



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

GB 29208-2012

**National food safety standards -- Food additives -- Manganese
sulfate**

食品添加剂 硫酸锰

(English Translation)

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1 Scope

This standard applies to food additives manganese sulfate which is made of materials pyrolusite, rhodochrosite or manganese metal.

2.1 Chemical name

Hydrous manganese sulfate

2.2 Formula

MnSO₄ · H₂O

2.3 Relative molecular mass

169.02 (according to international relative atomic mass in 2007)

3.1 Sensory requirements

Shall comply with the requirements in Table 1.

Table 1 Sensory requirements

Item	Requirements	Test methods	Color	Pale pink	TAKE appropriate amount of sample and PLACE in a 50 mL beaker, OBSERVE the color and state under natural light	State
Granules or powder						

3.2 Physical and chemical indicators

Shall comply with the requirements in Table 2.

Table 2 Physical and chemical indicators

Item	Requirements	Test methods	Contents of CMnSO·H ₂ O, w/%	98.0-102.1	A.4 in Appendix A
Appendix A	Appendix A	Test Methods	A.1	Warning	Some reagents used in the test method

are toxic or corrosive, appropriate protective and safety measures shall be taken in operation.

A.2 General Provisions in the absence of other requirements specified, the reagent and water in this Standard generally refer to the analytical reagent and the tertiary water specified in GB/T 6682-2008. In the absence of other requirements specified, the standard titrate solution, the standard solution for determination of impurity, preparation and product shall be prepared according to the provisions of GB/T 601, GB/T 602 and GB/T 603. In the absence of using which solvent to prepare the solution, it defaults to be aqueous solution.

A.3 Discrimination Test A.3.1 Reagent and Material A.3.1.1 Ammonium sulfide.

A.3.1.2 Acetic acid.

A.3.1.3 Ammonia.

A.3.1.4 Ammonium acetate.

A.3.1.5 Barium chloride solution. 120 g/L.

A.3.1.6 Hydrochloric acid solution. 1+1.

A.3.1.7 lead acetate solution. 95 g/L.

A.3.2 Discrimination Methods A.3.2.1 Discrimination of manganese ion TAKE about 1g sample, DISSOLVE it in 10mL water, ADD ammonium sulfide to produce light orange precipitate. This precipitate can be dissolved in acetic acid.

A.4.2 Result calculation CALCULATE the mass fraction w_1 of the content of $\text{MnSO}_4 \cdot \text{H}_2\text{O}$ according to the formula (A.1) where.

V -- The numerical value of the EDTA standard titration solution consumed by the titration sample solution. The unit is milliliters (mL) V_0 -- The numerical value of EDTA standard titration solution consumed by the titration blank sample solution. the unit is milliliters (mL) c -- Definite numerical concentration value of EDTA standard titration solution, the unit is moles per liter (mol/L) m -- The numerical value of the sample mass, the unit is g.

M -- The numerical value of the molar mass of manganese sulfate, (g/mol) [$M(\text{MnSO}_4 \cdot \text{H}_2\text{O}) = 169.02$];

1 000----Conversion Factor the experiment result is subject to the arithmetic mean value measured by parallel determination result, the absolute difference of two independent measurement results obtained under the repeatability conditions shall not be greater than 0.2%.

A.5 Determination of Pb A.5.1 Reagents and materials A.5.1.1 Chloroform.

A.5.1.2 Hydrochloric acid.

A.5.1.3 Nitric acid.

A.5.1.4 Sodium hydroxide solution. 250 g/L.

A.5.1.5 Ammonium pyrrolidine dithiocarbamate (APDC) solution. 20 g/L. Filter before using.

A.5.1.6 Lead (Pb) standard solution. 0.01 mg/ mL.

A.5.1.7 Water. comply with the provisions in GB/T 6682-2008 for second-grade water.

calcination, the unit is gram (g);

m -- The numerical value of the sample's mass.

The experiment result is subject to the arithmetic mean value measured by parallel determination result, the absolute difference of two independent measurement results obtained under the repeatability conditions shall not be greater than 0.1%.

References and Original Chinese Documents [1] GB 29208-2012 National food safety standards - Food additives - Manganese sulfate.