Safety Data Sheet: Inhibitor 701 (4-Hydroxy-TEMPO)

1. Identification

Product	Inhibitor 701 (4-Hydroxy-TEMPO); CAS 2226-96-2; EC 218-760-9
Use	Professional industrial formulation ingredient and intermediate development.
Company	Hainan Zhongxin Chemical Co., Ltd. (ZXCHEM)
Address	Room 1001, Building A, Caohejing Center, No. 1520 Gumei Road, Xuhui District, Shanghai, China
Telephone / email	+86-21-54265599 / sales@zxchem.com.cn
Emergency contact	ZXCHEM office number above, office hours, China time (UTC+8). For urgent medical assistance contact local emergency services.
Scope	Reference safety information for Inhibitor 701 (4-Hydroxy-TEMPO). The reference composition, concentration and supply-grade differences are described in Section 3. This document does not certify the composition or transport status of a specific delivered batch or a different formulation.

2. Hazards Identification

Classification	Acute oral toxicity Category 4; serious eye damage Category 1; specific target organ toxicity, repeated exposure Category 2 (oral, liver and spleen); acute aquatic toxicity Category 3.
Signal word / symbols	Danger; GHS05, GHS07, GHS08
Hazard statements	H302: harmful if swallowed. H318: causes serious eye damage. H373: may cause liver and spleen damage through prolonged or repeated oral exposure. H402: harmful to aquatic life.
Prevention	Use adequate ventilation; avoid inhaling dust. Prevent skin and eye contact. Wear suitable chemical-resistant gloves and eye protection. Wash after handling; keep food and drink out of the work area.
Response	After exposure, stop work and seek medical advice. For severe exposure obtain urgent medical care. Rinse contaminated skin or eyes with water; move an inhalation casualty to fresh air.
Environment	Prevent uncontrolled release to drains, soil or surface water. Collect spills for appropriate disposal.

3. Composition / Information on Ingredients

Reference ingredient	4-Hydroxy-2,2,6,6-tetramethylpiperidin-1-oxyl, CAS 2226-96-2. reference range 90–100%; the local minimum assay is 99%.
Supply grade	Assay ≥99%
Applicability	The cited concentration or purity describes the reference material. It is not a certificate of analysis for the delivered batch; different solvents or dilutions require the matching supplier safety document.

4. First-Aid Measures

General	Protect the rescuer from exposure and show the product information to medical personnel. Obtain medical advice if symptoms occur or exposure is significant.
Inhalation	Move to fresh air and keep the person comfortable. Seek medical care for breathing difficulty or persistent symptoms. Avoid exposing rescuers to dust.
Skin	Remove contaminated clothing and rinse skin thoroughly with water. Seek medical advice for persistent irritation.
Eyes	Rinse gently with clean water for at least 15 minutes. Remove contact lenses when easy and continue rinsing. Obtain urgent medical care.
Ingestion	Rinse the mouth. Do not induce vomiting. Give nothing by mouth to an unconscious person. Obtain medical advice.
Effects / treatment	Serious eye injury and oral and repeated-exposure hazards require protective handling. Treatment is symptomatic and directed by a clinician.

5. Fire-Fighting Measures

Extinguishing media	Use water spray, foam, dry chemical or carbon dioxide suited to the surrounding fire.
Hazards	Heated organic material may release carbon and nitrogen oxides.
Protection	Firefighters require suitable protective clothing and self-contained breathing equipment. Prevent contaminated firefighting water entering drains.

6. Accidental Release Measures

Personnel	Isolate the spill and provide ventilation. Use chemical-resistant gloves and eye protection; avoid contact and dust exposure.
Environment	Contain the release and protect drains and waterways. Report significant environmental contamination to the responsible authority.
Cleanup	Collect spilled solid without raising dust into closed labelled containers.

7. Handling and Storage

Handling	Use enclosed powder feeding or local extraction. Wear suitable protective gloves, eye protection and work clothing; avoid dust inhalation and direct contact. Provide controls for fumes during hot processing.
Storage	Keep tightly sealed, dry and protected from light. The selected quality-storage recommendation is 2–8°C; segregate from strong oxidizers and reactive contaminants.
Incompatibilities	Strong oxidizers; keep separate from reactive peroxide contamination.

8. Exposure Controls / Personal Protection

Exposure limits	No product-specific occupational exposure limit is established here. Control airborne dust and apply current local workplace exposure requirements.
Engineering controls	Use local extraction where dust can be generated. Maintain accessible eyewash and emergency washing facilities.
Personal protection	Wear chemical-resistant gloves selected for the task, suitable protective clothing and splash goggles. Add face protection for splash-prone tasks.
Respiratory protection	Use a properly selected respirator under a respiratory-protection program where engineering controls do not adequately limit airborne exposure.
Hygiene	Wash after handling, remove contaminated clothing promptly and do not eat, drink or smoke in the work area.

9. Physical and Chemical Properties

Appearance	Orange-red solid
Formula / molecular weight	C9H18NO2 / 172.24 g/mol
Appearance	Orange-red solid
Melting range, supply	69–72°C
Quality storage, reference	2–8°C
Other properties	Additional physicochemical properties beyond the stated values are not established for the supply grade. No unstated values are inferred.

10. Stability and Reactivity

Stability	Handle and store under the recommended conditions. Prevent contamination and unnecessary heating.
Incompatibilities	Strong oxidizers; keep separate from reactive peroxide contamination.
Decomposition	Heated organic material may release carbon and nitrogen oxides.

11. Toxicological Information

Exposure effects	Serious eye injury and oral and repeated-exposure hazards require protective handling.
Reference classification	Acute oral toxicity Category 4; serious eye damage Category 1; specific target organ toxicity, repeated exposure Category 2 (oral, liver and spleen); acute aquatic toxicity Category 3.
Toxicological data	The reference does not provide complete numerical acute or chronic toxicity data for the supplied grade. No absence of effects is inferred.

12. Ecological Information

Environmental effects	Prevent discharge to soil, drains and receiving water. Retain cleanup waste; the reference does not establish complete environmental fate data for the supplied grade.
Controls	Prevent uncontrolled release, collect spills and dispose of contaminated material through an authorized route.
Assessment	No product-specific PBT/vPvB assessment is claimed. Absence of data does not establish absence of environmental effects.

13. Disposal Considerations

Product	Collect surplus product and contaminated cleanup material for disposal by an authorized chemical-waste contractor in accordance with local requirements.
Packaging	Containers may retain product residues. Do not reuse contaminated packaging without an approved cleaning process; use an authorized disposal route.

14. Transport Information

Classification	Non-dangerous goods
UN number	Not assigned
Shipping name	Not regulated as dangerous goods
Class / packing group	DOT, IMDG and IATA: non-dangerous goods in the full solid-substance reference.
Transport precautions	Protect packaging and closures from damage, secure loads and prevent releases. This reference is not a shipping declaration for a specific consignment.

15. Regulatory Information

Identity	Inhibitor 701 (4-Hydroxy-TEMPO); CAS 2226-96-2; EC 218-760-9
HS reference	293399; reference heading rather than a destination customs ruling.
Compliance	Apply applicable workplace, environmental and transport rules. A raw-material listing does not establish finished-product authorization.
Assessment	No ZXCHEM-specific chemical safety assessment or destination registration is asserted.

16. Other Information

Hazard meanings	H302: harmful if swallowed. H318: causes serious eye damage. H373: may cause liver and spleen damage through prolonged or repeated oral exposure. H402: harmful to aquatic life.
Limitations	Prepared as reference safety information for the identified material. It is not a batch analytical certificate or safety assessment of a different solvent-containing formulation.
Revision	2026.2; prepared 2026-10-06. Customer-document branding and title corrected; technical safety data retained.
Document scope	Reference safety information for the material and grade described in Sections 1 and 3. Different concentrations, solvents or formulations require the applicable safety information. This is not a batch analytical certificate.

Revision: 2026.2 | Revision date: 2026-10-06