

Standard Method of Test for HEXANE-EXTRACTABLE MATTER IN WATER¹



ASTM Designation: D 1891 - 69

This Standard of the American Society for Testing and Materials is issued under the fixed designation D 1891; the final number indicates the year of original adoption as standard or, in the case of revision, the year of last revision.

Scope

1. (a) This method covers the gravimetric determination of hexane-extractable matter² separated from water. The hexane-extractable matter may contain material not normally classified as "oily matter."

(b) The method is intended primarily for industrial waste water and is applicable to the determination of relatively nonvolatile hydrocarbons, hydrocarbon derivatives, grease, and unctuous substances present in concentrations of 5 to 1000 mg/liter (ppm).

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

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 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.

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

(c) The method is not applicable to the determination of light hydrocarbons