

# **Method 160.4: Residue, Volatile (Gravimetric, Ignition at 550°C) by Muffle Furnace**

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<b>METHOD #:</b> 160.4	Approved for NPDES (Issued 1971)
<b>TITLE:</b>	Residue, Volatile (Gravimetric, Ignition at 550°C)
<b>ANALYTE:</b>	Residue ,Volatile
<b>INSTRUMENTATION:</b>	Muffle Furnace
<b>STORET No.</b>	Total - 00505 Non-Filterable - 00535 Filterable - 00520

## 1.0 Scope and Application

- 1.1 This method determines the weight of solid material combustible at 550°C.
- 1.2 The test is useful in obtaining a rough approximation of the amount of organic matter present in the solid fraction of sewage, activated sludge, industrial wastes, or bottom sediments.

## 2.0 Summary of Method

- 2.1 The residue obtained from the determination of total, filterable or non-filterable residue is ignited at 550°C in a muffle furnace. The loss of weight on ignition is reported as mg/L volatile residue.

## 3.0 Comments

- 3.1 The test is subject to many errors due to loss of water of crystallization, loss of volatile organic matter prior to combustion, incomplete oxidation of certain complex organics, and decomposition of mineral salts during combustion.
- 3.2 The results should not be considered an accurate measure of organic carbon in the sample, but may be useful in the control of plant operations.
- 3.3 The principal source of error in the determination is failure to obtain a representative sample.

## 4.0 Sample Handling and Preservation

- 4.1 Preservation of the sample is not practical; analysis should begin as soon as possible. Refrigeration or icing to 4°C, to minimize microbiological decomposition of solids is recommended.

## 5.0 Precision and Accuracy

- 5.1 A collaborative study involving three laboratories examining four samples by means of ten replicates showed a standard deviation of  $\pm 11$  mg/L at 170 mg/L volatile residue concentration.

## 6.0 Reference

- 6.1 The procedure to be used for this determination is found in: Standard Methods for the Examination of Water and Wastewater, 14th Edition, p 95, Method 208E, (1975).