. Ed.*, **16**, 349 (1944).
- (3) Lundell, G. E. F., and Hoffman, J. I., "Outlines of Methods of Chemical Analysis," p. 218, John Wiley & Sons, Inc., New York, 1938.
- (4) Cumenge, E., and Wimmer, R., *Dinglers Polytech. J.*, **250**, 85 (1883).
- (5) Silverman, Louis, *Ind. Eng. Chem., Anal. Ed.*, **10**, 433 (1938).
- (6) Weiser, H. B., Milligan, W. O., and Marshall, J. M., *J. Phys. Chem.*, **47**, 496 (1943).

On the Toxicity of the "Arochlors"

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A recently published article (1) has recommended the substitution of one of the "Arochlors" as the melting-point bath liquid in preference to the customary sulfuric acid. As stated in that article, the "Arochlors" are a group of chlorinated diphenyls produced by the Monsanto Chemical Company.

There is need, therefore, to give a warning. For the toxicity of these compounds has been repeatedly demonstrated, both from the standpoint of their absorption from the inspired air as well as from their effect in producing a serious and disfiguring dermatitis when allowed to remain in contact with the skin. Since these effects have been repeatedly observed, industrial hygienists have taken great pains to see that proper controls have been established wherever these products are used. For example, the maximum allowable concentration of chlorinated diphenyl for an 8-hour working day is 1 milligram per cubic meter of air.

It is probable that nothing like an uncontrolled industrial exposure will occur in the laboratory. However, whether an individual is subjected to a possible acute exposure to chlorinated diphenyl and its serious consequences will depend upon the size of the melting-point bath, the caution with which it is used and the temperature to which it may be heated. Likewise, with

careless handling of the material and the resulting contamination of the skin, clothing, laboratory towels, work table surfaces, etc., the way it left open for the producing of dermatitis. Scrupulous cleanliness must be insisted upon wherever this material is handled.

The foregoing remarks have been prompted by the belief that, in recommending the use of a material with which is associated a potential hazard from the health standpoint, it is very important that the possible consequence be presented together with recommendations for correct handling.

LITERATURE CITED

- (1) Maglio, M. Martin, *Chemist Analyst*, 35, 94 (1946).

Short Cut in Routine Water Analysis

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The usual procedure in making routine water analyses, particularly of boiler salines, is to titrate a sample with sulfuric acid to the phenolphthalein end point. The titration is then continued to the methyl orange end point. These measurements of the phenolphthalein and methyl orange alkalinities are generally expressed in grains of CaCO_3 per gallon.

To measure the salinity, a fresh sample of the water is first titrated with sulfuric acid to the phenolphthalein end point. Then a few drops of a 5% solution of potassium chromate are added and the sample is titrated with silver nitrate. The salinity is expressed as grains of NaCl per gallon.

When a large number of samples are to be analyzed, it would save time if all three determinations could be run on the same sample. Since the chromate acts as an indicator only through a narrow pH range, some means must be used to increase the pH of the sample which has been acidified to the methyl orange end point. To accomplish this, the potassium chromate is dissolved in a 0.1 N sodium bicarbonate solution instead of the usual distilled water. Five drops of this indicator solution are sufficient to bring the pH of the sample within the desired range.

Duplicate tests were run with the buffered and unbuffered indicator. The results, expressed in grains per gallon, were as follows:

Sample	Methyl Orange Alkalinity CaCO_3	Salinity	Salinity
		NaCl Unbuffered	NaCl Buffered
Neutral 0.390 N NaCl	0.0	1336	1336
Boiler saline	23.1	267	267
Tap water	55.0	72	72

Thus it will be seen that the short cut is fully as accurate as the standard method of analysis.

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