METHOD #: 425.1	Approved for NPDES (Issued 1971)
TITLE:	Methylene Blue Active Substances (MBAS)
ANALYTE:	MBAS Methylene Blue Active Substances
INSTRUMENTATION:	N/A
STORET No.	38260

1.0 Scope and Application

1.1 This method is applicable to the measurement of methylene blue active substances (MBAS) in drinking waters, surface waters, domestic and industrial wastes. It is not applicable to measurement of surfactant type materials in saline waters.

1.2 It is not possible to differentiate between linear alkyl sulfonate (LAS) and alkyl benzene sulfonate (ABS) or other isomers of these types of compounds. However, LAS has essentially replaced ABS on the surfactant market so that measurable surfactant materials will probably be LAS type materials.

1.3 The method is applicable over the range of 0.025 to 100 mg/L LAS.

2.0 Summary of Method

2.1 The dye, methylene blue, in aqueous solution reacts with anionic-type surface active materials to form a blue colored salt. The salt is extractable with chloroform and the intensity of color produced is proportional to the concentration of MBAS.

3.0 Comments

3.1 Materials other than man-made surface active agents which react with methylene blue are organically bound sulfates, sulfonates, carboxylates, phosphates, phenols, cyanates, thiocyanates and some inorganic ions such as nitrates and chlorides. However, the occurrence of these materials at interference levels is relatively rare and with the exception of chlorides may generally be disregarded.

3.2 Chlorides at concentration of about 1000 mg/L show a positive interference but the degree of interference has not been quantified. For this reason the method is not applicable to brine samples.

3.3 Naturally occurring organic materials that react with methylene blue are relatively insignificant. Except under highly unusual circumstances, measurements of MBAS in finished waters, surface waters and domestic sewages may be assumed to be accurate measurements of man-made surface active agents.

4.0 Precision and Accuracy

4.1 On a sample of filtered river water, spiked with 2.94 mg LAS/liter, 110 analysts obtained a mean of 2.98 mg/L with a standard deviation of ±0.272.

4.2 On a sample of tap water spiked with 0.48 mg LAS/liter, 110 analysts obtained a mean of 0.49 mg/L with a standard deviation of ±0.048.

4.3 On a sample of distilled water spiked with 0.27 mg LAS/liter, 110 analysts obtained a mean of 0.24 mg/L with a standard deviation of ±0.036.

4.4 Analytical Reference Service, Water Surfactant No. 3, Study No. 32, (1968).

5.0 References

5.1 The procedure to be used for this determination is found in:
Standard Methods for the Examination of Water and Wastewaters, 14th Edition, p 600, Method No. 512A (1975).
Annual Book of ASTM Standards, Part 31, "Water", Standard D 2330-68, Method A, p 494 (1976).