

Standard Method of Test for OILY MATTER IN INDUSTRIAL WASTE WATER¹



ASTM Designation: D 1340 - 60 (Reapproved 1967)

This Standard of the American Society for Testing and Materials is issued under the fixed designation D 1340; the final number indicates the year of original adoption as standard or, in the case of revision, the year of last revision.

Scope and Application

1. This method² covers the determination of oily matter³ content of industrial waste water.

NOTE 1.—The Joint Committee on Uniformity of Methods of Water Examination has concluded that uniformity of methods for the determination of grease and oily matter is not practicable on the basis of present technical knowledge.

Commonly used solvents are hexane, petroleum ether, benzene, chloroform, or carbon tetrachloride. These solvents exert selective

¹ Under the standardization procedure of the Society, this method is under the jurisdiction of the ASTM Committee D-19 on Water. A list of members may be found in the ASTM Year Book.

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² This method is based on methods developed by the Standard Inspection Laboratories of the Esso Standard Oil Co. and the Sun Oil Co. (see A. F. S. Musante, *Analytical Chemistry*, Vol. 23, pp. 1374-1379 (1951)), and is similar to part of API Method 731-53, "Determination of Volatile and Non-Volatile Oily Material," *Manual on Disposal of Refinery Wastes*, Vol. 4, American Petroleum Institute (1953).

³ The American Society for Testing and Materials agrees with the conclusion reached in November, 1959, by the Joint Committee on Uniformity of Methods of Water Examination, which states that uniformity of methods for the determination of grease and oily matter is not practicable on the basis of present technical knowledge.

extraction of specific greases and oily constituents. In addition, nonoily materials, such as phenolic type material and colloidal sulfur, are selectively extracted to varying degrees by these solvents. The selectivity of extraction is affected by the sample-to-solvent ratio.

Oily matter and grease may be of mineral, animal, or vegetable origin. The solvent action exerted on material of such different chemical structure will vary to a marked degree. Thus application of a test method for oily matter or grease to such materials will necessarily produce a variety of results depending on the solvent used. In one case, a solvent may be an excellent extractant of mineral oil and a poor extractant of vegetable oil. In another case, a second solvent may be a poor extractant for mineral oil but excellent for extracting vegetable oil.

The definition of grease and oily matter by necessity is based on the procedure used because of the above considerations. The source of the grease or oily matter, the solvent used, the sample-to-solvent ratio, the pH of the sample, and the inclusion of nonoily matter will dictate the material determined and influence the interpretation of the results obtained.

Principle of Method

2. The sample is refluxed through a trap, and the volatile oily matter is collected and measured volumetrically in the reflux trap. The remaining sample is extracted with two successive portions of solvent, using mechanical agitation.