

## Certificate of Analysis (COA)

Product: Trimesoyl Chloride (TMC)  
Chemical Name: 1,3,5-Benzene-tricarbonyl trichloride  
CAS No.: 4422-95-1  
Molecular Formula:  $C_9H_3Cl_3O_3$   
Molecular Weight: 285.48 g/mol  
Grade: Laboratory Grade (High Purity)  
Batch No.: TMC-L2401  
Date of Analysis: 03 Nov 2025  
Analyst: QC Department – Hafez Varesh Co.

### 1. Physical & Chemical Properties

| Parameter                 | Specification                                      | Result       | Method      |
|---------------------------|--|--------------|-------------|
| Appearance                | White to off-white crystalline powder              | Complies     | Visual      |
| Odor                      | Sharp, acid-chloride odor                          | Complies     | Sensory     |
| Melting Point             | 165 – 167 °C                                       | 166.2 °C     | ASTM D1519  |
| Boiling Point             | ~295 °C (decomposes)                               | Complies     | Reference   |
| Purity (GC)               | ≥ 99.5 %   | 99.8 %       | GC-FID      |
| Moisture (Karl Fischer)   | ≤ 0.2 %  | 0.08 %       | ASTM E203   |
| Acid Chloride Content     | ≥ 99.0 %   | 99.6 %       | Titrimetric |
| Free Acid (Trimesic Acid) | ≤ 0.1 %  | 0.05 %       | HPLC        |
| Hydrolyzable Chloride     | ≤ 0.1 %  | 0.03 %       | Titrimetric |
| Heavy Metals (as Pb)      | ≤ 10 ppm   | < 5 ppm      | ICP-OES     |
| Residual Solvent          | Nil  | Not Detected | GC          |
| Solubility                | Insoluble in water, soluble in benzene, chloroform | Complies     | Visual      |

## 2. Safety & Storage

| Property           | Specification   |
|--------------------|---|
| UN Number          | 3265 (Corrosive Liquid, Acidic, Organic, n.o.s.)  |
| HS Code            | 29172000  |
| Storage Conditions | Keep tightly closed under inert atmosphere (N <sub>2</sub> or Ar), in a cool and dry place (< 25 °C), away from moisture. |
| Shelf Life         | 24 months under recommended storage conditions.   |
| Handling           | Use in fume hood with protective gloves and goggles. Hydrolyzes rapidly in presence of water.                             |

## 3. Certification

This product has been analyzed and found to comply with the specifications stated above. All analytical methods are traceable to international standards.

Authorized by:  
QC Manager – Hafez Varesht Co.

For laboratory and R&D use only. Not for drug, household, or food applications.

مجتمع تولیدی حافظ وارث (سهامی خاص)

دانش بنیان