INTERNATIONAL STANDARD

ISO 3830

Third edition
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Petroleum products — Determination of lead content of gasoline — Iodine monochloride method

Produits pétroliers — Détermination de la teneur en plomb de l'essence — Méthode au monochlorure d'iode

Reference number
ISO 3830:1993(E)

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 3830 was prepared by Technical Committee ISO/TC 28, *Petroleum products and lubricants.*

This third edition cancels and replaces the second edition (ISO 3830:1981), which has been technically revised.

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Petroleum products — Determination of lead content of gasoline — Iodine monochloride method

WARNING — The use of this International Standard may involve hazardous materials, operations and equipment. This standard does not purport to address all of the safety problems associated with its use. It is the responsibility of the user of this 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 the determination of total lead content in gasolines containing lead alkyls at concentrations between 0,026 g and 1,300 g of lead per litre.

This International Standard is not applicable to gasoline containing manganese anti-knock additives.

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 385-1:1984, *Laboratory glassware — Burettes — Part 1: General requirements.*

ISO 835-1:1981, *Laboratory glassware — Graduated pipettes — Part 1: General requirements.*

ISO 1042:1983, *Laboratory glassware — One-mark volumetric flasks.*

ISO 1770:1981, *Solid-stem general purpose thermometers.*

ISO 3007:1986, *Petroleum products — Determination of vapour pressure — Reid method.*

ISO 3170:1988, *Petroleum liquids — Manual sampling.*

ISO 3171:1988, *Petroleum liquids — Automatic pipeline sampling.*

ISO 3696:1987, *Water for analytical laboratory use — Specification and test methods.*

ISO 3839:1978, *Petroleum distillates and commercial aliphatic olefins — Determination of bromine number — Electrometric method.*

ISO 4788:1980, *Laboratory glassware — Graduated measuring cylinders.*

ISO 4800:1977, *Laboratory glassware — Separating funnels and dropping funnels.*

3 Principle

A known volume of the test sample is diluted with heavy distillate and shaken with aqueous iodine monochloride reagent. Any tetraalkyl lead compounds present react with the iodine monochloride and are extracted into the aqueous phase as the dialkyl lead compounds. The aqueous extract is separated from the gasoline and evaporated to low bulk to decompose free iodine monochloride. Any organic matter present is removed by oxidation with nitric acid, which also serves to convert the dialkyl lead compounds into inorganic lead compounds. The residue is dissolved in water and buffered to pH 5 with sodium acetate/acetic acid buffer. The lead content of the buffered solution is determined by titration with Na_2EDTA using xylenol orange as indicator.