

SIGMA-ALDRICH**Material Safety Data Sheet**Version 3.3
Revision Date 02/04/2009
Print Date 06/04/2009**1. PRODUCT AND COMPANY IDENTIFICATION**

Product name : Caffeine

Product Number : C8960
Brand : Sigma-Aldrich

Company : Sigma-Aldrich
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SAINT LOUIS MO 63103
USA

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2. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms : 1,3,7-Trimethylxanthine

Formula : $C_8H_{10}N_4O_2$
Molecular Weight : 194.19 g/mol

CAS-No.	EC-No.	Index-No.	Concentration
Caffeine			
58-08-2	200-362-1	613-086-00-5	-

3. HAZARDS IDENTIFICATION**Emergency Overview****OSHA Hazards**

Target Organ Effect, Toxic by ingestion, Irritant

Target Organs

Central nervous system, Heart

HMS Classification

Health Hazard: 2
Chronic Health Hazard: *
Flammability: 0
Physical hazards: 0

NFPA Rating

Health Hazard: 2
Fire: 0
Reactivity Hazard: 0

Potential Health Effects

Inhalation
Skin
Eyes
Ingestion

May be harmful if inhaled. Causes respiratory tract irritation.
May be harmful if absorbed through skin. Causes skin irritation.
Causes eye irritation.
Toxic if swallowed.

4. FIRST AID MEASURES**General advice**

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled

If breathed in, move person into fresh air. If not breathing give artificial respiration. Consult a physician.

In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIRE-FIGHTING MEASURES**Flammable properties**

Flash point no data available

Ignition temperature 540 °C (1,004 °F) -

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special protective equipment for fire-fighters

Wear self contained breathing apparatus for fire fighting if necessary.

6. ACCIDENTAL RELEASE MEASURES**Personal precautions**

Use personal protective equipment. Avoid dust formation. Avoid breathing dust. Ensure adequate ventilation.

Environmental precautions

Do not let product enter drains.

Methods for cleaning up

Pick up and arrange disposal without creating dust. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE**Handling**

Avoid formation of dust and aerosols.

Provide appropriate exhaust ventilation at places where dust is formed. Normal measures for preventive fire protection.

Storage

Keep container tightly closed in a dry and well-ventilated place.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Contains no substances with occupational exposure limit values.

Personal protective equipment

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a dust mask type N95 (US) or type P1 (EN 143) respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection

Handle with gloves.

Eye protection

Safety glasses

Skin and body protection

Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Hygiene measures

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form	solid
Colour	white

Safety data

pH	5.5 - 6.5 at 10 g/l at 20 °C (68 °F)
Melting point	234 - 236.5 °C (453 - 457.7 °F)
Boiling point	no data available
Flash point	no data available
Ignition temperature	540 °C (1,004 °F) -
Lower explosion limit	no data available
Upper explosion limit	no data available
Vapour pressure	20 hPa (15 mmHg) at 89 °C (192 °F)
Density	1.230 g/cm ³
Water solubility	slightly soluble
Partition coefficient: n-octanol/water	log Pow: -0.07

10. STABILITY AND REACTIVITY

Storage stability

Stable under recommended storage conditions.

Materials to avoid

Strong oxidizing agents

Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides, nitrogen oxides (NOx)

11. TOXICOLOGICAL INFORMATION

Acute toxicity

LD50 Oral - rat - 192 mg/kg

Remarks: Brain and Coverings:Other degenerative changes. Kidney, Ureter, Bladder:Interstitial nephritis.

Inhalation: Irritating to respiratory system.

Irritation and corrosion

no data available

Sensitisation

no data available

Chronic exposure

This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Genotoxicity in vitro - rat - Kidney
Micronucleus test

Genotoxicity in vivo - mouse - Oral
Micronucleus test

Laboratory experiments have shown mutagenic effects.

Overexposure may cause reproductive disorder(s) based on tests with laboratory animals.

Signs and Symptoms of Exposure

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Potential Health Effects

Inhalation	May be harmful if inhaled. Causes respiratory tract irritation.
Skin	May be harmful if absorbed through skin. Causes skin irritation.
Eyes	Causes eye irritation.
Ingestion	Toxic if swallowed.
Target Organs	Central nervous system, Heart,

Additional Information

RTECS: EV6475000

12. ECOLOGICAL INFORMATION

Elimination information (persistence and degradability)

no data available

Ecotoxicity effects

Toxicity to fish LC50 - Leuciscus idus (Golden orfe) - 87 mg/l - 96 h
 Toxicity to daphnia and other aquatic invertebrates. EC50 - Daphnia magna (Water flea) - 182 mg/l - 48 h

Further information on ecology

no data available

13. DISPOSAL CONSIDERATIONS**Product**

Observe all federal, state, and local environmental regulations. 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.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION**DOT (US)**

UN-Number: 1544 Class: 6.1 Packing group: II
 Proper shipping name: Alkaloid salts, solid, n.o.s. (Caffeine)
 Marine pollutant: No
 Poison Inhalation Hazard: No

IMDG

UN-Number: 1544 Class: 6.1 Packing group: II EMS-No: F-A, S-A
 Proper shipping name: ALKALOID SALTS, SOLID, N.O.S. (Caffeine)
 Marine pollutant: No

IATA

UN-Number: 1544 Class: 6.1 Packing group: II
 Proper shipping name: Alkaloid salts, solid n.o.s. (Caffeine)

15. REGULATORY INFORMATION**OSHA Hazards**

Target Organ Effect, Toxic by ingestion, Irritant

DSL Status

All components of this product are on the Canadian DSL list.

SARA 302 Components

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

No Components Listed

Pennsylvania Right To Know Components

Caffeine

CAS-No.
58-08-2

Revision Date

New Jersey Right To Know Components

Caffeine

CAS-No.
58-08-2

Revision Date

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth, or any other reproductive defects.

16. OTHER INFORMATION**Further information**

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