

## Material Safety Data Sheet

Version 3.1

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1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Adogen® 464

Product Number : 856576

Brand : Aldrich

Supplier : Sigma-Aldrich  
3050 Spruce Street  
SAINT LOUIS MO 63103  
USA

Telephone : +1 800-325-5832

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Preparation Information : Sigma-Aldrich Corporation  
Product Safety - Americas Region  
1-800-521-8956

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2. HAZARDS IDENTIFICATION

## Emergency Overview

## OSHA Hazards

Combustible Liquid, Target Organ Effect, Toxic by inhalation., Toxic by ingestion, Irritant

## Target Organs

Kidney, Liver, Nerves., Cardiovascular system., Gastrointestinal tract

## GHS Classification

Flammable liquids (Category 3)

Acute toxicity, Oral (Category 3)

Skin irritation (Category 2)

Serious eye damage (Category 1)

Acute aquatic toxicity (Category 1)

Chronic aquatic toxicity (Category 1)

## GHS Label elements, including precautionary statements

Pictogram



Signal word

Danger

Hazard statement(s)

H226

Flammable liquid and vapour.

H301

Toxic if swallowed.

H315

Causes skin irritation.

H318

Causes serious eye damage.

H410

Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P273

Avoid release to the environment.

P280

Wear protective gloves/ eye protection/ face protection.

P301 + P310

IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.

P305 + P351 + P338

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

P501

Dispose of contents/ container to an approved waste disposal plant.

**HMIS Classification**

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

**NFPA Rating**

Health hazard: 2  
 Fire: 2  
 Reactivity Hazard: 0

**Potential Health Effects**

**Inhalation** Toxic 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.

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

Synonyms : Methyltrialkyl(C8-C10)ammonium chloride

Molecular Weight : 1,338 g/mol

| Component                              |              | Classification                                                                                        | Concentration |
|----------------------------------------|--------------|-------------------------------------------------------------------------------------------------------|---------------|
| <b>Trioctylmethylammonium chloride</b> |              |                                                                                                       |               |
| CAS-No.                                | 63393-96-4   | Acute Tox. 3; Skin Irrit. 2; Eye Dam. 1; Aquatic Acute 1; Aquatic Chronic 1; H301, H315, H318, H410   | 60 - 100 %    |
| EC-No.                                 | 264-120-7    |                                                                                                       |               |
| <b>2-Propanol</b>                      |              |                                                                                                       |               |
| CAS-No.                                | 67-63-0      | Flam. Liq. 2; Eye Irrit. 2; STOT SE 3; H225, H319, H336                                               | 10 - 30 %     |
| EC-No.                                 | 200-661-7    |                                                                                                       |               |
| Index-No.                              | 603-117-00-0 |                                                                                                       |               |
| <b>Decan-1-ol</b>                      |              |                                                                                                       |               |
| CAS-No.                                | 112-30-1     | Acute Tox. 3; Skin Irrit. 2; Eye Irrit. 2; STOT SE 3; Aquatic Chronic 2; H315, H319, H331, H335, H411 | 5 - 10 %      |
| EC-No.                                 | 203-956-9    |                                                                                                       |               |
| <b>Octan-1-ol</b>                      |              |                                                                                                       |               |
| CAS-No.                                | 111-87-5     | Skin Irrit. 2; Eye Irrit. 2; H315, H319                                                               | 1 - 5 %       |
| EC-No.                                 | 203-917-6    |                                                                                                       |               |

For the full text of the H-Statements and R-Phrases mentioned in this Section, see Section 16

**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. Take victim immediately to hospital. 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**

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

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**5. FIREFIGHTING MEASURES****Conditions of flammability**

Flammable in the presence of a source of ignition when the temperature is above the flash point. Keep away from heat/sparks/open flame/hot surface. No smoking.

**Suitable extinguishing media**

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

**Special protective equipment for firefighters**

Wear self contained breathing apparatus for fire fighting if necessary.

**Hazardous combustion products**

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

**Further information**

Use water spray to cool unopened containers.

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**6. ACCIDENTAL RELEASE MEASURES****Personal precautions**

Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

**Environmental precautions**

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

**Methods and materials for containment and cleaning up**

Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

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**7. HANDLING AND STORAGE****Precautions for safe handling**

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.

Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

**Conditions for safe storage**

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

hygroscopic

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**8. EXPOSURE CONTROLS/PERSONAL PROTECTION****Components with workplace control parameters**

| Components | CAS-No.                                                                                                           | Value | Control parameters | Basis                                   |
|------------|-------------------------------------------------------------------------------------------------------------------|-------|--------------------|-----------------------------------------|
| 2-Propanol | 67-63-0                                                                                                           | TWA   | 200 ppm            | USA. ACGIH Threshold Limit Values (TLV) |
| Remarks    | Eye & Upper Respiratory Tract irritation Central Nervous System impairment Not classifiable as a human carcinogen |       |                    |                                         |
|            |                                                                                                                   | STEL  | 400 ppm            | USA. ACGIH Threshold Limit Values (TLV) |
|            | Eye & Upper Respiratory Tract irritation Central Nervous System impairment Not classifiable as a human carcinogen |       |                    |                                         |

|            |                                    |      |                        |                                                                                  |
|------------|------------------------------------|------|------------------------|----------------------------------------------------------------------------------|
|            |                                    | TWA  | 400 ppm<br>980 mg/m3   | USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000                    |
|            |                                    | STEL | 500 ppm<br>1,225 mg/m3 | USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000                    |
|            |                                    | TWA  | 400 ppm<br>980 mg/m3   | USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants |
|            | The value in mg/m3 is approximate. |      |                        |                                                                                  |
|            |                                    | TWA  | 400 ppm<br>980 mg/m3   | USA. NIOSH Recommended Exposure Limits                                           |
|            |                                    | ST   | 500 ppm<br>1,225 mg/m3 | USA. NIOSH Recommended Exposure Limits                                           |
| Octan-1-ol | 111-87-5                           | TWA  | 50 ppm                 | USA. Workplace Environmental Exposure Levels (WEEL)                              |

## Personal protective equipment

### Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

### Hand protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

### Eye protection

Tightly fitting safety goggles. Faceshield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

### Skin and body protection

Complete suit protecting against chemicals, Flame retardant antistatic protective clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

### Hygiene measures

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### Appearance

|        |                   |
|--------|-------------------|
| Form   | liquid            |
| Colour | no data available |

### Safety data

|                              |                                            |
|------------------------------|--------------------------------------------|
| pH                           | no data available                          |
| Melting point/freezing point | no data available                          |
| Boiling point                | 82.2 °C (180.0 °F) at 1,013 hPa (760 mmHg) |
| Flash point                  | 43.3 °C (109.9 °F) - closed cup            |
| Ignition temperature         | no data available                          |
| Autoignition temperature     | no data available                          |
| Lower explosion limit        | 2 %(V)                                     |
| Upper explosion limit        | 12 %(V)                                    |
| Vapour pressure              | 44 hPa (33 mmHg) at 20 °C (68 °F)          |

|                                           |                                          |
|-------------------------------------------|------------------------------------------|
| Density                                   | 0.898 g/cm <sup>3</sup> at 25 °C (77 °F) |
| Water solubility                          | no data available                        |
| Partition coefficient:<br>n-octanol/water | no data available                        |
| Relative vapour<br>density                | no data available                        |
| Odour                                     | no data available                        |
| Odour Threshold                           | no data available                        |
| Evaporation rate                          | no data available                        |

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## 10. STABILITY AND REACTIVITY

### Chemical stability

Stable under recommended storage conditions.

### Possibility of hazardous reactions

no data available

### Conditions to avoid

Heat, flames and sparks.

### Materials to avoid

Aluminium, Acids, Oxidizing agents, Strong oxidizing agents, Halogenated compounds, Acid chlorides, Acid anhydrides, acids

### Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides, nitrogen oxides (NO<sub>x</sub>), Hydrogen chloride gas

Other decomposition products - no data available

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## 11. TOXICOLOGICAL INFORMATION

### Acute toxicity

#### Oral LD<sub>50</sub>

no data available

#### Inhalation LC<sub>50</sub>

no data available

#### Dermal LD<sub>50</sub>

no data available

#### Other information on acute toxicity

no data available

### Skin corrosion/irritation

no data available

### Serious eye damage/eye irritation

Eyes: no data available

### Respiratory or skin sensitization

no data available

### Germ cell mutagenicity

no data available

### Carcinogenicity

IARC: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (2-Propanol)

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.

**Reproductive toxicity**

no data available

**Teratogenicity**

no data available

**Specific target organ toxicity - single exposure (Globally Harmonized System)**

no data available

**Specific target organ toxicity - repeated exposure (Globally Harmonized System)**

no data available

**Aspiration hazard**

no data available

**Potential health effects**

|                   |                                                                  |
|-------------------|------------------------------------------------------------------|
| <b>Inhalation</b> | Toxic if inhaled. Causes respiratory tract irritation.           |
| <b>Ingestion</b>  | Toxic if swallowed.                                              |
| <b>Skin</b>       | May be harmful if absorbed through skin. Causes skin irritation. |
| <b>Eyes</b>       | Causes eye irritation.                                           |

**Signs and Symptoms of Exposure**

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea

**Synergistic effects**

no data available

**Additional Information**

RTECS: Not available

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**12. ECOLOGICAL INFORMATION**

**Toxicity**

no data available

**Persistence and degradability**

no data available

**Bioaccumulative potential**

no data available

**Mobility in soil**

no data available

**PBT and vPvB assessment**

no data available

**Other adverse effects**

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Very toxic to aquatic life with long lasting effects.

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**13. DISPOSAL CONSIDERATIONS**

**Product**

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

**Contaminated packaging**  
Dispose of as unused product.

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## 14. TRANSPORT INFORMATION

### DOT (US)

UN number: 2924 Class: 3 (8) Packing group: III  
Proper shipping name: Flammable liquids, corrosive, n.o.s. (Trioctylmethylammonium chloride, 2-Propanol)  
Marine pollutant: No  
Poison Inhalation Hazard: No

### IMDG

UN number: 2924 Class: 3 (8) Packing group: III EMS-No: F-E, S-C  
Proper shipping name: FLAMMABLE LIQUID, CORROSIVE, N.O.S. (2-Propanol, Trioctylmethylammonium chloride)  
Marine pollutant: No

### IATA

UN number: 2924 Class: 3 (8) Packing group: III  
Proper shipping name: Flammable liquid, corrosive, n.o.s. (2-Propanol, Trioctylmethylammonium chloride)

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## 15. REGULATORY INFORMATION

### OSHA Hazards

Combustible Liquid, Target Organ Effect, Toxic by inhalation., Toxic by ingestion, Irritant

### 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

The following components are subject to reporting levels established by SARA Title III, Section 313:

|            | CAS-No. | Revision Date |
|------------|---------|---------------|
| 2-Propanol | 67-63-0 | 1987-01-01    |

### SARA 311/312 Hazards

Fire Hazard, Acute Health Hazard, Chronic Health Hazard

### Massachusetts Right To Know Components

|            | CAS-No. | Revision Date |
|------------|---------|---------------|
| 2-Propanol | 67-63-0 | 1987-01-01    |

### Pennsylvania Right To Know Components

|                                 | CAS-No.    | Revision Date |
|---------------------------------|------------|---------------|
| Chloromethane                   | 74-87-3    | 2007-07-01    |
| 2-Propanol                      | 67-63-0    | 1987-01-01    |
| Trioctylmethylammonium chloride | 63393-96-4 |               |
| Octan-1-ol                      | 111-87-5   | 1989-08-11    |
| Decan-1-ol                      | 112-30-1   | 1989-08-11    |

### New Jersey Right To Know Components

|                                 | CAS-No.    | Revision Date |
|---------------------------------|------------|---------------|
| 2-Propanol                      | 67-63-0    | 1987-01-01    |
| Trioctylmethylammonium chloride | 63393-96-4 |               |
| Octan-1-ol                      | 111-87-5   | 1989-08-11    |
| Decan-1-ol                      | 112-30-1   | 1989-08-11    |

### California Prop. 65 Components

|                                                                                                                               | CAS-No. | Revision Date |
|-------------------------------------------------------------------------------------------------------------------------------|---------|---------------|
| WARNING! This product contains a chemical known to the State of California to cause birth defects or other reproductive harm. | 74-87-3 | 2009-09-11    |
| Chloromethane                                                                                                                 |         |               |

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## 16. OTHER INFORMATION

Text of H-code(s) and R-phrases mentioned in Section 3

|                 |                                                       |
|-----------------|-------------------------------------------------------|
| Acute Tox.      | Acute toxicity                                        |
| Aquatic Acute   | Acute aquatic toxicity                                |
| Aquatic Chronic | Chronic aquatic toxicity                              |
| Eye Dam.        | Serious eye damage                                    |
| Eye Irrit.      | Eye irritation                                        |
| Flam. Liq.      | Flammable liquids                                     |
| H225            | Highly flammable liquid and vapour.                   |
| H301            | Toxic if swallowed.                                   |
| H315            | Causes skin irritation.                               |
| H318            | Causes serious eye damage.                            |
| H319            | Causes serious eye irritation.                        |
| H331            | Toxic if inhaled.                                     |
| H335            | May cause respiratory irritation.                     |
| H336            | May cause drowsiness or dizziness.                    |
| H410            | Very toxic to aquatic life with long lasting effects. |
| H411            | Toxic to aquatic life with long lasting effects.      |
| Skin Irrit.     | Skin irritation                                       |
| STOT SE         | Specific target organ toxicity - single exposure      |

#### Further information

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