

10058



Fact Sheet

Oil & Grease
pro

Proposed Test Procedure for the Analysis of Oil and Grease and Total Petroleum Hydrocarbons

BACKGROUND

The discharge of chlorofluorocarbons (CFCs) has been shown to be a primary contributor to the depletion of the earth's stratospheric ozone layer. The United States, as a party to the Montreal Protocol on Substances that Deplete the Ozone Layer and as required by law under the Clean Air Act Amendments of 1990 (CAAA), is committed to controlling and eventually phasing out CFCs.

Freon-113 is a Class I CFC that is required for use in several U.S. Environmental Protection Agency (EPA) wastewater methods for the determination of oil and grease and total petroleum hydrocarbons (TPH). Both analytes are included in various regulatory compliance monitoring programs and are therefore measured on a regular basis.

As part of the effort to eliminate the use of CFCs, EPA studied the use of solvents alternative to Freon-113 for determination of oil and grease and TPH. As a result of these studies, EPA has concluded that *n*-hexane is the most suitable replacement for Freon-113 in the separatory funnel extraction and gravimetric determination of oil and grease and TPH. Therefore EPA Method 1664: *N*-Hexane Extractable Material (HEM) and Silica Gel Treated *N*-Hexane Extractable Material (SGT-HEM) by Extraction and Gravimetry (Oil and Grease and Total Petroleum Hydrocarbons) is being proposed to replace currently approved methods for the determination of oil and grease and to provide a method for TPH. Current 40 CFR 136 approved methods that would be replaced by Method 1664 include EPA Method 413.1 and Standard Method 5520B, both of which use Freon-113 as the extraction solvent.

On May 10, 1995, an exemption for laboratory and analytical essential uses of CFCs was granted through the 1997 control periods (60 FR 24970). This proposed rule will provide for the eventual elimination of the

elimination of the use of Freon-113 consistent with the goals of the CAAA and the Montreal Protocol.

The proposal of Method 1664 is pursuant to the authority of sections 301, 304(h), and 501(a) of the Clean Water Act (CWA). Test methods are promulgated at 40 CFR Part 136.

METHOD 1664

Method 1664, which uses n-hexane as the extraction solvent in place of Freon-113, is a liquid/liquid extraction, gravimetric procedure applicable to aqueous matrices for the determination of n-hexane extractable material and silica gel treated n-hexane extractable material (oil and grease and TPH, respectively).

The most significant changes in Method 1664 compared to other oil and grease and TPH methods that use separatory funnel extraction and gravimetric determination are 1) the use of n-hexane as the extraction solvent, 2) the use of standards of known composition and purity, specifically hexadecane and stearic acid, as the spiking materials for QC analyses, and 3) the introduction of extensive quality control (QC). Though not specifically incorporated into Method 1664, the use of alternative extraction and concentration techniques, such as solid phase extraction (SPE), are allowed under the performance-based option of this method, provided that all performance specifications in the Method are met.

REQUIREMENTS OF THE REGULATION

This proposal amends the Guidelines Establishing Test Procedures for the Analysis of Pollutants under section 304(h) of the Clean Water Act to replace currently approved gravimetric test procedures with EPA Method 1664 for determination of the conventional pollutant "oil and grease" and a non-conventional pollutant, TPH. This rule is necessary to meet compliance monitoring requirements of the Clean Water Act and, though the May 10, 1995 final rule concerning the protection of the stratospheric ozone (60 FR 24970) provides a global exemption for laboratory use of CFCs through 1997, serves to comply with the CFC phaseout objectives of the Clean Air Act Amendments of 1990.

This proposal solicits comments on the replacement of Freon-113 with n-hexane, the utility of Method 1664 for monitoring, the QC acceptance criteria, the MDL and ML levels, and the performance-based option criteria for the use of alternative extraction and concentration techniques, such as SPE. The proposed rule applies to

any permits and regulations requiring the determination of oil and grease by 40 CFR 136 approved methods.

REGULATORY IMPACTS

Use of the proposed method will affect any permittee regulated for oil and grease. Since oil and grease is a method defined parameter, any change in method protocol, such as the use of another solvent, has the potential to affect results. Evaluation of results generated from Phase II of EPA's Freon Replacement Study, however, indicates that any change in oil and grease concentration that may result from using n-hexane instead of Freon-113 would be overshadowed by the variability that was observed in the pre-existing approved Freon methods that did not impose the thorough QC requirements imposed by Method 1613. Therefore, EPA does not believe that the proposed change in solvent will subject permittees to a greater risk of noncompliance than already exists.

An assessment of the regulatory impact demonstrates that this proposed regulation would not be considered a major regulation. The Agency believes that the transitional costs associated with this proposal will be minimal because laboratory testing is a very small part of Freon-113 consumption (less than 1 percent) and the testing required by EPA is only a fraction of this total. Furthermore, the rule is not likely to cause a major increase in costs or prices for individuals or consumers, although laboratories may experience some increase in costs due to longer testing procedures because of the increased number of sample manipulations and the additional quality control in the method. The regulation is also unlikely to cause significant adverse effects on competition, investment, innovation, or international trade.