SAFETY DATA SHEET

Nova Molecular Technologies, Inc.

Date Issued: 05/26/2015
SDS No: NMT207-005

Nova TEMPO

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Nova TEMPO
GENERAL USE: Polymerization inhibitor, selective oxidizing agent.
SYNONYMS: 2,2,6,6-Tetramethy-1-piperidinyloxy

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 (Inhalation), Category 4
- Serious Eye Damage, Category 1
- Skin Corrosion, Category 1B
- Specific Target Organ Toxicity (Single Exposure), Category 3

GHS LABEL

Exclamation Mark

Corrosion

SIGNAL WORD: Danger

HAZARD STATEMENTS

H332: Harmful if inhaled.
H318: Causes serious eye damage.
H314: Causes severe skin burns and eye damage.
H335: May cause respiratory irritation.

PRECAUTIONARY STATEMENT(S)

Prevention:

P260: Do not breathe dust/fume/gas/mist/vapors/spray.
P261: Avoid breathing dust/fume/gas/mist/vapors/spray.
P264: Wash thoroughly after handling.
P271: Use only outdoors or in a well-ventilated area.
P280: Wear protective gloves/protective clothing/eye protection/face protection.

Response:

P301+P330+P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P303+P361+P353: IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower.

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

P304+P341: IF INHALED: If breathing is difficult, 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.

P310: Immediately call a POISON CENTER or doctor/physician.

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

P321: Specific treatment as indicated (see potential Health, Environmental, and Physical hazards presented on this label).

P363: Wash contaminated clothing 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: Dark orange-red crystalline solid.

GENERAL HAZARD: DANGER! This product is combustible and highly corrosive. Causes eye and skin burns. Readily absorbed through skin. Destructive to eyes, skin, mucus membranes, and respiratory tract. Please read entire contents of Section 2 of this Safety Data Sheet (SDS) for details.

POTENTIAL HEALTH EFFECTS

EYES: May cause severe eye irritation. May cause tearing, blurred vision, and photophobia. May cause chemical conjunctivitis and corneal damage.

SKIN: Corrosive. May cause severe burns, tissue damage, and eye damage. Repeated or prolonged contact, even to dilute concentrations, can cause a high degree of tissue destruction.

INGESTION: Harmful is swallowed. Product is extremely destructive to mucus membranes. May cause gastrointestinal irritation with nausea, vomiting, and diarrhea.

INHALATION: Harmful is inhaled. Material is extremely destructive to the upper respiratory tract. Olfactory fatigue may occur. Can produce delayed pulmonary edema. Inhalation at high concentrations may cause CNS depression and asphyxiation.

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: May cause damage to respiratory and digestive systems.

SENSITIZATION: Not Established.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	Wt. %	CAS
2,2,6,6-Tetramethyl-1-piperidinyloxy	93 - 100	2564-83-2

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. 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.

5. FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA: Use alcohol-resistant 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. Do not get water inside containers. Use water spray or fog; do not use straight streams. Persons involved in firefighting 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. Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). As an immediate precautionary measure, isolate spill or leak area for at least 25 meters (75 feet) in all directions. Fully encapsulating, vapor protective clothing should be worn for spills and leaks with no fire. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. For small spills (less than one (1) gram of material) spills may be flushed with water or absorbed with suitable absorbents. Prevent entry into waterways, sewers, basements or confined areas.

LARGE SPILL: Large spills (greater than one (1) gram of material) should be collected as crystals or liquid and absorbed. Dike far ahead of spill for later disposal. Cleanup may be accomplished by flushing with water if appropriate or by removal of contaminated soils. Avoid raising dust. Place in appropriate containers and hold for disposal. Wash spill site and ventilate area after pickup is complete. Dispose of spent material in accordance with all applicable local, state, or federal requirements. Do not release into sewers or waterways.

GENERAL PROCEDURES: MATERIALS & METHODS (EQUIPMENT & TECHNIQUES) FOR CONTAINMENT & CLEANUP - Call Emergency Telephone Number(s) provided in Section 1 of this SDS. Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. For a large spill, consider initial downwind evacuation for at least 300 meters (1000 feet). Use clean non-sparking tools to collect absorbed material. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing indicated in Section 8 of this SDS.

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/m³**	**ppm**	**mg/m³**
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. Provide readily accessible eye wash stations and emergency showers. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

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, use any NIOSH approved P100 respirator equipped with organic vapor cartridges or a full-face supplied air elastomeric self-contained breathing apparatus (SCBA).

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

APPEARANCE: Dark orange-red crystalline solid.

pH: Not Established.

PERCENT VOLATILE: 100

FLASH POINT: 68°C (154°F)

FLAMMABLE LIMITS: Not Established.

AUTOIGNITION TEMPERATURE: Not Established.

VAPOR PRESSURE: 1 mmHg at 35°C (95°F)

VAPOR DENSITY: Not Established.

BOILING POINT: 200°C (392°F)

MELTING POINT: 36°C (97°F) to 39°C (102°F)

SOLUBILITY IN WATER: 1 %

EVAPORATION RATE: Not Established.

SPECIFIC GRAVITY: Not Established.

PERCENT VOLATILE: 100.

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 incompatible materials. Avoid exposure to excess heat, ignition sources, dust generation and strong oxidants.

HAZARDOUS DECOMPOSITION PRODUCTS: Carbon oxides and nitrogen oxides.

INCOMPATIBLE MATERIALS: Strong oxidizers and strong acids.

11. TOXICOLOGICAL INFORMATION

ACUTE

Chemical Name	EYES LC_{50} (rabbit)	DERMAL LD_{50} (rabbit)	INHALATION LC_{50} (rat)
2,2,6,6-Tetramethyl-1-piperidinyloxy	100mg/24 Hour (Serious Irritation)	500mg/4 Hour (Serious Irritation)	N/E

NOTES: This product is corrosive to skin and eyes. Inhalation of material may cause severe respiratory irritation. Ingestion may cause gastrointestinal irritation. Only selected Registry of Toxic Effects of Chemical Substances (RTECS) data is presented here. This material is classified under RTECS # TN8991900. Refer to Section 2 of this SDS for additional hazards identification.

EYE EFFECTS: May cause severe irritation or burning of eyes.

SKIN EFFECTS: Corrosive to the skin and causes burning. Contact with undiluted product with the skin quickly causes severe irritation and pain and may cause burns.

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) – Not Established.

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: Toxic solid, organic, n.o.s. (2,2,6,6-Tetramethyl-1-piperdinyloxy)

PRIMARY HAZARD CLASS/DIVISION: 6.1

UN NUMBER: 2811

PACKING GROUP: III

NAERG: 154

LABEL: Toxic substances

HARMONIZED TARIFF CODE: 2933.39.6100

ROAD AND RAIL (ADR/RID)

PROPER SHIPPING NAME: Toxic solid, organic, n.o.s. (2,2,6,6-Tetramethyl-1-piperdinyloxy)

UN NUMBER: 2811

AIR (ICAO/IATA)

PROPER SHIPPING NAME: Toxic solid, organic, n.o.s. (2,2,6,6-Tetramethyl-1-piperdinyloxy)

UN NUMBER: 2811

VESSEL (IMO/IMDG)

SHIPPING NAME: Toxic solid, organic, n.o.s. (2,2,6,6-Tetramethyl-1-piperdinyloxy)

UN NUMBER: 2811

PRIMARY HAZARD CLASS/DIVISION: 6.1

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:** No **ACUTE:** Yes **CHRONIC:** No

TSCA (TOXIC SUBSTANCE CONTROL ACT)

Chemical Name	CAS
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.

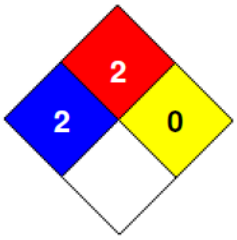
16. OTHER INFORMATION

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

HMIS RATING

HEALTH	2
FLAMMABILITY	2
PHYSICAL HAZARD	0
PERSONAL PROTECTION	H

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 Conversation 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.

MANUFACTURER DISCLAIMER: This information relates to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is to the best of our knowledge and belief, accurate and reliable as of the date compiled. However, no representation, warranty or guarantee is made as to its accuracy, reliability or completeness. NO WARRANTY OF MERCANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, OR ANY OTHER WARRANTY, EXPRESSED OR IMPLIED, IS MADE CONCERNING THE INFORMATION HEREIN PROVIDED. It is the user's responsibility to satisfy himself as to the suitability and completeness of such information for his own particular use. We do not accept liability for any loss or damage that may occur from the use of this information nor do we offer warranty against patent infringement.