

# Material Safety Data Sheet

HAZARD WARNINGS	RISK PHRASES	PROTECTIVE CLOTHING
 	Highly toxic; do not ingest or inhale. Irritating to skin, eyes, and the respiratory system. Lachrymator. Sternutator. POSSIBLE CARCINOGEN. MINIMIZE EXPOSURE. Moisture sensitive material.	   

## Section I. Chemical Product and Company Identification

Chemical Name	<b>Capsaicin (Natural)</b>		
Catalog Number	M1149	Supplier	TCI America 9211 N. Harborsgate St. Portland OR 1-800-423-8616
Synonym	6-Nonenamide, N-[(4-hydroxy-3-methoxyphenyl)methyl]-8-methyl-, (6E)- (CA INDEX NAME); 8-Methyl-N-vanillyl-6-nonenamide; N-[(4-Hydroxy-3-methoxyphenyl)methyl]-8-methyl-6-nonenamide		
Chemical Formula	C <sub>18</sub> H <sub>27</sub> NO <sub>3</sub>		
CAS Number	404-86-4	In case of Emergency Call	<b>Chemtec®</b> <b>(800) 424-9300 (U.S.)</b> <b>(703) 527-3887 (International)</b>

## Section II. Composition and Information on Ingredients

Chemical Name	CAS Number	Percent (%)	TLV/PEL	Toxicology Data
Capsaicin (Natural)	404-86-4	Min. 60.0 (HPLC)	This chemical is classified as a possible carcinogen. There is no acceptable exposure limit for a carcinogen.	Mouse LD <sub>50</sub> (oral) 47200 µg/kg Mouse LD <sub>50</sub> (dermal) >512 mg/kg Rat LD <sub>50</sub> (intraperitoneal) 9500 µg/kg

## Section III. Hazards Identification

Acute Health Effects	Toxic if ingested or inhaled. Avoid prolonged contact with this material. Overexposure may result in serious illness or death. Irritating to eyes and skin on contact. Inhalation causes irritation of the lungs and respiratory system. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.
Chronic Health Effects	<b>CARCINOGENIC EFFECTS</b> : Not available. <b>MUTAGENIC EFFECTS</b> : Not available. <b>TERATOGENIC EFFECTS</b> : Tumorigenic effects. Mouse TDLo Oral 3318 mg/kg for 5 weeks continuous <b>TOXIC EFFECTS:</b> Tumorigenic - Equivocal tumorigenic agent by RTECS criteria Gastrointestinal - Tumors <b>DEVELOPMENTAL TOXICITY:</b> Not available. Repeated exposure to an highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

## Section IV. First Aid Measures

Eye Contact	Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.
Skin Contact	In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.
Inhalation	If the victim is not breathing, perform mouth-to-mouth resuscitation. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, oxygen can be administered. Seek medical attention if respiration problems do not improve.
Ingestion	INDUCE VOMITING by sticking finger in throat. Lower the head so that the vomit will not reenter the mouth and throat. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive.

## Section V. Fire and Explosion Data

Flammability	May be combustible at high temperature.	Auto-Ignition	Not available.
Flash Points	>113°C (235.4°F)	Flammable Limits	Not available.
Combustion Products	These products are toxic carbon oxides (CO, CO <sub>2</sub> ), nitrogen oxides (NO, NO <sub>2</sub> ).		
Fire Hazards	Not available.		

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Emergency phone number (800) 424-9300

Explosion Hazards	Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.
Fire Fighting Media and Instructions	SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. DO NOT use water jet. Consult with local fire authorities before attempting large scale fire-fighting operations.

### Section VI. Accidental Release Measures

Spill Cleanup Instructions	Highly toxic material. Irritating material. Lachrymatory agent. Sternutator. Possibly carcinogenic material. Moisture sensitive material. Stop leak if without risk. DO NOT get water inside container. DO NOT touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all sources of ignition. Consult federal, state, and/or local authorities for assistance on disposal.
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### Section VII. Handling and Storage

Handling and Storage Information	HIGHLY TOXIC. IRRITANT. LACHRYMATOR. STERNUTATOR. POSSIBLE CARCINOGEN. MOISTURE SENSITIVE. Keep locked up. Keep away from heat. Mechanical exhaust required. When not in use, tightly seal the container and store in a dry, cool place. Avoid excessive heat and light. DO NOT ingest. Do not breathe dust. Wear suitable protective clothing. If ingested, seek medical advice immediately and show the container or the label. Treat symptomatically and supportively. Always store away from incompatible compounds such as oxidizing agents, moisture.
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### Section VIII. Exposure Controls/Personal Protection

Engineering Controls	Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.
Personal Protection	Splash goggles. Lab coat. Dust respirator. Boots. Gloves. A MSHA/NIOSH approved respirator must be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product. 
Exposure Limits	This chemical is classified as a possible carcinogen. There is no acceptable exposure limit for a carcinogen.

### Section IX. Physical and Chemical Properties

Physical state @ 20°C	Solid. (White ~ light yellow, crystalline powder and small lumps.)	Solubility	Soluble in ethanol, chloroform.
Specific Gravity	Not available.		
Molecular Weight	305.41	Partition Coefficient	LOG P <sub>ow</sub> : 3.04
Boiling Point	210 to 220 °C (410 to 428 °F) @ 0.01 mmHg	Vapor Pressure	Not applicable.
Melting Point	65 °C (149 °F)	Vapor Density	Not available.
Refractive Index	Not available.	Volatility	Not available.
Critical Temperature	Not available.	Odor	Not available.
Viscosity	Not available.	Taste	Not available.

### Section X. Stability and Reactivity Data

Stability	This material is stable if stored under proper conditions. (See Section VII for instructions)
Conditions of Instability	Avoid excessive heat and light. Moisture sensitive.
Incompatibilities	Reactive with oxidizing agents, moisture.

### Section XI. Toxicological Information

RTECS Number	RA8530000
Routes of Exposure	Eye Contact. Ingestion. Inhalation.
Toxicity Data	Mouse LD <sub>50</sub> (oral) 47200 µg/kg Mouse LD <sub>50</sub> (dermal) >512 mg/kg Rat LD <sub>50</sub> (intraperitoneal) 9500 µg/kg
Chronic Toxic Effects	<b>CARCINOGENIC EFFECTS</b> : Not available. <b>MUTAGENIC EFFECTS</b> : Not available. <b>TERATOGENIC EFFECTS</b> : Tumorigenic effects. Mouse TDLo Oral 3318 mg/kg for 5 weeks continuous <b>TOXIC EFFECTS:</b> Tumorigenic - Equivocal tumorigenic agent by RTECS criteria Gastrointestinal - Tumors <b>DEVELOPMENTAL TOXICITY:</b> Not available. Repeated exposure to an highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

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## Section XII. Ecological Information

Ecotoxicity	Not available.
Environmental Fate	Capsaicin's production and use as an insect and animal repellent, a medicinal component of arthritis, cold sore and fever blister topical analgesics and as a neurobiological agent may result in its release to the environment through various waste streams. Capsaicin is the pungent principle found in fruits from various species of Capsicum and Solanaceae. If released to air, an estimated vapor pressure of 1.3X10 <sup>-8</sup> mm Hg at 25 deg C indicates capsaicin will exist solely in the particulate phase in the atmosphere. Particulate-phase capsaicin will be removed from the atmosphere by wet and dry deposition. Capsaicin does not contain chromophores that absorb at wavelengths >290 nm and therefore is not expected to be susceptible to direct photolysis by sunlight. If released to soil, capsaicin is expected to have low mobility based upon an estimated Koc of 1,100. Volatilization from moist soil and water surfaces is not expected to be an important fate process based upon an estimated Henry's Law constant of 1.0X10 <sup>-13</sup> atm-cu m/mole. Capsaicin is not expected to volatilize from dry soil surfaces based upon its vapor pressure. Biodegradation data were not available. If released into water, capsaicin is expected to adsorb to suspended solids and sediment based upon the estimated Koc. An estimated BCF of 43 suggests the potential for bioconcentration in aquatic organisms is moderate. Hydrolysis is not expected to be an important environmental fate process since this compound lacks functional groups that hydrolyze under environmental conditions. Occupational exposure to capsaicin may occur through dermal contact with this compound at workplaces where capsaicin is produced or used. The most likely pathway by which the general public is exposed to capsaicin is by dermal contact with topical lotions, arthritis, cold sore and fever blister medications. Additional exposure may occur through ingestion of foods containing paprika or cayenne spices which contain this compound.

## Section XIII. Disposal Considerations

Waste Disposal	Recycle to process, if possible. Consult your local regional authorities. You may be able to dissolve or mix material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber system. Observe all federal, state and local regulations when disposing of the substance.
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## Section XIV. Transport Information

DOT Classification	DOT CLASS 6.1: Toxic material
PIN Number	UN3462
Proper Shipping Name	Toxins, extracted from living sources, solid, n.o.s.
Packing Group (PG)	II
DOT Pictograms	



## Section XV. Other Regulatory Information and Pictograms

TSCA Chemical Inventory (EPA)	This compound is <b>ON</b> the EPA Toxic Substances Control Act (TSCA) inventory list.
WHMIS Classification (Canada)	CLASS D-1A: Material causing immediate and serious toxic effects (VERY TOXIC). On DSL.
EINECS Number (EEC)	206-969-8
EEC Risk Statements	R26/27/28- Very toxic by inhalation, in contact with skin and if swallowed. R36/37/38- Irritating to eyes, respiratory system and skin.
Japanese Regulatory Data	ENCS No. 3-711

## Section XVI. Other Information

**Version 1.0**  
**Validated on 1/5/2010.**  
**Printed 1/5/2010.**

### Notice to Reader

TCI laboratory chemicals are for research purposes only and are NOT intended for use as drugs, food additives, households, or pesticides. The information herein is believed to be correct, but does not claim to be all inclusive and should be used only as a guide. Neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All chemical reagents must be handled with the recognition that their chemical, physiological, toxicological, and hazardous properties have not been fully investigated or determined. All chemical reagents should be handled only by individuals who are familiar with their potential hazards and who have been fully trained in proper safety, laboratory, and chemical handling procedures. Although certain hazards are described herein, we can not guarantee that these are the only hazards which exist. Our MSDS sheets are based only on data available at the time of shipping and are subject to change without notice as new information is obtained. Avoid long storage periods since the product is subject to degradation with age and may become more dangerous or hazardous. It is the responsibility of the user to request updated MSDS sheets for products that are stored for extended periods. Disposal of unused product must be undertaken by qualified personnel who are knowledgeable in all applicable regulations and follow all pertinent safety precautions including the use of appropriate protective equipment (e.g. protective goggles, protective clothing, breathing equipment, facial mask, fume hood). For proper handling and disposal, always comply with federal, state, and local regulations.