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Thiourea for industrial use —

Part 2:
Specifications

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Foreword

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This document was prepared by Technical Committee ISO/TC 47, *Chemistry*.

A list of all parts in the ISO 7431 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

Thiourea (CAS No.[1)] 62-56-6), as a kind of chemical raw material, is widely used in the manufacture of drugs, dyes, resins, compression plastic powder, etc., and can also be used as vulcanization accelerator for rubber and flotation agent for metal minerals, especially in the field of high-folding optical resin materials.

Thiourea molecular weight: 76,12 (according to international relative atomic mass of 2019)

1) Chemical Abstracts Service (CAS) Registry Number® is a trademark of the American Chemical Society (ACS). This information is given for the convenience of users of this document and does not constitute an endorsement by ISO of the product named. Equivalent products may be used if they can be shown to lead to the same results.

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WARNING — Thiourea is environmental hazard and toxic by ingestion and skin absorption to humans. It is the responsibility of the users of this document to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

1 Scope

This document specifies requirements for three classes, marking, package, transport and storage of thiourea for industrial purpose.

The different types of thiourea specified are defined according to their content, application, and requirements (see Table 1).

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 780, *Packaging — Distribution packaging — Graphical symbols for handling and storage of packages*

ISO 7431-1:2024, *Thiourea for industrial use – Test methods*

United Nations *Globally Harmonized System of Classification and Labelling of Chemicals (GHS Rev. 9,*2021*)*

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

4 Required characteristics

The material shall be white crystalline powder as assessed by visual inspection.

Class I, class II and class III thiourea shall conform to the appropriate requirements shown in Table 1.

Table 1 — Required characteristics

Characteristic	Requirement			Test method
	Class I	Class II	Class III	
Thiourea content, w/%	≥99,5	≥99,0	≥98,0	ISO 7431-1:2024, 4.2
Water insoluble substance, w/%	≤0,01	≤0,02	≤0,10	ISO 7431-1:2024, 4.3
Ignition residue, w/%	≤0,01	≤0,10	≤0,15	ISO 7431-1:2024, 4.4
Initial melting point /°C	≥173	≥171	≥170	ISO 7431-1:2024, 4.5
Turbidity, NTU	≤3	≤10	—	ISO 7431-1:2024, 4.6
Thiocyanate content, w/%	≤0,005	≤0,02	≤0,05	ISO 7431-1:2024, 4.7
Calcium element, w/%	≤0,001	—	—	ISO 7431-1:2024, 4.8
Heavy metals (as Pb), w/%	≤0,001	—	—	ISO 7431-1:2024, 4.9
NOTE 1 Class I is a high quality grade normally used in the areas of optical, electronic and new energy materials.				
NOTE 2 Class II and class III belong to ordinary quality grades and are suitable for the basic chemical industry, such as printing, dyeing, pharmaceutical field, pesticides, and mineral processing, etc.				

5 Marking

The identification mark of thiourea for industrial use shall include the following information:

a) product name: Thiourea for industrial use;

b) product class: Class I, Class II or Class III;

c) manufacturer's name, trade mark or identification mark and address;

d) date of manufacture/the lot number;

e) net weight;

f) reference to this document (i.e. ISO 7431-2:2024);

g) the "umbrella" sign as defined by ISO 780;

h) the "toxic substances" and "environmentally harmful substances" sign as defined by *Globally Harmonized System of Classification and Labeling of Chemicals.*

NOTE Safety classification and labelling requirements for thiourea can vary depending on the country or region of use.

6 Package, transport and storage

6.1 Thiourea for industrial use shall be sealed in double packing. The material of inner packing bag shall not have chemical effects on the contents. The outer packing shall be sufficiently robust to protect the contents during handling, transport and storage.

6.2 The transport requirements should comply with the contract.

6.3 Thiourea for industrial use shall be stored in a cool, dry and ventilated warehouse.

6.4 Thiourea for industrial use should have sufficient protection from damage, avoid direct sunlight and stay away from fire sources, prevent moisture absorption and rain.