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Foreword

This is a technical paper prepared by the standards committee after deliberation of the standard in accordance with the rules of the standards conference based on the articles of the Japan Automotive Standards Organization.

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This technical paper is one of the following technical papers related to test method fordiesel fuel containing fatty acid methyl ester in the range of not exceeding 5% in mass fraction.

TP 16001 Automotive fuel — Measurement of fatty acid methyl ester and triglyceride contents in diesel fuel — High performance liquid chromatograph method

TP 16002 Automotive fuel — Measurement of formic acid, acetic acid and propionic acid contents in diesel fuel — Water extraction ion chromatograph method

TP 16003 Automotive fuel —Measurement of methanol content in diesel fuel — Method using gas chromatograph with oxygen detector

TP 16004 Automotive fuel —Measurement of methanol content in diesel fuel — Method using gas chromatograph with head space flame ionization detector

TP 16005 Automotive fuel —Measurement of methanol content in diesel fuel — Water extraction — Method using gas chromatograph with flame ionization detector

TP 16006 Automotive fuel — Measurement of acid value increase in diesel fuel

TP 16007 Automotive fuel —Measurement of oxidation stability of diesel fuel — Rapid small scale oxidation test method

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TECHNICAL PAPER

Automotive fuel — Measurement of formic acid, acetic acid and propionic acid contents in diesel fuel — Water extraction ion chromatograph method

Description

This technical paper is prepared based on the public notice of the Ministry of Economy, Trade and Industry Article 80, “Test method for measurement of formic acid, acetic acid and propionic acid contents in diesel fuel specified by the Minister of Economy, Trade and Industry”, for “Act on the Quality Control of Gasoline and Other Fuels”, without reviewing the technical contents.

WARNING The use of this 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 to determine the applicability of regulatory limitations prior to use.

1 Scope

This technical paper allows the determination of the concentrations of formic, acetic and propionic acids in a concentration range of 1-20 mass ppm, respectively.

In case the concentration of a sample is beyond the concentration ranges of this standard, the test may be performed by diluting thewater extraction sample to suitable levels and complying with this standard.

2 Normative reference

This standards cited at the appropriate places of this technical papper are as follows. For these reference standards, their latest version (including the Supplements) shall be applied.

JIS K 0127 General rules for ion chromatographic analysis

JIS K 0557 Water used for industrial water and wastewater analysis

JIS K 8267 Sodium formate

JIS K 8372 Sodium acetate

JIS K 2251 Crude petroleum and petroleum products－Sampling

JIS Z 8401 Guide to the rounding of numbers

JIS Z 8402-6 Accuracy (trueness and precision) of measurement methods and results－Part 6: Use in practice of accuracy values

3 Summary of of test method

A sample is mixed with water and shaken to extract formic, acetic and propionic acids into the water. The separated aqueous phase is injected into an ion chromatograph to separate and elute each component, of which a chromatogram corresponding to each acid ion is recorded. The concentration of

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