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GB/T 13291-2008

Replacing GB 13291-1991

Butadiene for industrial use - Specification

工业用丁二烯

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Issued by: General Administration of Quality Supervision, Inspection and Quarantine;
Standardization Administration of the People's Republic of China.

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Foreword

This Standard replaces GB 13291-1991, Butadiene for industrial use - Specification.

The main differences between this Standard and GB 13291-1991 are as follows:

-- Change it from a mandatory standard to a recommended standard;

-- Change the 1,3-butadiene indicator of the top grade from "≥99.3%" to "≥99.5%"; change the 1,3-butadiene indicator of the first grade from "≥98.0%" to "≥99.3%";

-- Change the total alkyne indicator of the top grade from "≤50 mg/kg" to "≤20 mg/kg"; change the total alkyne indicator of the first grade from "≤100 mg/kg" to "≤50 mg/kg";

-- Change the indicator of water of the first grade from "≤500 mg/kg" to "≤20 mg/kg";

-- Change the butadiene peroxide indicator of the top grade from "≤10 mg/kg" to "≤5 mg/kg";

-- Change the polymerization inhibitor TBC indicator from "(50 ~ 150) mg/kg" to "negotiated between the supplier and the buyer";

-- Change the gas-phase oxygen content indicator of the top grade from "≤0.3%" to "≤0.2%";

-- Add quality indicators of qualified products;

-- Add notes to describe the appearance determination methods, and the arbitration methods of 1,3-butadiene content and gas-phase oxygen content;

-- Modify relevant contents of the normative references;

-- Revise the inspection rules; add relevant contents such as inspection classification and limit value judgment;

-- Revise the storage and safety requirements.

This Standard was put forward by Sinopec Group.

This Standard shall be under the jurisdiction of Subcommittee on Petrochemistry of National Standardization Technical Committee of Chemical (SAC/TC 63/SC 4).

Butadiene for industrial use - Specification

1 Scope

This Standard specifies the requirements, test methods, inspection rules, packaging, marking, transportation, storage and safety requirements of butadiene for industrial use.

This Standard applies to the butadiene that is produced by extractive distillation, of which dimethylformamide, acetonitrile, or N-methylpyrrolidone is used as the solvent.

Structural formula: $CH_2 = CH-CH = CH_2$

Relative molecular mass: 54.0 (according to the international relative atomic mass in 2005)

2 Normative references

The terms in the following documents become the terms of this Standard by reference to this Standard. For dated references, all subsequent amendments (not including errata content) or revisions do not apply to this standard. However, parties to agreements that are based on this Standard are encouraged to study whether the latest versions of these documents can be used. For undated references, the latest edition applies to this Standard.

GB/T 1250, Representation and determination of limit values

GB/T 3723, Sampling of chemical products for industrial use - Safety in sampling (GB/T 3723-1999, idt ISO 3165:1976)

GB/T 6015, Butadiene for industrial use - Determination of trace dimer - Gas chromatographic method

GB/T 6017, Butadiene for industrial use - Determination of purity and hydrocarbon impurities - Gas chromatographic method

GB/T 6020, Butadiene for industrial use - Determination of tert-butyl-catechol (TBC)

GB/T 6022, Butadiene for industrial use - Determination of oxygen in gaseous phase above liquid butadiene

GB/T 6023, Butadiene for industrial use - Determination of trace water - Coulometric Karl Fischer method

according to this Standard. The acceptance period is determined by the supplier and the buyer through consultation.

5 Packaging, transportation and storage

5.1 For the packaging, marking, transportation and storage of butadiene for industrial use, implement “Supervision Regulation on Safety Technology for Pressure Vessel” and “Regulations on Quality Supervision and Safety Supervision of Special Equipment”.

5.2 Butadiene for industrial use can be transported by railway, automobile tanker and pipeline. When products of butadiene for industrial use are transported by railway and automobile tanker, in addition to implementing the “Supervision Regulation on Safety Technology for Pressure Vessel”, also follow the “Regulations on Safety Supervision of Liquefied Gas Railway Tanker” and the “Regulations on Safety Supervision of Liquefied Gas Automobile Tanker”.

5.3 During the storage and transportation of butadiene for industrial use, sufficient polymerization inhibitor shall be added according to the distance and season to prevent self-polymerization. At the same time, adopt nitrogen (pure nitrogen) sealing to avoid contact with the air, so as to prevent self-polymerization and the formation of peroxides. Due to the influence of nitrogen purity, climatic conditions and other factors, the container of butadiene may produce "butadiene peroxides"; so, it shall be processed regularly. The process method is: immerse it in the ferrous sulfate solution whose mass fraction is 5% at 80 °C for 24 h.

5.4 For the storage of butadiene for industrial use, use a pressure window container. The design pressure of the container is 0.8 MPa; the test pressure is 1.18 MPa; the liquid filling factor is not greater than 0.51 kg/L; the storage temperature should not exceed 27 °C. For long-term storage, the temperature shall be below 10 °C. Mark the word of "butadiene"; there shall be fire and explosion proof signs.

5.5 Butadiene for industrial use shall be stored in a cool, ventilated warehouse. Keep it away from fire and heat sources. Protect it from direct sunlight. It shall be stored separately from oxygen, compressed air, oxidants, etc. The lighting, ventilation and other facilities in the storage room shall be explosion-proof. It shall be equipped with the appropriate variety and quantity of fire equipment. Fireproof and explosion-proof technical measures shall be taken during tank storage. There shall be cooling measures for open-air tank storage in summer. Prohibit the use of spark-prone machinery and tools.

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