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National Standard of the People's Republic of China

GB 6537-2006

Replacing GB 6537-1994

No.3 Jet fuel

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Foreword

Chapter 3 and Chapter 4 of this Standard are mandatory, the rest are recommended.

The consistency between this Standard and British Ministry of Defense Standard DEF STAN 91-91/4 "Kerosene-type aviation turbine fuel (Jet A-1)" is not equivalent.

This Standard replaces GB 6537-1994 "No.3 jet fuel."

Compared with GB 6537-1994, main changes of this Standard are as follows:

- The consistency between this Standard and British Ministry of Defense Standard DEF STAN 91-91/4 "Kerosene-type aviation turbine fuel (Jet A-1)" is not equivalent, the consistency between GB 6537-1994 and American Standard ASTM D1655-92C is not equivalent.
- DELETE GB/T 255 "Petroleum products-Determination of distillation characteristics", GB/T 260 "Determination of water content in petroleum products", and GB/T 511 "Petroleum products and additives - Determination of mechanical impurities (Gravimetric method)" in normative references of Chapter 2 .
- ADD GB/T 11140 "Standard test method for sulfur in petroleum products by wavelength dispersive X-ray fluorescence spectrometry", GB/T 17040 "Standard test method for sulfur in petroleum and petroleum and petroleum products by energy dispersive X-ray fluorescence spectrometry", SH/T 0253 "Standard test method for total sulfur content of light petroleum products (chronocoulometry)", SH/T 0689 "Standard test method for total sulfur content of light hydrocarbons and engine fuel and other fuel products (UV fluorescence)", SH/T 0770 "Standard test method for freezing point of aviation fuels (Automatic phase inversion method)", SH/T 0616 "Standard test method for water separation index

of jet fuel (Portable instrument separation method)", SH/T 0687 "Standard test method for lubrication of aviation turbine fuel (Spherocylindrical lubricity evaluator method)" and other methods in normative references of Chapter 2.

- ADD "room temperature" in the indicators of appearance, "suspension" is revised to "solid matter".
- ADD reporting fuel components.
- ADD two indexes of water separation index and lubricity.
- Civil requirements of color, aromatic content, viscosity, silver strip corrosion, water-reaction, lubricity and other indexes are provided in the footnote of the table.
- ADD the normative appendix A - Name and amount of additives.

Appendix A of this Standard is normative.

This Standard was proposed by China Petroleum and Chemical Corporation.

This Standard shall be administered by National Standardization Technical Committee of Products and Lubricants Oil (SAC/TC 280).

Drafting organizations of this Standard: Petrochemical Science Institute of China Petrochemical Co., Ltd., Air Force Oil Institute, China Aviation Oil Corporation.

Main drafters of this Standard: Tao Zhiping, Gong Dongmei, Zhang Cuijun, Jian Zhang and Li Ming.

This Standard was first released in 1986, the first revision is in 1994, this is the second revision.

No.3 Jet fuel

1 Scope

This Standard specifies the requirements and test methods, inspection rules, signs, packaging, transportation, storage and delivery acceptance of No.3 jet fuel which is processed and obtained from natural crude oil or its distillate oil. The products in this Standard apply for aviation turbine engines.

2 Normative references

The provisions in following documents become the provisions of this Standard through reference in this Standard. For dated references, the subsequent amendments (excluding corrections) or revisions do not apply to this Standard, however, parties who reach an agreement based on this Standard are encouraged to study if the latest versions of these documents are applicable. For undated references, the latest edition of the referenced document applies.

GB/T 261 Determination of flash point – Pensky - Martens closed cup method. (GB/T 261-1983, eqv ISO 2719; 1988)

GB/T 265 Petroleum products - Determination of kinematic viscosity and calculation of dynamic viscosity

GB/T 380 Petroleum products - Determination of sulfur (Lamp method)

GB/T 382 Kerosene - Determination of smoke point (GB/T 382-1983, neq ISO 3014: 1974)

GB/T 384 Determination of calorific value of petroleum products

GB/T 509 Engine fuels - Determination of existent gum

GB/T 1792 Distillate fuels - Determination of mercaptan sulphur - Potentiometric titration method

GB/T 1793 Standard test method for water reaction of aviation fuels

GB/T 1884 Crude Petroleum and Liquid Petroleum Products - Laboratory Determination of Density - Hydrometer Method (GB/T 1884-2000,

eqv ISO 3675: 1998)

GB/T 1885 Petroleum Measurement Tables (GB/T 1885-1998, eqv ISO 91-2: 1991)

GB/T 2429 Aviation fuels - Calculation of net heat of combustion (GB/T 2429: 1988, neq ISO 3634: 1976)

GB/T 2430 Standard test method for freezing point of aviation fuels

GB/T 3555 Petroleum products - Determination of Saybolt color - Saybolt chromometer method

GB/T 4756 Petroleum liquids - Manual sampling (GB/T 4756-1998, eqv ISO 3170: 1988)

GB/T 5096 Petroleum products - Corrosiveness to copper - Copper strip test

GB/T 6536 Petroleum products - Determination of distillation

GB/T 6539 Standard test methods for electrical conductivity of aviation and distillate fuels

GB/T 8019 Standard test method for gum content in fuels - By jet evaporation

GB/T 9169 Standard test method for thermal oxidation stability of aviation turbine fuels - JFTOT procedure

GB/T 11128 Aviation turbine fuels - Determination of luminometer numbers

GB/T 11132 Standard test method for hydrocarbon types in liquid petroleum products by fluorescent indicator adsorption

GB/T 11140 Standard test method for sulfur in petroleum products by wavelength dispersive X-ray fluorescence spectrometry

GB/T 12574 Jet fuels - Determination of total acid number

GB/T 17040 Standard test method for sulfur in petroleum and petroleum and petroleum products by energy dispersive X-ray fluorescence spectrometry

SH/T 0023 Jet fuel - Corrosiveness to silver - Silver strip test

SH/T 0093 Standard test method for solid particle contamination of jet fuel
SH 0164 Petroleum product - packaging, storage and delivery acceptance rules

SH/T 0174 Standard test method for mercaptan qualitative of aromatics and light petroleum products (Doctor test method) (SH/T 0174-1979, eqv ISO 5275: 1979)

SH/T 0181 Standard test method for naphthalene hydrocarbon content of jet fuel (UV spectrophotometry)

SH/T 0182 Standard test method for copper content of light petroleum products (spectrophotometry)

SH/T 0253 Standard test method for total sulfur content of light petroleum products (chronocoulometry)

SH/T 0616 Standard test method for water separation index of jet fuel (Portable instrument separation method)

SH/T 0687 Standard test method for lubrication of aviation turbine fuel (Spherocylindrical lubricity evaluator method)

SH/T 0689 Standard test method for total sulfur content of light hydrocarbons and engine fuel and other fuel products (UV fluorescence)

SH/T 0770 Standard test method for freezing point of aviation fuels (Automatic phase inversion method)

3 Technical requirements and test methods

3.1 Product manufacturing shall comply with the raw materials and processing technology adopted by the fuel sample which passes the specified process, and it shall be allowed to add those additives which have passed through specified process, see Appendix A.

3.2 Performance indicators and test methods of products shall comply with the requirements listed in Table 1.

- d Either Mercaptan sulfur or Doctor test can be carried out. When there exists dispute, the mercaptan sulfur shall prevail.
- e When there exists dispute, GB/T 2430 shall prevail.
- f For civil aviation fuel, viscosity index at 20 °C is not required.
- g When there exists dispute, GB/T 384 shall prevail.
- h For civil aviation fuel, this indicator is not mandatorily required.
- i When there exists dispute, GB/T 8019 shall prevail.
- j For civil aviation fuel, it is not required to report the degree of separation.
- k If the fuel is not required to add antistatic agent, this indicator is not required. When fuel leaving the factory, it is required to be more than 150pS / m.
- l Civil aviation fuel requires that WSD shall not be greater than 0.85mm.

4 Inspection rules

4.1 Inspection classification and inspection items

The inspection of this product is factory-exit inspection. The inspection items of factory-exit are all inspection items specified in Chapter 3 - Technology requirements.

4.2 Batch

Under the condition of same raw materials and technology, a jar or a pot of product is deemed as a batch.

4.3 Sampling

Sampling shall be conducted according to GB/T 4756. TAKE 7 L of fuel sample from each batch of product to be used in test, and 1 L of fuel sample as retained sample.

4.4 Judgment rules

The results of factory-exit inspection shall be all quantified, before they are shipped out.

4.5 Reinspection rules

Appendix A

(Normative)

The name and added amount of additives

A.1 Name and added amount of antistatic agent

T1502 or Stadis 450. The initial added amount shall not be more than 3.0 mg / L, the cumulative added amount shall not be more than 5.0 mg / L.

A.2 Name and added amount of antioxidants

2,6-di-tert-butyl-p-cresol. When using hydrogenation process to produce jet fuel, it must be added with 17.0 mg / L ~ 24.0 mg / L of antioxidant.

A.3 Name and added amount of anti-wear agents

Compound type (T1601) or naphthenic type (T1602), the added amount of compound type T1601 is 10.0 mg / L ~ 20.0 mg / L, the added amount of naphthenic type T1602 is not more than 20.0 mg / L.

A.4 Name and added amount anti-icing agents

Under the circumstance of users' permit, glycol monomethyl ether or diethylene glycol monomethyl ether can be added, the added amount is 0.10% to 0.15% (volume fraction).

A.5 Name and added amount of the metal deactivator

N, N'- dihydrate Yankee 1,2 propane diamine can only be added under the circumstance of users' permit. The initial added amount shall not exceed 2.0 mg / L, the cumulative added amount shall not exceed 5.7 mg / L.

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