



Material Safety Data Sheet

Version 1.14
Revision Date 11/06/2005

MSDS Number 300000004762
Print Date 03/09/2008

1. PRODUCT AND COMPANY IDENTIFICATION

Product name : SURFYNOL ® 465 SURFACTANT

Product Use Description : Surfactant

Company : Air Products and Chemicals, Inc
7201 Hamilton Blvd.
Allentown, PA 18195-1501

Telephone : 1-800-345-3148 Chemicals
1-800-752-1597 Gases and Electronic Chemicals

Emergency telephone number : 800-523-9374 USA
01-610-481-7711 International

2. COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS Number	Concentration (Weight)
Ethoxylated 2,4,7,9-tetramethyl 5 decyn-4,7-diol	9014-85-1	100%

Ethoxylated Acetylenic Diols.

3. HAZARDS IDENTIFICATION

Emergency Overview

Mild skin irritant.
Severe eye irritant.

Potential Health Effects

Inhalation : Very toxic by inhalation of spray mist and/or aerosols Industrial chemicals such as this material with acute aerosol toxicity values as shown in Section 11 would not be classified as toxic by inhalation according to US domestic and international transport regulations.

Eye contact : Severe eye irritation.

Skin contact : Mild skin irritation.

Chronic Health Hazard : This product contains no listed carcinogens according to IARC, ACGIH, NTP and/or OSHA in concentrations of 0.1 percent or greater. Component has caused the following reproductive effects in laboratory animals however, the effects are not sufficient to characterize the material as a reproductive toxin: Fertility. Subchronic exposure of this material or component in test animals has caused abnormalities in the following organ(s): Liver.

Exposure Guidelines

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Target Organs : Eyes.

Aggravated Medical Condition

Eye disease

4. FIRST AID MEASURES

- General advice : Seek medical advice. If breathing has stopped or is labored, give assisted respirations. Supplemental oxygen may be indicated. If the heart has stopped, trained personnel should begin cardiopulmonary resuscitation immediately.
- Eye contact : Rinse immediately with plenty of water also under the eyelids for at least 20 minutes. Remove contact lenses.
- Skin contact : Wash off immediately with plenty of water for at least 20 minutes. Wash off with soap and water. Immediately remove contaminated clothing, and any extraneous chemical, if possible to do so without delay.
- Ingestion : Never give anything by mouth to an unconscious person. Prevent aspiration of vomit. Turn victim's head to the side.
- Inhalation : Move to fresh air.

5. FIRE FIGHTING MEASURES

- Suitable extinguishing media : Alcohol-resistant foam.
Carbon dioxide (CO₂).
Dry chemical.
Dry sand.
Limestone powder.
- Specific hazards : Incomplete combustion may form carbon monoxide. Downwind personnel must be evacuated. Burning produces obnoxious and toxic fumes.
- Special protective equipment for fire-fighters : Use personal protective equipment. Wear self contained breathing apparatus for fire fighting if necessary.

6. ACCIDENTAL RELEASE MEASURES

- Personal precautions : Use self-contained breathing apparatus and chemically protective clothing. Wear suitable protective clothing, gloves and eye/face protection. Evacuate personnel to safe areas.
- Environmental precautions : Construct a dike to prevent spreading.
- Methods for cleaning up : Approach suspected leak areas with caution. Contact Air Products' Emergency Response Center for advice. Place in appropriate chemical waste container.
- Additional advice : Evacuate area and do not approach spilled product. If possible, stop flow of

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product.

7. HANDLING AND STORAGE

Handling

Emergency showers and eye wash stations should be readily accessible. Adhere to work practice rules established by government regulations. Avoid contact with eyes. Use personal protective equipment. When using, do not eat, drink or smoke.

Storage

Keep containers tightly closed in a dry, cool and well-ventilated place.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering measures

Provide readily accessible eye wash stations and safety showers.
Provide natural or explosion-proof ventilation adequate to ensure concentrations are kept below exposure limits.

Personal protective equipment

- Respiratory protection : Not required for properly ventilated areas.
- Hand protection : Neoprene gloves.
Nitrile rubber.
The breakthrough time of the selected glove(s) must be greater than the intended use period.
- Eye protection : Chemical resistant goggles must be worn.
- Skin and body protection : Long sleeve shirts and trousers without cuffs.
- Environmental exposure controls : Construct a dike to prevent spreading.
- Special instructions for protection and hygiene : Provide readily accessible eye wash stations and safety showers. Wash at the end of each workshift and before eating, smoking or using the toilet.

9. PHYSICAL AND CHEMICAL PROPERTIES

- Color : Light yellow.
- Odor : Mild.
- Vapor pressure : 0.14 mmHg at 21 °C
- Density : 64.925 lb/ft³ (1.04 g/cm³) at 70 °F (21 °C)

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pH : 7
Boiling point/range : 784 °F (418 °C)
Flash point : > 110 °C

10. STABILITY AND REACTIVITY

Stability : Stable under normal conditions.

Materials to avoid : Dehydrating Agents.
Reactive metals (e.g. sodium, calcium, zinc etc.).
Materials reactive with hydroxyl compounds.
Oxidizing agents.

Hazardous decomposition products : Heating above 65C in the presence of strong base can liberate acetylene and Methyl Isobutyl Ketone.
Carbon monoxide.
Carbon dioxide (CO₂).
Aldehydes.
Flammable hydrocarbon fragments (e.g., acetylene).

11. TOXICOLOGICAL INFORMATION

Acute Health Hazard

Ingestion : LD50 : 6,300 mg/kg
Species : (Rat)

Inhalation : LC50 (1 h) : > 2 mg/l
Species : (Rat)

Skin. : LD50 : > 2,000 mg/kg
Species : Rabbit.
Method : Estimated.

Eye irritation/corrosion : Severe eye irritation.

Acute dermal irritation/corrosion : Mild skin irritation.

Chronic Health Hazard

Adult rats were orally administered this material or a component in the diet at the following concentrations 0, 500, 1000, and 2000 mg/kg/day. The offspring were then treated at the same dose levels as their parents for 91 days. Litter size at birth and mean weanling weights were decreased in the 2000 mg/kg/day group. After 91 day on test, a significant increase in liver weights with accompanying microscopic changes was observed in both sexes in the high-dose group. The oral NOEL was 1000 mg/kg/day for both the reproduction and repeated dose phases of this experiment. Rats were orally administered this material or a component in the diet for 28 days at concentrations of 0,

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750, 1500, 3000, and 6000 ppm. No adverse effects were seen at any of the dose levels. The oral No-Observed-Effect-Level (NOEL) was 6000 ppm. This material or a component was administered orally to dogs in gelatin capsules at dose levels of 0, 200, 400, and 600 mg/kg/day for 91 days. All dogs survived for the duration of this study with few clinical signs. The only adverse effect observed was an increase in liver weights at 400 and 600 mg/kg/day.

12. ECOLOGICAL INFORMATION

Ecotoxicity effects

Aquatic toxicity : EC50 (72 h) : 93 mg/l
Species : Skeletonema costatum.

Toxicity to other organisms : No data available.

Persistence and degradability

Mobility : No data available.

Bioaccumulation : No data is available on the product itself.

13. DISPOSAL CONSIDERATIONS

Waste from residues / unused products : Contact supplier if guidance is required.

Contaminated packaging : Dispose of container and unused contents in accordance with federal, state, and local requirements.

14. TRANSPORT INFORMATION

CFR

not regulated

IATA

not regulated

IMDG

not regulated

CTC

not regulated

Further Information
Not dangerous goods

15. REGULATORY INFORMATION

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OSHA Hazard Communication Standard (29 CFR 1910.1200) Hazard Class(es)
Irritant.

Country	Regulatory list	Notification
USA	TSCA	Included on Inventory.
EU	EINECS	Included on EINECS inventory or polymer substance, monomers included on EINECS inventory or no longer polymer.
Canada	DSL	Included on Inventory.
Australia	AICS	Included on Inventory.
Japan	ENCS	Included on Inventory.
South Korea	ECL	Included on Inventory.
China	SEPA	Included on Inventory.
Philippines	PICCS	Included on Inventory.

EPA SARA Title III Section 312 (40 CFR 370) Hazard Classification:
Acute Health Hazard

EPA SARA Title III Section 313 (40 CFR 372) Component(s) above 'de minimus' level:
None.

US. California Safe Drinking Water & Toxic Enforcement Act (Proposition 65)
This product does not contain any chemicals known to State of California to cause cancer, birth defects or any other harm.

WHMIS Hazard Classification
Toxic Material Causing Other Toxic Effects

16. OTHER INFORMATION

HMIS Rating

Health : 2
Flammability : 1
Physical hazard : 0

Prepared by : Air Products and Chemicals, Inc. Global EH&S Product Safety Department

For additional information, please visit our Product Stewardship web site at
<http://www.airproducts.com/productstewardship/>