Solids, volatile-on-ignition, total, gravimetric

Parameter and Code:
Solids, volatile-on-ignition, total, I-3753-85 (mg/L): 00505

1. Application

This method may be used to analyze any natural, treated, or industrial water and other waste.

2. Summary of method

A measured volume of well-mixed, unfiltered sample is evaporated to dryness. The residue is dried at 105 °C for 2.0 h, cooled in a desiccator, and immediately weighed. See solids, total (method I-3750). The residue is then ignited at 550 °C and weighed, the difference in weight representing total volatile solids.

3. Interferences

3.1 Care must be taken to ensure that a representative sample is provided. Usually, large, floating particles are excluded from the sample.

3.2 Because of the great variability in the nature of the compounds that can be present in the sample, particularly in samples of industrial and other wastes, the determination can be considered only an approximation of the amount of volatile material present. Much of the volatile material may have been released during the determination of total residue. Moreover, ignition at 550 °C certainly volatilizes water of hydration from the hydrated salts present.

4. Apparatus

4.1 *Muffle furnace,* 550 °C.

4.2 For additional items of required apparatus, see solids, total (method I-3750).

5. Reagents

None required.

6. Procedure

6.1 Determine the total solids as directed in solids, total (method I-3750).

6.2 Place the weighed evaporating dish in a muffle furnace at 550 °C; heat for 1 h.

6.3 Remove and cool in a desiccator. Weigh and record the weight to the nearest 0.1 mg.

7. Calculations

Solids, volatile-on-ignition, total mg/L=

$$\frac{1000}{mL\ sample} \times (ER\text{-}IR)$$

where

ER = weight of evaporated total residue, milligrams,

IR = weight of ignited total residue, milligrams.

8. Report

Report solids, volatile-on-ignition, total (00505), concentrations as follows: less than 1,000 mg/L, whole numbers; 1,000 mg/L and above, three significant figures.

9. Precision

Precision data are not available for this method.