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

**GB 28319-2012**

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**National food safety standards -- Food additives -- Heptanoic  
acid allyl**

食品添加剂 庚酸烯丙酯

**(English Translation)**

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### 1 Scope

This standard applies to heptanoic acid and allyl alcohol raw materials for the preparation of food additives heptanoic allyl ester.

#### 2.1 Chemical name

Heptanoic acid allyl ester

#### 2.2 Molecular formula

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

#### 2.3 Structural formula

CH<sub>3</sub>(CH<sub>2</sub>)<sub>5</sub>COOCH<sub>2</sub>CH = CH<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 Colorless to yellow State liquid the sample was placed in a colorimetric tube and visually observed Aroma pineapple - like sweet fruit, slightly banana 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 Solubility (25 ° C) 1 mL The sample was dissolved in 1 mL of 95% by volume ethanol. GB/T 14455.3 Heptanoic acid allyl ester content, w /%  $\geq 97.0$   
 Appendix A Acid value (in KOH)/(mg/g)  $\leq 1.0$  GB/T 14455.5 Refractive index (20 °C) 1.426 ~ 1.430 GB/T 14454.4 Relative density (25 °C/25 °C) 0.880 ~ 0.885 GB/T 11540 Allyl alcohol content /%  $\leq 0.1$  Appendix A Appendix A Determination of allylheptanoate and allyl alcohol 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 heptanoic acid allyl ester and allyl alcohol content.

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

Food Additives Heptanoic Acid Allyl Alcohol Typical Gas Chromatography (Area Normalization) See Appendix B.

#### Appendix B

Food Additives Heptanoic Acid Allyl Alcohol Typical Gas Chromatography (Area normalization method) B.1 Food Additives Heptanoic Acid Allyl Alcohol Typical Gas Chromatography Food additives Heptanoic acid allyl ester Typical gas chromatograms are shown in Figure B.1.

Description.

1 --- allyl alcohol;

2 - heptanoic allyl ester.

Figure B.1 Food additive Allylheptanoate Typical gas chromatogram

B.2 Operating conditions B.2.1 Column. capillary column, length 25m, inner diameter 0.25mm.

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

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

B.2.4 Chromatographic furnace temperature. linear program temperature from 80 °C ~ 180 °C, the rate of 8 °C/min; Finally, 180 °C constant temperature 10min.

B.2.5 Inlet temperature..200 ° 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 Pre-column pressure. 80kPa.

B.2.10 Injection volume. about 0.2  $\mu$ L.

B.2.11 Split ratio. 1/100.