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

NY/T 1107-2020

**Water-soluble macronutrient fertilizers
(English Translation)**

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1 Scope

This standard specifies the requirements, test methods, inspection rules, marking, packaging, transportation, storage of water-soluble macronutrient fertilizers.

This standard is applicable to liquid or solid water-soluble fertilizers, which are produced and sold within the territory of the People's Republic of China; use macronutrient of nitrogen, phosphorus, potassium as the main components;

can be added with appropriate amount of medium-nutrient or trace-nutrient.

This standard does not apply to fertilizer products, that have mandatory or recommended national or industry standards, such as compound fertilizers

AND solid fertilizers which are made only by chemical methods.

2 Normative references

The following documents are essential to the application of this document. For the dated documents, only the versions with the dates indicated are applicable to this document; for the undated documents, only the latest version (including all the amendments) is applicable to this standard.

GB 190 Packing symbol of dangerous goods

GB/T 191 Packaging - Pictorial marking for handling of goods

GB/T 6679 General rules for sampling solid chemical products

GB/T 6680 General rules for sampling liquid chemical products

GB/T 8170 Rules of rounding off for numerical values & expression and judgement of limiting values

GB/T 8569 Packing of solid chemical fertilizers

GB/T 8576 Determination of free water for compound fertilizers - Vacuum oven method

GB/T 8577 Determination of free water for compound fertilizers - Karl Fischer method

GB 18382 Fertilizer marking - Presentation and declaration

NY/T 887 Liquid fertilizers - Determination of density

NY/T 1108 Liquid fertilizers - Package technology conditions

NY 1110 Water-soluble fertilizers - Content-limits of mercury, arsenic, cadmium, lead and chromium

NY/T 1117 Water-soluble fertilizers - Determination of calcium magnesium and sulfur content

NY/T 1972 Water-soluble fertilizers - Determination of sodium, selenium, silicon content

NY/T 1973 Water-soluble fertilizers - Determination of water insoluble matter content and pH

NY/T 1974 Water-soluble fertilizers - Determination of copper, iron, manganese, zinc, boron, molybdenum content

NY/T 1977 Water-soluble fertilizers - Determination of total nitrogen, phosphorus and potassium content

NY/T 1978 Fertilizers - Determination of mercury, arsenic, cadmium, lead and chromium content

NY/T 1979 Fertilizers and soil amendments - Regulations of label and specification assessment

NY/T 2670-2020 Urea ammonium nitrate solution

NY/T 3036 Fertilizers and soil amendments - Determination of moisture content and particle sizes

Measures for the supervision and administration for measurement of quantitative packaging commodities

3 Terms and definitions

The following terms and definitions apply to this document.

3.1

Water-soluble fertilizers

The liquid or solid fertilizers which, after being dissolved or diluted in water, is used for irrigation and fertilization, foliar fertilization, soilless cultivation,

2.0% or 20 g/L, the absolute value of the negative relative deviation,

BETWEEN the measured value AND the indicated value, of each element shall not exceed 40%. When the indicated value of a single medium- nutrient is greater than 2.0% or 20 g/L, the absolute value of the negative relative deviation, BETWEEN the measured value AND the indicated value, of each element shall not exceed 1.0% or 10 g/L.

4.5 If trace-nutrients are added to the product, it shall indicate the content of single trace-nutrient AND the total content of trace-nutrients, which contained in the product, on the package label.

- The content of trace-nutrients refers to the sum of the content of copper, iron, manganese, zinc, boron, molybdenum. The product shall contain at least one of these trace-nutrients.
- The content of a single trace-nutrient is not less than 0.05% or 0.5 g/L. The content of molybdenum element is not higher than 0.5% or 5 g/L.
- For the content of a single trace-nutrient, if it is less than 0.05% or 0.5 g/L, it is not included into the total content of the trace-nutrients.
- When the indicated value of a single trace-nutrient is not greater than 2.0% or 20 g/L, the absolute value of the negative relative deviation, BETWEEN the measured value AND the indicated value, of each element shall not exceed 40%. When the indicated value of a single trace-nutrient is greater than 2.0% or 20 g/L, the absolute value of the negative relative deviation,

BETWEEN the measured value AND the indicated value, of each element shall not exceed 1.0% or 10 g/L.

4.6 If the solid water-soluble macronutrient fertilizer product is in the form of granules, the particle size (1.00 mm ~ 4.75 mm or 3.35 mm ~ 5.60 mm) shall be $\geq 90\%$. For the particle size of products, which has special shapes or larger particles (except powder), it can be determined, through negotiation, between the supplier and the buyer.

5.1 Appearance

It is determined by visual inspection.

5.2 Determination of total nitrogen content

It is determined according to the provisions of NY/T 1977.

5.16 Determination of pH

It is determined according to the provisions of NY/T 1973.

5.17 Determination of water-insoluble content

It is determined according to the provisions of NY/T 1973.

5.18 Determination of moisture content

It is determined according to the provisions of GB/T 8576 or GB/T 8577.

5.19 Determination of particle size

It is determined according to the provisions of NY/T 3036.

5.20 Determination of density of liquid fertilizer

It is determined according to the provisions of NY/T 887. The result is used for the conversion of the mass concentration of the liquid product.

5.21 Determination of mercury content

It is determined according to the provisions of NY/T 1978.

5.22 Determination of arsenic content

It is determined according to the provisions of NY/T 1978.

5.23 Determination of cadmium content

It is determined according to the provisions of NY/T 1978.

5.24 Determination of lead content

It is determined according to the provisions of NY/T 1978.

5.25 Determination of chromium content

It is determined according to the provisions of NY/T 1978.

5.26 Determination of biuret content

It is determined in accordance with the provisions of Appendix A of NY/T 2670-2020. Use the high-performance liquid chromatography as the arbitration method. Weigh 0.2 ~ 2 g (accurate to 0.001 g) of specimen, for determination.