

## MATERIAL SAFETY DATA SHEET

Date Printed: 10/27/2004

Date Updated: 04/06/2004

Version 1.3

## Section 1 - Product and Company Information

Product Name	CAPSAICIN
Product Number	M2028
Brand	SIGMA
Company	Sigma-Aldrich
Street Address	3050 Spruce Street
City, State, Zip, Country	SAINT LOUIS MO 63103 US
Technical Phone:	314 771 5765
Emergency Phone:	414 273 3850 Ext. 5996
Fax:	800 325 5052

## Section 2 - Composition/Information on Ingredient

Substance Name	CAS #	SARA 313
CAPSAICIN	404-86-4	No
Formula	C18H27NO3	
Synonyms	Capsaicin * Capsaicine * N-((4-Hydroxy-3-methoxyphenyl)methyl)-8-methyl-6-n onenamide * trans-N-((4-Hydroxy-3-methoxyphenyl)methyl)-8-meth yl-6-nonenamide * (E)-8-Methyl-N-vanillyl-6-nonenamide * trans-8-Methyl-N-vanillyl-6-nonenamide * NCI-C56564 * 6-Nonenamide, 8-methyl-N-vanillyl-, (E)- (8CI)	
RTECS Number:	RA8530000	

## Section 3 - Hazards Identification

## EMERGENCY OVERVIEW

Highly Toxic (USA) Toxic (EU).  
Toxic if swallowed. Irritating to respiratory system and skin.  
Risk of serious damage to eyes. May cause sensitization by  
inhalation and skin contact.  
Sternutator. Lachrymator. Target organ(s): Nerves.

## HMIS RATING

HEALTH: 3  
FLAMMABILITY: 0  
REACTIVITY: 0

## NFPA RATING

HEALTH: 3  
FLAMMABILITY: 0  
REACTIVITY: 0

For additional information on toxicity, please refer to Section 11.

## Section 4 - First Aid Measures

#### ORAL EXPOSURE

If swallowed, wash out mouth with water provided person is conscious. Call a physician immediately.

#### INHALATION EXPOSURE

If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

#### DERMAL EXPOSURE

In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

#### EYE EXPOSURE

In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

---

### Section 5 - Fire Fighting Measures

---

#### FLASH POINT

235 °F 113 °C Method: closed cup

#### AUTOIGNITION TEMP

N/A

#### FLAMMABILITY

N/A

#### EXTINGUISHING MEDIA

Suitable: Water spray. Carbon dioxide, dry chemical powder, or appropriate foam.

#### FIREFIGHTING

Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.  
Specific Hazard(s): Emits toxic fumes under fire conditions.

---

### Section 6 - Accidental Release Measures

---

#### PROCEDURE TO BE FOLLOWED IN CASE OF LEAK OR SPILL

Evacuate area.

#### PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

#### METHODS FOR CLEANING UP

Sweep up, place in a bag and hold for waste disposal. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

---

### Section 7 - Handling and Storage

---

#### HANDLING

User Exposure: Do not breathe dust. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure.

#### STORAGE

Suitable: Keep tightly closed.  
Store at 2-8°C

## Section 8 - Exposure Controls / PPE

---

### ENGINEERING CONTROLS

Safety shower and eye bath. Use only in a chemical fume hood.

### PERSONAL PROTECTIVE EQUIPMENT

Respiratory: Government approved respirator.

Hand: Compatible chemical-resistant gloves.

Eye: Chemical safety goggles.

### GENERAL HYGIENE MEASURES

Wash contaminated clothing before reuse. Wash thoroughly after handling.

---

## Section 9 - Physical/Chemical Properties

---

Appearance	Physical State: Solid	
	Color: White	
	Form: Fine crystals	
Property	Value	At Temperature or Pressure
Molecular Weight	305.42 AMU	
pH	N/A	
BP/BP Range	N/A	
MP/MP Range	66 °C	
Freezing Point	N/A	
Vapor Pressure	N/A	
Vapor Density	N/A	
Saturated Vapor Conc.	N/A	
SG/Density	N/A	
Bulk Density	N/A	
Odor Threshold	N/A	
Volatile%	N/A	
VOC Content	N/A	
Water Content	N/A	
Solvent Content	N/A	
Evaporation Rate	N/A	
Viscosity	N/A	
Surface Tension	N/A	
Partition Coefficient	N/A	
Decomposition Temp.	N/A	
Flash Point	235 °F 113 °C	Method: closed cup
Explosion Limits	N/A	
Flammability	N/A	
Autoignition Temp	N/A	
Refractive Index	N/A	
Optical Rotation	N/A	
Miscellaneous Data	N/A	
Solubility	Solvent: 50 mg/ml CHCl <sub>3</sub> Clear	

N/A = not available

---

## Section 10 - Stability and Reactivity

---

### STABILITY

Stable: Stable.

Materials to Avoid: Strong oxidizing agents.

### HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide, Nitrogen oxides.

HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

---

Section 11 - Toxicological Information

---

ROUTE OF EXPOSURE

Skin Contact: Causes skin irritation.

Skin Absorption: May be harmful if absorbed through the skin.

Eye Contact: Lachrymator. Causes severe eye irritation.

Inhalation: May be harmful if inhaled. Material is irritating to mucous membranes and upper respiratory tract.

Ingestion: Toxic if swallowed.

SENSITIZATION

Sensitization: May cause allergic reaction.

TARGET ORGAN(S) OR SYSTEM(S)

Nerves.

SIGNS AND SYMPTOMS OF EXPOSURE

Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

CONDITIONS AGGRAVATED BY EXPOSURE

Causes sneezing. Do not inhale.

TOXICITY DATA

Oral

mouse, male

118.8 mg/kg

LD50

Oral

mouse, female

97.4 mg/kg

LD50

Oral

rat, male

161.2 mg/kg

LD50

Oral

rat, female

148.1 mg/kg

LD50

Intraperitoneal

Rat

9500 UG/KG

LD50

Remarks: Behavioral:Convulsions or effect on seizure threshold.

Behavioral:Excitement. Behavioral:Muscle contraction or spasticity.

Oral

Mouse

47.2 mg/kg

LD50

Skin

Mouse  
> 512 mg/kg  
LD50

Intraperitoneal

Mouse  
6500 UG/KG  
LD50

Remarks: Behavioral:Convulsions or effect on seizure threshold.  
Behavioral:Excitement. Behavioral:Muscle contraction or  
spasticity.

Subcutaneous

Mouse  
9000 UG/KG  
LD50

Remarks: Behavioral:Convulsions or effect on seizure threshold.  
Behavioral:Excitement. Behavioral:Muscle contraction or  
spasticity.

Intravenous

Mouse  
400 UG/KG  
LD50

Intramuscular

Mouse  
7800 UG/KG  
LD50

Remarks: Behavioral:Convulsions or effect on seizure threshold.  
Behavioral:Excitement. Behavioral:Muscle contraction or  
spasticity.

Intratracheal

Mouse  
1600 UG/KG  
LD50

Remarks: Behavioral:Convulsions or effect on seizure threshold.  
Behavioral:Excitement. Behavioral:Muscle contraction or  
spasticity.

Rectal

Mouse  
>218 MG/KG  
LD50

Intraperitoneal

Rabbit  
>50 MG/KG  
LD50

Intraperitoneal

Guinea pig  
1100 UG/KG  
LD50

Remarks: Behavioral:Convulsions or effect on seizure threshold.  
Behavioral:Excitement. Behavioral:Muscle contraction or  
spasticity.

Intraperitoneal

Hamster  
>120 MG/KG

LD50

CHRONIC EXPOSURE - CARCINOGEN

Species: Mouse  
Route of Application: Oral  
Dose: 3318 MG/KG  
Exposure Time: 5W  
Frequency: C  
Result: Tumorigenic: Equivocal tumorigenic agent by RTECS  
criteria. Gastrointestinal: Tumors.

CHRONIC EXPOSURE - MUTAGEN

Species: Mouse  
Route: Intraperitoneal  
Dose: 7500 UG/KG  
Mutation test: Micronucleus test

Species: Mouse  
Route: Intraperitoneal  
Dose: 1800 UG/KG  
Mutation test: DNA inhibition

Species: Mouse  
Route: Intraperitoneal  
Dose: 93120 UG/KG  
Exposure Time: 32D  
Mutation test: Sister chromatid exchange

Species: Hamster  
Dose: 5 MG/L (+S9)  
Cell Type: lung  
Mutation test: Mutation in microorganisms

---

Section 12 - Ecological Information

---

No data available.

---

Section 13 - Disposal Considerations

---

APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION

Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state, and local environmental regulations.

---

Section 14 - Transport Information

---

DOT

Proper Shipping Name: Toxic solids, organic, n.o.s.  
UN#: 2811  
Class: 6.1  
Packing Group: Packing Group II  
Hazard Label: Toxic substances.  
PIH: Not PIH

IATA

Proper Shipping Name: Toxic solid, organic, n.o.s.  
IATA UN Number: 2811  
Hazard Class: 6.1

---

Section 15 - Regulatory Information

---

EU ADDITIONAL CLASSIFICATION

Symbol of Danger: T

Indication of Danger: Toxic.

R: 25 37/38 41 42/43

Risk Statements: Toxic if swallowed. Irritating to respiratory system and skin. Risk of serious damage to eyes. May cause sensitization by inhalation and skin contact.

S: 22 26 28 36/39 45

Safety Statements: Do not breathe dust. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. After contact with skin, wash immediately with plenty of soap-suds. Wear suitable protective clothing and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

US CLASSIFICATION AND LABEL TEXT

Indication of Danger: Highly Toxic (USA) Toxic (EU).

Risk Statements: Toxic if swallowed. Irritating to respiratory system and skin. Risk of serious damage to eyes. May cause sensitization by inhalation and skin contact.

Safety Statements: Do not breathe dust. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. After contact with skin, wash immediately with plenty of soap-suds. Wear suitable protective clothing, gloves, and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

US Statements: Sternutator. Lachrymator. Target organ(s): Nerves.

UNITED STATES REGULATORY INFORMATION

SARA LISTED: No

TSCA INVENTORY ITEM: Yes

CANADA REGULATORY INFORMATION

WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

DSL: Yes

NDSL: No

---

Section 16 - Other Information

---

DISCLAIMER

For R&D use only. Not for drug, household or other uses.

WARRANTY

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale.

Copyright 2004 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.