

PRODUCT IDENTIFICATION



Product Name: Hydrogen Peroxide 5% ACS Grade

CAS Number: 7722-84-1

Molecular Formula: H₂O₂

Molecular Weight: 34.015 g/mol

Grade: ACS Grade

Purity / Concentration: 5%

Synonyms: Dihydrogen Dioxide, Hydrogen Peroxide Solution

PRODUCT OVERVIEW

Hydrogen Peroxide 5% ACS Grade is a high-purity, laboratory-grade oxidizing agent characterized by an exceptionally low impurity profile, including heavy metals like iron at just 0.02 ppm. This clear, colorless liquid serves as a reliable reagent for precise analytical procedures and critical chemical syntheses. Its standardized concentration ensures consistent performance in sensitive laboratory environments.

Grade Significance: ACS Grade indicates that this product meets the rigorous purity standards established by the American Chemical Society, ensuring it is suitable for use in demanding laboratory and analytical applications. This certification provides end users with the confidence that the chemical's composition is consistent and free from significant interfering contaminants.

CERTIFICATE OF ANALYSIS — TYPICAL VALUES

PARAMETER	UNIT	TYPICAL	MIN	MAX	TEST METHOD
Assay (wt%)	%	5.1	4.5	6	Titration with KMnO ₄
Color (APHA)	APHA	5	—	10	ASTM D1209
Specific Gravity (20°C)	g/mL	1.015	—	—	USP <841>
Residue After Ignition	%	0.0005	—	0.0020	ACS Method
Heavy Metals (as Pb)	ppm	0.05	—	1	ICP-MS
Iron (Fe)	ppm	0.02	—	0.5	ICP-MS
Chloride (Cl ⁻)	ppm	0.1	—	0.5	Ion Chromatography
Nitrate (NO ₃ ⁻)	ppm	0.2	—	2	Ion Chromatography
Phosphate (PO ₄ ³⁻)	ppm	0.1	—	2	Spectrophotometry
Sulfate (SO ₄ ²⁻)	ppm	0.2	—	5	Ion Chromatography

ND = Not Detected. Values are typical and may vary by lot.

PHYSICAL & CHEMICAL PROPERTIES

Appearance	Clear colorless liquid with slight viscosity	Odor	Slightly sharp, reminiscent of bleach
Form	Liquid	Boiling Point	150.2°C (302.4°F)
Melting / Freezing Point	-0.4°C (31.3°F)	Flash Point	93°C (199.4°F)
Specific Gravity	1.02	Solubility	Highly water soluble, limited organic solvent mix
Molecular Formula	H ₂ O ₂	Molecular Weight	34.015 g/mol
Vapor Pressure (20°C)	0.23 mmHg	Viscosity (25°C)	1.0 cP
Refractive Index (20°C)	1.406	Density (25°C)	1.01 g/mL

APPLICATIONS

- Analytical Chemistry** — Used as a high-purity reagent in titrations and complex analytical procedures where baseline impurity levels must be strictly controlled.
- Textile Manufacturing** — Serves as an effective bleaching agent to brighten fibers and prepare textiles for dyeing processes.
- Water Treatment** — Acts as a powerful oxidizer to neutralize organic contaminants and remove impurities from water supplies.
- Pulp and Paper** — Utilized in the bleaching of paper products to achieve high whiteness standards without the use of harsher chlorine-based chemicals.
- Chemical Synthesis** — Functions as a versatile oxidizing agent in various catalytic reactions and synthetic pathways.

STORAGE & HANDLING

Proper storage is critical because hydrogen peroxide is a strong oxidizer that can pose fire or explosion risks if it comes into contact with incompatible materials. It must be kept in a cool, well-ventilated area in its original vented container to prevent pressure buildup and degradation. Exposure to contaminants or direct sunlight can catalyze decomposition, compromising both safety and product purity.

- Store in a cool, dry place away from direct sunlight.
- Use containers made of HDPE or glass to prevent reactions.
- Avoid contact with organic materials and reducing agents.
- Ensure proper ventilation when handling to minimize inhalation risks.
- Wear appropriate personal protective equipment (PPE) such as gloves and goggles.

AVAILABLE PACKAGING

- 1 Quart
- 1 Gallon
- 5 Gallon
- 15 Gallon
- 55 Gallon
- 275 Gallon
- 330 Gallon

SAFETY SUMMARY (CROSS-REFERENCE TO SDS)

Signal Word: **Danger**



Hazard Statements:

- H271: May cause fire or explosion; strong Oxidizer [Danger Oxidizing liquids; Oxidizing solids]
- H302: Harmful if swallowed [Warning Acute toxicity, oral]
- H314: Causes severe skin burns and eye damage [Danger Skin corrosion/irritation]
- H332: Harmful if inhaled [Warning Acute toxicity, inhalation]

Emergency Contact: CHEMTEL - 800-255-3924 (24 Hours/Day, 7 Days/Week)

For complete safety information, refer to the Safety Data Sheet (SDS) for this product.

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