

ICS 67.220.20  
CCS C 54;X40



**NATIONAL STANDARD OF THE  
PEOPLE'S REPUBLIC OF CHINA**

**GB 28333-2012**

---

**National food safety standards -- Food additives --  
Cis-3-hexenol butyrate (butyrate leaf alcohol esters)  
(English Translation)**

**Issued on: January 1, 1970**

**Implemented on: January 1, 1970**

---

**Issued by: Ministry of Health of the People's Republic of China**

## Table of Contents

- 1 Scope
- 2 Chemical name, molecular formula, structural formula and relative molecular mass
  - 2.1 Chemical name
  - 2.2 Molecular formula
  - 2.3 Structural formula
  - 2.4 Relative molecular mass
- 3 Technical requirements

### 1 Scope

This standard is applicable to food additives made from butyric acid and cis-3-hexenol as raw materials cis-3-hexenyl alcohol butyrate (butyric acid ester).

#### 2.1 Chemical name

Cis-3-hexenyl alcohol butyrate

#### 2.2 Molecular formula

C<sub>10</sub>H<sub>18</sub>O<sub>2</sub>

#### 2.4 Relative molecular mass

170.25 (according to 2007 international relative atomic mass)

### 3 Technical requirements

#### 3.1

sensory requirements. should be consistent with the provisions of Table 1.

Table 1 sensory requirements

The project requires a test method Color colorless to pale yellow State liquid Place the sample in a colorimetric tube with visual inspection Observation of law Aroma fragrance, fruity, butter aroma GB/T 14454.2

#### 3.2

Physical and chemical indicators. should be consistent with the provisions of Table 2.

Table 2 Physical and chemical indicators

Item Index Test Method Cis-3-hexenyl alcohol butyrate content, w /%  $\geq 95.0$  Appendix A  
Refractive index (20 ° C) 1.420 ~ 1.435 GB/T 14454.4 Relative density (25 ° C/25 ° C) 0.860  
~ 0.899 GB/T 11540 Appendix A Determination of cis - 3 - hexenyl butyrate content A.1  
Instruments and equipment A.1.1 chromatograph. according to GB/T 11538-2006 in  
Chapter 5 of the provisions.

A.1.2 Column. Capillary column.

A.1.3 Detector. Hydrogen flame ionization detector.

A.2 Determination method Area normalization method. according to GB/T 11538-2006 10.4  
determination of content.

A.3 repeatability and result representation According to GB/T 11538-2006 11.4  
implementation of the provisions.

Food additive cis-3-hexenol butyrate Typical gas chromatogram (area normalization) See  
Appendix B.

## Appendix B

Food additive cis - 3 - hexenyl alcohol butyrate Typical gas chromatogram (Area  
normalization method) B.1 Food additive cis-3-hexenyl alcohol butyrate Typical gas  
chromatogram Food additives cis-3-hexenol butyrate Typical gas chromatograms are shown  
in Figure B.1.

Figure B.1 Food additive cis-3-hexenyl alcohol butyrate Typical gas chromatogram

B.2 Operating conditions B.2.1 Column. capillary column, length 30m, inner diameter  
0.32mm.

B.2.2 Stationary phase. (5% phenyl) methylpolysiloxane.

B.2.3 Film thickness. 0.25  $\mu\text{m}$ .

B.2.4 Chromatographic furnace temperature. 140 °C constant temperature.

B.2.5 Inlet temperature. 250 ° C.

B.2.6 Detector temperature. 250 ° C.

B.2.7 Detector. Hydrogen flame ionization detector.

B.2.8 Carrier gas. nitrogen.

B.2.9 Carrier gas flow rate. about 30 mL/min.

B.2.10 Injection volume. 0.2  $\mu\text{L}$ .

B.2.11 Split ratio. 1/75.