

# Morpholine

Water-miscible heterocyclic amine for chemical synthesis and steam-condensate pH control.

|                     |                            |                                                       |
|---------------------|----------------------------|-------------------------------------------------------|
| CAS No.<br>110-91-8 | EC / List No.<br>203-815-1 | Transport<br>Class 8 — Corrosive (subsidiary Class 3) |
|---------------------|----------------------------|-------------------------------------------------------|

## Product Information

Morpholine contains both ether and secondary-amine functionality in a six-membered ring. Its molecular formula is C<sub>4</sub>H<sub>9</sub>NO and molecular weight 87.12 g/mol. Basicity, water miscibility and chemical reactivity make it useful in selected industrial synthesis and formulation systems.

## Specifications

| Parameter            | Specification                 |
|----------------------|-------------------------------|
| Appearance           | Clear, colorless liquid       |
| Morpholine           | ≥99.5 %                       |
| Moisture             | ≤0.25 %                       |
| Boiling range, 5–95% | 126.0–129.0 °C                |
| Hazen color, Pt-Co   | ≤10                           |
| Density at 20°C      | 0.999–1.002 g/cm <sup>3</sup> |

Supply limits follow the TDS. The unrelated molten-color entry is omitted for this liquid grade; the controlled color value is Hazen ≤10.

## Typical Properties

| Property          | Typical Value                    |
|-------------------|----------------------------------|
| Molecular formula | C <sub>4</sub> H <sub>9</sub> NO |
| Molecular weight  | 87.12 g/mol                      |

## Applications

Steam and condensate treatment: Neutralizing amine for selected industrial steam-condensate pH-control programs. Evaluate partitioning, operating conditions, material compatibility and applicable use restrictions with the water-treatment procedure.

Rubber and chemical intermediates: Reactive heterocyclic amine for the synthesis of selected rubber additives and specialty chemicals. Match assay, moisture and color to the reaction and downstream purification needs.

Industrial formulation and synthesis: Solvent or reactive component for compatible industrial formulations and chemical processes. Validate stability, compatibility and reaction behavior in the complete system.

## Packaging / Storage

| Item     | Information                                                                                                                                                                                                                               |
|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Packing  | 200 kg drums / lined 200 L drums / bulk tank                                                                                                                                                                                              |
| Storage  | Keep tightly closed in a cool, dry, ventilated corrosive/flammable-liquid area. Protect from moisture and heat, eliminate ignition sources and segregate strong oxidizers and incompatible materials.                                     |
| Handling | Use closed transfer and effective extraction. Bond and ground suitable equipment, use ignition-controlled facilities and wear chemical-resistant gloves, protective clothing and eye/face protection. Avoid vapor, skin and eye exposure. |

## Company Contact

|                   |                                                                                               |
|-------------------|-----------------------------------------------------------------------------------------------|
| Supplier          | Hainan Zhongxin Chemical Co., Ltd. (ZXCHEM)                                                   |
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