

Indian Standard METHODS OF TEST FOR PETROLEUM AND ITS PRODUCTS

[P : 122]

Petroleum products - Determination of carbon residue - Conradson method (First Revision)

WARNING - The use of this International Standard may involve hazardous materials, operations and equipment. This International Standard does not purport to address all of the safety Problems associated with its use. It is the responsibility of the User of this International Standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations Prior to use.

1 Scope

This International Standard specifies a method for determining the amount of carbon residue, in the range of 0,01 % (m/m) to 30,0 % (m/m), left after evaporation and pyrolysis of an Oil, and is intended to provide some indication of relative Coke-forming tendency. The method is generally applicable to relatively non-volatile Petroleum products which partially decompose on distillation at atmospheric pressure. Petroleum products containing ash-forming constituents as determined by ISO 6245 will exhibit an erroneously high carbon residue, depending upon the amount of ash formed.

NOTES

1 The term "carbon residue" is used throughout this International Standard to designate the carbonaceous residue formed after evaporation and pyrolysis of a petroleum product. The residue is not entirely composed of carbon, but is a coke which can be further changed by pyrolysis. The term "carbon residue" is retained in this method only in deference to its widespread use.

2 Values obtained by this method are not numerically the same as those obtained by ISO 4262, nor have satisfactory correlations been found between the results obtained by the two methods for all materials which may be tested, because the carbon residue test is applied to a wide variety of Petroleum products. The Conradson carbon residue is finding use to characterize heavy residue fuel, coker feed Stocks, etc., which cannot readily be loaded into a Ramsbottom coker bulb, and when it is desirable to examine or further test the residue. ISO 10370 (micro method) gives results similar to this method on a wide range of petroleum products, and may in time replace both this method and ISO 4262.

3 The carbon residue of distillate and residual fuel oils gives an approximate ranking of such fuels in terms of their propensity to form deposits in specific applications.

4 The presence of alkyl nitrates in distillate fuels, or ash-forming additives in either distillate or residue fuels, will give carbon residue results that are higher than the corresponding values on the fuel without additives. These values may not correlate with the propensity of a fuel to form deposits.

5 The carbon residue of base lubricating oils may give an indication of the propensity of the oil to lay down deposits in combustion chambers, and/or of the relative Chemical constitution of oils of similar viscosity. Most finished lubricating oils contain ash-forming additives, and thus the carbon residue of finished lubricants cannot be used in this manner.

6 The carbon residue of a gas oil is a useful guide in the manufacture of gas.

2 Normative references

The following Standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All Standards are subject to revision, and Parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the Standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 1772:1975, Laboratory crucibles in porcelain and silica.

ISO 3170:1988, Petroleum liquids - Manual sampling.

ISO 3171: 1988, Petroleum liquids - Automatic pipeline sampling.

ISO 3405: 1988, Petroleum products - Determination of distillation characteristics.