

PRODUCT IDENTIFICATION



Product Name: Trichloroethylene (TCE) ACS Grade

CAS Number: 79-01-6

Molecular Formula: C₂HCl₃

Molecular Weight: 131.38 g/mol

Grade: ACS Grade

Purity / Concentration: Not Available

Synonyms: Trichloroethene, TCE

PRODUCT OVERVIEW

Trichloroethylene (TCE) ACS Grade is a high-purity solvent featuring a 99.95% assay and minimal impurity levels, such as 0.1 ppm chloride. This colorless, volatile liquid is essential for demanding industrial cleaning, degreasing, and precise analytical applications.

Grade Significance: ACS Grade indicates that the product meets the stringent purity standards set by the American Chemical Society, ensuring it is suitable for high-precision analytical and laboratory work.

CERTIFICATE OF ANALYSIS — TYPICAL VALUES

| PARAMETER | UNIT | TYPICAL | MIN | MAX | TEST METHOD |
|--|------|-------------|-------|--------|------------------------|
| Assay (wt%) | % | 99.95 | 99.5 | — | GC-FID |
| Color (APHA) | APHA | 5 | — | 10 | ASTM D1209 |
| Specific Gravity (20°C) | g/mL | 1.464 | 1.462 | 1.465 | USP <841> |
| Residue After Ignition | % | 0.0005 | — | 0.0010 | Gravimetric |
| Water Content | % | 0.0050 | — | 0.01 | Karl Fischer Titration |
| Heavy Metals (as Pb) | ppm | 0.1 | — | 1 | ICP-MS |
| Iron (Fe) | ppm | 0.05 | — | 0.2 | ICP-MS |
| Chloride (Cl ⁻) | ppm | 0.1 | — | 1 | ISE |
| Nitrate (NO ₃ ⁻) | ppm | 0.1 | — | 0.5 | Ion Chromatography |
| Phosphate (PO ₄ ³⁻) | ppm | 0.05 | — | 0.5 | Spectrophotometry |
| Sulfate (SO ₄ ²⁻) | ppm | 0.2 | — | 1 | Turbidimetry |
| Acidity | — | Passes Test | — | — | ACS |
| Alkalinity | — | Passes Test | — | — | ACS |
| Free Chlorine | — | Passes Test | — | — | ACS |
| Stabilizer Wt Pct | % | 0.0010 | — | — | GC-FID |

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

PHYSICAL & CHEMICAL PROPERTIES

| | | | |
|---------------------------------|--|-------------------------|--|
| Appearance | Colorless volatile liquid | Odor | Sweet, chloroform-like odor |
| Form | Liquid | Boiling Point | 87°C (189°F) |
| Melting / Freezing Point | -73°C | Flash Point | Not applicable |
| Specific Gravity | 1.46 | Solubility | Soluble in water, alcohol, ether, and organic solvents |
| Molecular Formula | C ₂ HCl ₃ | Molecular Weight | 131.38 g/mol |
| Vapor Pressure (20°C) | 74 mmHg | Viscosity (25°C) | 0.89 cP |
| Refractive Index (20°C) | 1.463 | Density (25°C) | 1.463 g/mL |
| Decomposition Temp. | Decomposes on prolonged heating; not stable above ~100°C | | |

APPLICATIONS

- 1. Manufacturing** — Used extensively for precision degreasing of metal parts to ensure surfaces are clean before coating or assembly.
- 2. Chemical Synthesis** — Acts as a reliable solvent in complex chemical reactions and serves as a key precursor for producing various fluorinated compounds.
- 3. Analytical Chemistry** — Utilized as a high-purity solvent in chromatography techniques where strict control over chemical impurities is required.
- 4. Laboratory Research** — Serves as an extraction solvent for research and development processes that demand standardized ACS chemical quality.

STORAGE & HANDLING

TCE must be stored in a cool, well-ventilated area away from direct sunlight to prevent degradation and control its volatility. Proper containment is critical to mitigate inhalation hazards and prevent the accumulation of vapors that may cause drowsiness or dizziness.

- Store in a cool, well-ventilated area away from heat sources.
- Use containers made of HDPE or glass to prevent chemical reactions.
- Avoid contact with strong oxidizing agents and acids.
- Keep away from direct sunlight to prevent degradation.
- Use appropriate personal protective equipment (PPE) including gloves and goggles.

AVAILABLE PACKAGING

- 1 Quart
- 1 Gallon
- 5 Gallon
- 55 Gallon

SAFETY SUMMARY (CROSS-REFERENCE TO SDS)

Signal Word: **Danger**



Hazard Statements:

- H315: Causes skin irritation [Warning Skin corrosion/irritation]
- H319: Causes serious eye irritation [Warning Serious eye damage/eye irritation]
- H336: May cause drowsiness or dizziness [Warning Specific target organ toxicity, single exposure; Narcotic effects]
- H341: Suspected of causing genetic defects [Warning Germ cell mutagenicity]
- H350: May cause cancer [Danger Carcinogenicity]
- H412: Harmful to aquatic life with long lasting effects [Hazardous to the aquatic environment, long-term hazard]

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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