

SAFETY DATA SHEET

Nova Molecular Technologies, Inc.



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SDS No: NMT2 05-008

Nova HydroxyTEMPO

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Nova HydroxyTEMPO

GENERAL USE: Polymerization inhibitor, light stabilizers, selective oxidation.

SYNONYMS: 4-Hydroxy-2,2,6,6-tetramethylpiperidine-N-oxyl

MANUFACTURER

Nova Molecular Technologies, Inc.
1 Parker Place, Suite 725
Janesville, WI 53545
Customer Service: 800-445-6682 or 281-474-5550

24 HR. EMERGENCY TELEPHONE NUMBERS

For emergency, spill, leak, fire, exposure or accident, call:

CHEMTREC: 1-800-424-9300

**Outside the United States, call: 703-527-3887
(collect calls accepted)**

2. HAZARDS IDENTIFICATION

GHS CLASSIFICATIONS

Health:

Acute Toxicity (Oral), Category 4

Eye Irritation, Category 2A

Skin Irritation, Category 2

Specific Target Organ Toxicity (Single Exposure), Category 3

GHS LABEL



Exclamation

Mark

SIGNAL WORD: WARNING

HAZARD STATEMENTS

H302: Harmful if swallowed.

H315: Causes skin irritation.

H319: Causes serious eye irritation.

H335: May cause respiratory irritation.

PRECAUTIONARY STATEMENT(S)

Prevention:

P264: Wash thoroughly after handling.

P270: Do not eat, drink or smoke when using this product.

P280: Wear protective gloves/protective clothing/eye protection/face protection.

Response:

P301+P312: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.

P302+P352: IF ON SKIN: Wash with plenty of soap and water.

P304+P340: IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.

P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P312: Call a POISON CENTER or doctor/physician if you feel unwell.

P330: Rinse mouth.

P332+P313: If skin irritation occurs: Get medical advice/attention.

P337+P313: If eye irritation persists: Get medical advice/attention.

P362: Take off contaminated clothing and wash before reuse.

Storage:

P403+P233: Store in a well-ventilated place. Keep container tightly closed.

P405: Store locked up.

Disposal:

P501: Dispose of contents/container in accordance with local/regional/national/international regulations.

EMERGENCY OVERVIEW

PHYSICAL APPEARANCE: Orange crystalline powder.

POTENTIAL HEALTH EFFECTS

EYES: Contact may cause eye irritation.

SKIN: Contact may cause skin irritation.

INGESTION: May cause gastrointestinal irritation.

INHALATION: May cause respiratory irritation.

REPRODUCTIVE TOXICITY

REPRODUCTIVE EFFECTS: Not Established.

TERATOGENIC EFFECTS: Not Established.

CARCINOGENICITY: This product is not listed as a carcinogen by NTP, OSHA, or IARC.

MUTAGENICITY: Not Established.

ROUTES OF ENTRY: Eye contact, ingestion, inhalation, skin contact.

TARGET ORGAN STATEMENT: Sense organs and special senses (other eye effects), behavior (convulsions or effect on seizure threshold), lungs, thorax, or respiration.

SENSITIZATION: This product is not expected to be sensitizing.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	Wt. %	CAS
1,Hydroxy-2,2,6,6-Tetramethyl-1-Piperidinyloxy	74-78	2226-96-2

4. FIRST AID MEASURES

EYES: Immediately flush with large amounts of water, holding eyelids open, for at least 20 minutes. Repeat if necessary. Remove contact lenses, if present and easy to do. Seek medical assistance if irritation persists.

SKIN: Immediately remove contaminated clothing or shoes, wipe excess from skin and flush with plenty of water for at least 15 minutes. Do not reuse clothing until thoroughly cleaned. Get medical attention if irritation persists.

INGESTION: Do not induce vomiting. Have exposed individual rinse mouth thoroughly with water. Never give anything by mouth to an unconscious person. Have victim drink 2 to 4 cups of water or milk. If vomiting occurs naturally, have victim rinse mouth with water again. Consult a medical professional if symptoms persist.

INHALATION: Move victim to fresh air. Call 911, emergency medical service, or Emergency Phone Numbers(s) provided in Section 1 of this SDS. Give artificial respiration if victim is not breathing. Administer oxygen if breathing is difficult.

NOTES TO PHYSICIAN: Treat symptomatically. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. First Aid Responders are advised to wear personal protective equipment as found in Section 8 of this SDS. If ingested, give two glasses of activated charcoal slurry. To prepare activated charcoal slurry, suspend 50 grams activated charcoal in 400 ml water in plastic bottle and shake well. Give 5 ml/kg of body weight, or 350 ml for an average adult.

5. FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA: Use alcohol foam, carbon dioxide, dry chemical, or water spray when fighting fires involving this material.

FIRE FIGHTING PROCEDURES: PROTECTIVE ACTIONS TO TAKE DURING FIRE FIGHTING - Move containers from fire area if you can do it without risk. Dike fire-control water for later disposal; do not scatter the material. Persons involved in fire-fighting response involving this product and its containers/packaging should refer to Section 8 of this SDS for the proper selection of exposure controls and personal protective equipment.

FIRE FIGHTING EQUIPMENT: PRECAUTIONS FOR FIRE INVOLVING TANKS OR CAR/TRAILER LOADS - Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Cool containers with flooding quantities of water until well after fire is out. ALWAYS stay away from tanks engulfed in fire. For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

Do not breathe in fumes.

HAZARDOUS DECOMPOSITION PRODUCTS: Carbon oxides and nitrogen oxides.

6. ACCIDENTAL RELEASE MEASURES

SMALL SPILL: For emergency information and procedures to follow in the case of an accidental release, call the Emergency Telephone Number(s) listed in Section 1 of this SDS. Avoid breathing dust. Clean up promptly by scoop or vacuum. Keep in suitable and closed containers for disposal. After cleaning, flush away traces with water. Provide sufficient ventilation in the affected area(s) and wear appropriate personal protective equipment as indicated in Section 8 of this SDS when handling spill material.

LARGE SPILL: Use similar response procedures as indicated under Small Spill.

GENERAL PROCEDURES: MATERIALS & METHODS (EQUIPMENT & TECHNIQUES) FOR CONTAINMENT & CLEANUP - Call Emergency Telephone Number(s) provided in Section 1 of this SDS. Avoid the generation of dusts during clean-up. Eliminate all sources of ignition (heat, sparks, and flames). Ventilate spill area if possible. Do not touch spilled material. Stop or reduce leaks if safe to do so.

RELEASE NOTES: ENVIRONMENTAL PRECAUTIONS - Avoid contact of spilled material with soil and prevent runoff from entering surface waterways. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

SPECIAL PROTECTIVE EQUIPMENT: EMERGENCY & NON-EMERGENCY RESPONDERS - Refer to Section 8 of this SDS for appropriate exposure controls and personal protective equipment (PPE).

7. HANDLING AND STORAGE

GENERAL PROCEDURES: Handle in accordance with good industrial hygiene and safety practices. These practices include but are not limited to avoiding unnecessary exposure and prompt removal of material from eyes, skin, and clothing. Wash exposed skin and clothing frequently. If needed, take first aid actions as indicated in Section 4 of this SDS.

HANDLING: Wear appropriate personal protective equipment and use exposure controls as indicated in Section 8 of this SDS. Avoid contact with eyes, skin and clothing. Wash thoroughly after handling. Do not take internally. Avoid generating dusts. Keep containers closed when not in use. Laboratory samples should be stored and handled in laboratory hood. Provide mechanical ventilation of combined spaces.

STORAGE: Keep in airtight container away from all heat sources. Store in a segregated and approved area. Store in a cool, dry location, away from direct sunlight, sources of intense heat, or where freezing is possible. Keep container in a well-ventilated area. Store away from incompatible materials. Store in the original container or an approved alternative made from compatible material. Do not store in unlabeled containers. Treat empty containers in a similar fashion as residual product may exist. Use appropriate containment to avoid environmental contamination.

STORAGE TEMPERATURE: Store containers in a room at ambient temperature.

STORAGE PRESSURE: Containers should be stored in a room at ambient pressure.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION**EXPOSURE GUIDELINES**

OSHA HAZARDOUS COMPONENTS (29 CFR1910.1200)					
		EXPOSURE LIMITS			
		OSHA PEL		ACGIH TLV	
Chemical Name		ppm	mg/m ³	ppm	mg/m ³
1,Hydroxy-2,2,6,6-Tetramethyl-1-Piperidinyloxy	TWA	N/E	N/E	N/E	N/E
	STEL	N/E	N/E	N/E	N/E

ENGINEERING CONTROLS: The use of local exhaust ventilation is recommended to control emissions near the source. Laboratory samples should be handled in a fume-hood. Provide mechanical ventilation of confined spaces.

PERSONAL PROTECTIVE EQUIPMENT

EYES AND FACE: Employees should be provided with and required to use splash-proof safety goggles and face shields where there is any possibility of product coming in contact with eyes. Ensure that an eye wash station is operable and nearby.

SKIN: Depending on the conditions of use, wear chemical resistant gloves, chemical suit, and rubber boots.

RESPIRATORY: Depending on airborne concentration, a NIOSH approved air-purifying respirator with organic vapor cartridges is recommended when concentrations exceed established exposure limits. Use a positive pressure, supplied-air respirator if there is potential for uncontrolled release, exposure levels are not known, or other circumstances where air-purifying respirators may not provide adequate protection.

WORK HYGIENIC PRACTICES: Use good personal hygiene practices. Avoid repeated and/or prolonged skin exposure. Wash hands before eating, drinking, smoking, or using toilet facilities. Promptly remove contaminated clothing and launder before reuse. Shower after work using plenty of soap and water.

OTHER USE PRECAUTIONS: FIREFIGHTING AND OTHER IMMEDIATELY DANGEROUS TO LIFE OR HEALTH CONDITIONS - A self-contained breathing apparatus with full facepiece operated in a pressure-demand or other positive pressure mode is recommended for firefighting or other immediately dangerous to life and health conditions. Supplied-air respirator with full facepiece and operated in pressure-demand or other positive pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive pressure mode may also be used.

9. PHYSICAL AND CHEMICAL PROPERTIES

ODOR: Slight amine odor.

APPEARANCE: Orange crystalline powder.

pH: Not Established.

PERCENT VOLATILE: 100

FLASH POINT: Not Established.

FLAMMABLE LIMITS: Not Established.

AUTOIGNITION TEMPERATURE: Not Available.

VAPOR PRESSURE: 10 mmHg at 134°C (273°F)

VAPOR DENSITY: Not Available.

BOILING POINT: Not Available.

SOLUBILITY IN WATER: All proportions.

EVAPORATION RATE: Not Available.

SPECIFIC GRAVITY: Not Available.

FLAMMABILITY - Refer to Section 2 and Section 5 of this SDS for classification and flammability characteristics.

10. STABILITY AND REACTIVITY

STABLE: Yes

HAZARDOUS POLYMERIZATION: No

STABILITY: This product is anticipated to be stable under normal ambient storage and handling conditions of temperature and pressure.

CONDITIONS TO AVOID: Avoid contact with operations that create dust.

HAZARDOUS DECOMPOSITION PRODUCTS: Carbon oxides and nitrogen oxides.

INCOMPATIBLE MATERIALS: Strong acids.

11. TOXICOLOGICAL INFORMATION

ACUTE

Chemical Name	ORAL LD ₅₀ (rat)	DERMAL LD ₅₀ (rabbit)	INHALATION LC ₅₀ (rat)
1,Hydroxy-2,2,6,6-Tetramethyl-1-Piperidinyloxy	1053 mg/kg	N/E	N/E

ORAL LD₅₀: A 28-day repeated dose oral gavage toxicity study in rats was conducted on test groups of 0, 8, 40, 200, and 1,000 mg/kg/day. The test concluded the NOAEL to be 40 mg/kg/day.

EYE EFFECTS: May cause severe eye irritation.

SKIN EFFECTS: May cause skin irritation.

CARCINOGENICITY

IARC: Not Listed.

NTP: Not Listed.

OSHA: Not Listed.

SENSITIZATION: This product has been evaluated by the Buhler Test Method and has been determined to be non-sensitizing to the skin.

NEUROTOXICITY: Not Established.

GENETIC EFFECTS: Not Established.

REPRODUCTIVE EFFECTS: Not Established.

TERATOGENIC EFFECTS: Not Established.

MUTAGENICITY: Not Established.

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL DATA: MOBILITY IN SOIL POTENTIAL - Not Established.

ECOTOXICOLOGICAL INFORMATION: TERRESTRIAL/MICROORGANISM TOXICITY –

ACUTE: Ecological data does not exist.

CHRONIC: Ecological data does not exist.

DISTRIBUTION: Do not discharge into or allow runoff to flow into sewers and natural waterways. Contain spill material and dike for proper disposal.

AQUATIC TOXICITY (ACUTE)

96-HOUR LC₅₀: 545 mg/L (*Brachydanio rerio*)

48-HOUR EC₅₀: 54 mg/L (*Daphnia magna*) (OECD 202)

CHEMICAL FATE INFORMATION: PERSISTENCE & DEGRADABILITY - Not Established.

GENERAL COMMENTS: Any other adverse environmental effects, such as environmental fate (exposure), ozone depletion potential, photochemical ozone creation potential, endocrine disrupting potential, and global warming potential are indicated in this section if data exists. Otherwise, this data has not been established.

13. DISPOSAL CONSIDERATIONS

DISPOSAL METHOD: Small quantities may be treated in aerobic wastewater treatment systems. Larger quantities may be incinerated or land filled after solidification in permitted systems. Do not discharge to treatment plants or waters without proper approval.

RCRA/EPA WASTE INFORMATION: Under the U.S. Environmental Protection Agency's (EPA) Resource Conservation and Recovery Act (RCRA), it is the responsibility of the user to determine at the time of disposal whether the product meets RCRA criteria for a hazardous waste. This is because product uses, transformations, mixtures, processes, etc. may render the resulting materials hazardous. Empty containers retain residues. All labeled precautions must be observed.

COMMENTS: Dispose of material in accordance with national, state, regional, and local regulations. Never discharge directly into sewers or surface water. Consult with environmental regulatory agencies for guidance on acceptable disposal practices for the product, in any form, and its containers/packaging.

14. TRANSPORT INFORMATION

DOT (DEPARTMENT OF TRANSPORTATION)

PROPER SHIPPING NAME: Not regulated as a dangerous good.

ROAD AND RAIL (ADR/RID)

PROPER SHIPPING NAME: Not regulated as a dangerous good.

AIR (ICAO/IATA)

PROPER SHIPPING NAME: Not regulated as a dangerous good.

VESSEL (IMO/IMDG)

PROPER SHIPPING NAME: Not regulated as a dangerous good.

CANADA TRANSPORT OF DANGEROUS GOODS

PROPER SHIPPING NAME: Not regulated as a dangerous good.

15. REGULATORY INFORMATION

UNITED STATES

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)

311/312 HAZARD CATEGORIES: Immediate (acute) health hazard

FIRE: No

PRESSURE GENERATING: No

REACTIVITY: Yes

ACUTE: Yes

CHRONIC: No

TSCA (TOXIC SUBSTANCE CONTROL ACT)

Chemical Name	CAS
1,Hydroxy-2,2,6,6-Tetramethyl-1-Piperidinyloxy	2226-96-2

CALIFORNIA PROPOSITION 65: This product does not contain any chemicals which are known to the State of California to cause cancer, birth defects or other reproductive harm at concentrations that trigger the warning requirements of California Proposition 65.

CARCINOGEN: This product is not listed as a carcinogen under NTP, IARC, or OSHA.

CANADA

DOMESTIC SUBSTANCE LIST (INVENTORY): None of the components are listed.

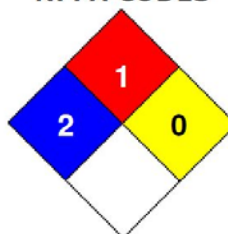
16. OTHER INFORMATION

PREPARED BY: Total Safety d/b/a EHS Services

HMIS RATING

HEALTH	<input type="checkbox"/>	2
FLAMMABILITY	<input type="checkbox"/>	1
PHYSICAL HAZARD	<input type="checkbox"/>	0
PERSONAL PROTECTION	<input type="checkbox"/>	B

NFPA CODES



HMIS RATINGS NOTES: Please refer to Section 8 of this SDS for recommended personal protective equipment.

DATA SOURCES:

REFERENCES

ACGIH. 2014 Guide to Occupational Exposure Values. Cincinnati, OH. Signature Publications, 2014.

Forsberg, K. et al. Quick Selection Guide to Chemical Protective Clothing. Sixth Edition. Hoboken, NJ. John Wiley & Sons, 2014.

Lide, D.R. CRC Handbook of Chemistry and Physics. 88th Edition. Boca Raton, FL. CRC Press, 2008.

UNECE. Globally Harmonized System of Classification and Labeling of Chemicals (GHS). Third Revised Edition. New York and Geneva. United Nations, 2009.

US DOT; Pipeline and Hazardous Materials Safety Administration. 2008 Emergency Response Guidebook. Neenah, WI. J.J. Keller & Associates, Inc. 2008.

US EPA. Consolidated List of Chemicals Subject to the Emergency Planning and Community Right-To-Know Act (EPCRA) and Section 112(r) of the Clean Air Act. [Available] Online: <http://www.epa.gov/ceppo/pubs/title3.pdf>. Retrieved 02/02/2011.

ADDITIONAL SDS INFORMATION:

KEY / LEGEND

ACGIH - American Conference of Governmental Industrial Hygienists
ADR - Agreement on Dangerous Goods by Road
CAA - Clean Air Act
CAS - Chemical Abstracts Service Registry Number
CDG - Carriage of Dangerous Goods By Road and Rail Manual
CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act
CFR - Code of Federal Regulations
EINECS - European Inventory of Existing Chemical Substances Registry Number
ERG - Emergency Response Guidebook
EPCRA - Emergency Planning and Community Right-to-Know Act
GHS - Globally Harmonized System of Classification and Labeling of Chemicals
IARC - International Agency for Research on Cancer
IATA - International Air Transport Association
ICAO - International Civil Aviation Organization
IMDG - International Maritime Dangerous Goods Code
IMO - International Maritime Organization
N/E - Not Established
NTP - National Toxicology Program
OSHA - Occupational Safety and Health Administration
PEL - Permissible Exposure Limit
PPE - Personal Protective Equipment
RCRA - Resource Conservation and Recovery Act
RID - Regulations Concerning the International Transport of Dangerous Goods by Rail
RQ - Reportable Quantities
SARA - Superfund Amendments and Reauthorization Act of 1986
SDS - Safety Data Sheet
TCC - Tag Closed Cup
TDG - Transportation of Dangerous Goods
TLV - Threshold Limit Value
TSCA - Toxic Substance Control Act
UN/NA - United Nations / North American Number
UNECE - United Nations Economic Commission for Europe
US DOT - United States Department of Transportation
US EPA - United States Environmental Protection Agency
Vol. - Volume
WHMIS - Workplace Hazardous Materials Information System

GENERAL STATEMENTS: Other information not included anywhere else in this SDS is included in this section if, in fact, such data exists.

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