

HG

CHEMICAL INDUSTRY STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

HG/T 5786-2021

Propylene carbonate for industrial use

工业用碳酸丙烯酯

(English Translation)

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Table of Contents

Foreword	i
1 Scope	
2 Normative references	
3 Product classification	
4 Requirements	
5 Test methods	
6 Inspection rules	
7 Marking, packaging, transportation and storage	
Annex B (Informative) Safety	

1 Scope

This standard specifies the requirements, test methods, inspection rules as well as marking, packaging, transportation and storage of propylene carbonate for industrial use.

This standard is applicable to propylene carbonate for industrial use produced from epoxypropane and carbon dioxide.

Molecular formula: $C_4H_6O_3$

Structural formula:

Relative molecular mass: 102.089 (as per the international relative atomic mass in 2018)

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition (including any amendments) applies.

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

GB/T 3143 Color determination method of liquid chemicals (Hazen unit - Platinum-cobalt scale)

GB/T 6324.8 Test methods of organic chemical products - Part 8: Determination of water of liquid products - Carl Fischer coulometric method

GB/T 6678 General principles for sampling chemical products

GB/T 6680 General rules for sampling liquid chemical products

GB/T 6682 Water for analytical laboratory use - Specification and test methods

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

GB/T 9722 Chemical reagent - General rules for the gas chromatography

SJ/T 11568-2016 Solvent for electrolyte solution used in lithium ion battery

3 Product classification

Propylene carbonate for industrial use is classified into Extra-pure Grade (Grade S), Cell Grade and Industrial Grade according to its application. Extra-pure Grade (Grade S) is mainly used in power battery industry; Cell Grade is mainly used as the cleaning agent for ordinary lithium ion batteries and electronic products; and Industrial Grade is mainly used as solvent, grease additive, raw materials for organic synthesis, etc.

4 Requirements

The technical indexes of propylene carbonate for industrial use shall be as specified in Table 1.

Table 1 Technical indexes

Item Index

Extra-pure Grade (Grade S) Cell Grade Industrial Grade

Appearance Colorless and transparent liquid without visible mechanical impurities

Chromaticity/Hazen unit (Pt-Co scale) ≤ 5 ≤ 10 ≤ 15

Propylene carbonate, w/% ≥ 99.995 ≥ 99.99 ≥ 99.5

Epoxypropane, w/% ≤ 0.0005 ≤ 0.0005 ≤ 0.2

Propanediol, w/% ≤ 0.001 ≤ 0.001 ≤ 0.2

Dipropylene glycol, w/% ≤ 0.002 ≤ 0.003 -

Tripropylene glycol, w/% ≤ 0.0015 ≤ 0.0015 -

Hydroxy-acetone, w/% Reported Reported -

Moisture content, w/% ≤ 0.002 ≤ 0.003 ≤ 0.1

Sodium (Na)/(mg/kg) ≤ 1.0 - -

Potassium (K)/(mg/kg) ≤ 1.0 - -

Copper (Cu)/(mg/kg) ≤ 1.0 - -

Iron (Fe)/(mg/kg) ≤ 1.0 - -

Lead (Pb)/(mg/kg) ≤ 1.0 - -

Zinc (Zn)/(mg/kg) ≤ 1.0 - -

Nickel (Ni)/(mg/kg) ≤ 1.0 - -

Chromium (Cr)/(mg/kg) ≤ 1.0 - -

Calcium (Ca)/(mg/kg) ≤ 1.0 - -