

Sanitation Standard for Carbon Dioxide to be used in Food Processing

(Amended Date: 2013-08-20)

1.DOH Food No. 703050 Announced, 11/30/1987

2.MOHW Food No. 1021350146 Amended, 08/20/2013

Article 1 This Standard is prescribed in accordance with the provisions of Article 17 of the Act Governing Food Sanitation.

Article 2 Carbon dioxide to be used in food processing shall comply with the following specifications:

Formula	CO ₂
Molecular weight	44.01
Source	Produced by fermentation.
Purity	Not less than 99.5% (v/v)CO ₂
Characteristics	Colorless and odorless gas
Identification	When added to calcium hydroxide solution, a white precipitate will form. When this precipitate is added to acetic acid, it will dissolve with the generation of gas bubbles.
Free acid	Place 50 mL of boiled water in a Nessler test tube. Introduce 1,000 mL of the test product, through a tube with an outlet orifice of 1 mm I.D., into the test tube at 2 mm position above the bottom, and then add 0.1 mL of methyl orange solution, the red color formed shall be lighter than that of the contrast solution (1 mL of 0.01N HCl is used in place of the test product) .

Phosphine, hydrogen sulfide and reducing organic compounds	Place 25 mL of ammonium silver nitrate solution and 3 mL of ammonia solution in a Nessler test tube. When 1,000 mL of the test product is introduced in a dark place into the test tube in the same manner as described above, the color of the solution will not change to brown.
Carbon monoxide	Take 5 mL of the test product with a measuring tube for gas chromatography or a syringe, and perform gas chromatographic analysis under the following conditions. No peak of carbon monoxide shall appear on the gas chromatogram.
Gas chromatographic conditions	<ol style="list-style-type: none"> 1. Column packing material : 297 ~ 500μm zeolite for gas chromatography. 2. Column : Glass tube of 3~4 mm I.D. and 1 ~3 m length. 3. Column temperature : Constant temperature at about 40°C . 4. Carrier gas and its flow rate : Hydrogen or helium, at a constant flow rate of 30~80 mL per min. 5. Detector : TCD type. When 4 mL of hydrogen or helium gas containing 0.02% (v/v) nitrogen is injected into the column, the peak height on the recording chart shall not be less than 50% of the total height.

Article 3 This Standard shall be implemented from the date of promulgation.