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NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA

GB 1886.176-2016

**National food safety standard - Food additives - Lactulose
liquid**

食品安全国家标准 食品添加剂 异构化乳糖液

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Foreword

This standard replaces GB 8816-1988 "Food additive - Lactulose liquid".

Compared with GB 8816-1988, the main changes in this standard are as follows:

- MODIFY the sensory requirements;
- MODIFY the index requirements for isomerized lactose content, fructose content, galactose content, lactose content, arsenic (As);
- DELETE the index requirements for specific gravity, refractive index, coliform bacteria;
- ADD the index requirements and testing methods for epilactose content, pH, ignition residue, Escherichia coli;
- ADD the identification test methods;
- MODIFY the testing methods for isomerized lactose content, fructose content, galactose content, lactose content;
- UPDATE the normative references of some inspection methods to the latest published versions.

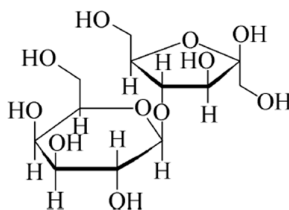
National food safety standard - Food additives - Propionic acid

1 Scope

This standard applies to food additive isomerized lactose liquids, which are prepared from lactose as raw material by isomerization, with or without alkali under heating conditions, OR the solid products prepared by drying afterwards.

2 Structural formula, molecular formula, relative molecular mass of the main components

2.1 Structural formula



2.2 Molecular formula

$C_{12}H_{22}O_{11}$

2.3 Relative molecular mass

342.30 (according to 2011 international relative atomic mass)

3 Technical requirements

3.1 Sensory requirements

Sensory requirements shall comply with Table 1.

Appendix A

Testing method

A.1 General provisions

Unless other requirements are specified, the reagents and water used in this standard refer to analytically pure reagents and grade three water specified in GB/T 6682. Unless other requirements are specified, the standard solutions, standard solutions for impurity determination, preparations and products used in the test shall be prepared in accordance with the provisions of GB/T 601, GB/T 602, GB/T 603. The solutions used in the test refer to aqueous solutions, unless the solvent used to prepare them is specified.

A.2 Identification test

In the determination test of isomerized lactose content, the retention time of the main peak in the chromatogram of the specimen solution shall be consistent with the retention time of the main peak in the chromatogram of the standard solution (see Figure B.1).

A.3 Determination of the content of isomerized lactose, fructose, galactose, epilactose, lactose

A.3.1 Reagents and materials

A.3.1.1 Water: Grade 1 water in compliance with GB/T 6682.

A.3.1.2 Acetonitrile: Chromatographically pure.

A.3.1.3 Isomerized lactose standard, fructose standard, galactose standard, epilactose standard, lactose standard: Purity $\geq 99.0\%$.

A.3.1.4 Phosphate buffer: Weigh 1.15 g of anhydrous sodium dihydrogen phosphate; dissolve it in water; make the volume reach to 1000 mL.

A.3.2 Instruments and equipment

A.3.2.1 High performance liquid chromatograph, which is equipped with a differential refractive index detector, constant column temperature, vacuum degassing system.

A.3.2.2 Chromatographic column: Amino column ($\Phi 4.6$ mm $\times$ 15 cm, packing particle size 3 μ m) with fully porous silica gel as filler or other equivalent chromatographic column.

A.3.3 Reference chromatographic conditions

A.3.3.1 Mobile phase: Acetonitrile: phosphate buffer = 82:18.

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