

# Safety Data Sheet

Version 7.0

Revision Date 02/04/2016

SDS Number 300000023735

Print Date 03/23/2016

## 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : TOMADRY® DAB SURFACTANT

Product Use Description : Surfactant

Manufacturer/Importer/Distributor : Air Products and Chemicals, Inc  
7201 Hamilton Blvd.  
Allentown, PA 18195-1501  
GST No. 123600835 RT0001  
QST No. 102753981 TQ0001

Telephone : 1-610-481-4911 Corporate  
1-800-345-3148 Chemicals Cust Serv  
1-800-752-1597 Gases/Electronics Cust Serv

Emergency telephone number (24h) : 800-523-9374 USA  
+1 610 481 7711 International

## 2. HAZARDS IDENTIFICATION

### GHS classification

Flammable liquids - Category 3  
Acute toxicity - Oral Category 4  
Acute toxicity - Dermal Category 4  
Skin irritation - Category 2  
Serious Eye Damage - Category 1  
Carcinogenicity - Category 2  
Acute toxicity - Inhalation Category 4

### GHS label elements

#### Hazard pictograms/symbols



Signal Word: Danger

Hazard Statements:

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H226:Flammable liquid and vapour.  
H302+H312+H332:Harmful if swallowed, in contact with skin or if inhaled  
H315:Causes skin irritation.  
H318:Causes serious eye damage.  
H351:Suspected of causing cancer

## Precautionary Statements:

Prevention : P201:Obtain special instructions before use.  
P202:Do not handle until all safety precautions have been read and understood.  
P210:Keep away from heat, hot surfaces, sparks, open flames, and other ignition sources. No smoking.  
P233:Keep container tightly closed.  
P240:Ground/Bond container and receiving equipment.  
P241:Use explosion-proof electrical/ventilating/lighting/equipment.  
P242:Use only non-sparking tools.  
P243:Take precautionary measures against static discharge.  
P264:Wash hands thoroughly after handling.  
P270:Do not eat, drink or smoke when using this product.  
P280a:Wear protective gloves and eye/face protection.  
P281:Use personal protective equipment as required.

Response : P301+P312 :IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.  
P303+P361+P353 :IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.  
P305+P351+P338 :IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P308+P313 :IF exposed or concerned: Get medical advice/attention.  
P310 :Immediately call a POISON CENTRE/doctor.  
P330 :Rinse mouth.  
P332+P313 :If skin irritation occurs: Get medical advice/attention.  
P362 :Take off contaminated clothing and wash before re use.  
P370+P378 :In case of fire, use recommended extinguishing media for extinction.  
P304+P340 :IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

Storage : P403+P235:Store in a well-ventilated place. Keep cool.  
P405:Store locked up.

Disposal : P501:Disposal of contents/container to be specified in accordance with regulations.

## Hazards not otherwise classified

Keep away from heat and sources of ignition.  
Investigated as a human carcinogen.  
Components of the product may affect the nervous system.  
Flammable.

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Moderate skin irritant.  
Risk of serious damage to eyes.  
Harmful if swallowed.  
Harmful by inhalation.  
Harmful in contact with skin.

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS Number	Concentration (Weight)
Quaternary Ammonium Compounds	Not Available	30% - 45 %
Propanol, 2-	67-63-0	10% - 20 %
Butoxyethanol, 2-	111-76-2	30% - 40 %
Coconut oil diethanolamide	68603-42-9	5% - 10 %
Ethanol, 2-chloro-	107-07-3	< 4 %

The remaining components are trade secret. CHEMICAL FAMILY: Quaternary Amine

## 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. 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. If a person vomits when lying on his back, place him in the recovery position. Prevent aspiration of vomit. Turn victim's head to the side.
- Inhalation : 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. Move to fresh air.
- Most important symptoms/effects - acute and delayed : Repeated and/or prolonged exposure to low concentrations of vapors and/or aerosols may cause: Sore throat. Kidney disorders. Neurological disorders Liver disorders. Eye disease. Asthma. Skin disorders and Allergies.

## 5. FIRE-FIGHTING MEASURES

- Suitable extinguishing media : Alcohol-resistant foam.  
Carbon dioxide (CO<sub>2</sub>).  
Dry chemical.

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Dry sand.  
Limestone powder.

- Specific hazards : Ammonia gas may be liberated at high temperatures. In case of incomplete combustion an increased formation of oxides of nitrogen (NO<sub>x</sub>) is to be expected. Incomplete combustion may form carbon monoxide. May generate ammonia gas. May generate toxic nitrogen oxide gases. Burning produces noxious and toxic fumes. In the event of fire, cool tanks with water spray . Fire or intense heat may cause violent rupture of packages. May form explosive mixtures in air. Formation of peroxides is possible.
- Special protective equipment for fire-fighters : Avoid contact with the skin. Use personal protective equipment. Wear self contained breathing apparatus for fire fighting if necessary.

## 6. ACCIDENTAL RELEASE MEASURES

- Personal Precautions, Protective Equipment, and Emergency Procedures : Use self-contained breathing apparatus and chemically protective clothing. Remove all sources of ignition. Evacuate personnel to safe areas.
- Environmental precautions : Shut off or remove all ignition sources. Construct a dike to prevent spreading.
- Methods for cleaning up : Contact Air Products' Emergency Response Center for advice. Approach suspected leak areas with caution. Absorb with inert absorbent materials such as: Dry sand. Vermiculite. Activated charcoal. Place in appropriate chemical waste container.
- Additional advice : Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous. If possible, stop flow of product.

## 7. HANDLING AND STORAGE

### Handling

See "Flammable and Combustible Liquid Code" NFPA No. 30, National Fire Protection Association, Boston, MA. Overheating of a quaternary amine for prolonged periods above 180 F (82.22 C) can cause product to degrade. Use only in well-ventilated areas. Avoid contact with eyes. Avoid breathing vapors and/or aerosols. Use personal protective equipment. When using, do not eat, drink or smoke.

### Storage

Do not store near acids. Keep containers tightly closed in a dry, cool and well-ventilated place. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. Keep away from heat and sources of ignition. Keep in a dry, cool place. Keep away from oxidizers.

### Technical measures/Precautions

Keep away from open flames, hot surfaces and sources of ignition.

Storage Temperature : < 120 °F (< 48.88 °C)

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## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

### Engineering measures

Use explosion-proof equipment.

Apply process controls to ensure safe operating conditions. Assess potential flammability hazards based on flashpoint and potential ignition sources.

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 : Wear appropriate respirator when ventilation is inadequate.

Hand protection : Neoprene gloves.  
Nitrile rubber.  
Impervious gloves.  
Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Eye protection : Chemical resistant goggles must be worn.

Skin and body protection : Long sleeve shirts and trousers without cuffs.  
Impervious clothing.

Environmental exposure controls : Shut off or remove all ignition sources.

Special instructions for protection and hygiene : Remove contaminated clothing. Drench affected area with water for at least 15 minutes. Provide readily accessible eye wash stations and safety showers.

### Exposure limit(s)

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Propanol, 2-	Recommended exposure limit (REL): NIOSH	400 ppm	980 mg/m <sup>3</sup>
Propanol, 2-	Short Term Exposure Limit (STEL): NIOSH	500 ppm	1,225 mg/m <sup>3</sup>
Propanol, 2-	Permissible exposure limit: OSHA Z1	400 ppm	980 mg/m <sup>3</sup>
Propanol, 2-	Time Weighted Average (TWA): OSHA Z1A	400 ppm	980 mg/m <sup>3</sup>
Propanol, 2-	Short Term Exposure Limit (STEL): OSHA Z1A	500 ppm	1,225 mg/m <sup>3</sup>
Propanol, 2-	Time Weighted Average (TWA) Permissible Exposure Limit (PEL): US CA OEL	400 ppm	980 mg/m <sup>3</sup>
Propanol, 2-	Short Term Exposure Limit (STEL): US CA OEL	500 ppm	1,225 mg/m <sup>3</sup>
Propanol, 2-	Time Weighted Average (TWA): ACGIH	200 ppm	-
Propanol, 2-	Short Term Exposure Limit (STEL): ACGIH	400 ppm	-
Propanol, 2-	Time Weighted Average (TWA): TN OEL	400 ppm	980 mg/m <sup>3</sup>
Propanol, 2-	Short Term Exposure Limit (STEL): TN OEL	500 ppm	1,225 mg/m <sup>3</sup>
Butoxyethanol, 2-	Time Weighted Average (TWA): ACGIH	20 ppm	-
Butoxyethanol, 2-	Recommended exposure limit (REL): NIOSH	5 ppm	24 mg/m <sup>3</sup>
Butoxyethanol, 2-	Permissible exposure limit: OSHA Z1	50 ppm	240 mg/m <sup>3</sup>
Butoxyethanol, 2-	Time Weighted Average (TWA): OSHA Z1A	25 ppm	120 mg/m <sup>3</sup>
Butoxyethanol, 2-	Time Weighted Average (TWA) Permissible Exposure Limit (PEL): US CA OEL	25 ppm	120 mg/m <sup>3</sup>
Butoxyethanol, 2-	Time Weighted Average (TWA): TN OEL	25 ppm	120 mg/m <sup>3</sup>
Ethanol, 2-chloro-	Ceiling Limit Value: ACGIH	1 ppm	-
Ethanol, 2-chloro-	Ceiling Limit Value and Time Period (if specified): NIOSH	1 ppm	3 mg/m <sup>3</sup>
Ethanol, 2-chloro-	Permissible exposure limit: OSHA Z1	5 ppm	16 mg/m <sup>3</sup>
Ethanol, 2-chloro-	Ceiling Limit Value: OSHA Z1A	1 ppm	3 mg/m <sup>3</sup>
Ethanol, 2-chloro-	Ceiling Limit Value: TN OEL	1 ppm	3 mg/m <sup>3</sup>

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	: Liquid. Light yellow. Amber.
Odor	: Mild. Amine-like.
Odor threshold	: No data available.
pH	: 5 - 7
Melting point/range	: No data available.
Boiling point/range	: > 95 °F (> 35 °C)
Flash point	: 78 °F (25.56 °C) closed cup
Evaporation rate	: No data available.
Flammability (solid, gas)	: Not applicable.
Upper/lower	: Not applicable.

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explosion/flammability limit	
Vapor pressure	: 30.07 mmHg
Water solubility	: Completely soluble.
Relative vapor density	: Not applicable.
Relative density	: 0.94
Partition coefficient (n-octanol/water)	: No data available.
Auto-ignition temperature	: No data available.
Decomposition temperature	: No data available.
Viscosity	: 85 mPa.s at 68 °F (20 °C)
Molecular Weight	: No data available.

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## 10. STABILITY AND REACTIVITY

Chemical Stability	: Stable under normal conditions.
Conditions to avoid	: Heat, flames and sparks. Exposure to sunlight.
Materials to avoid	: Reactive metals (e.g. sodium, calcium, zinc etc.). Materials reactive with hydroxyl compounds. Dehydrating Agents. Organic acids (i.e. acetic acid, citric acid etc.). Mineral acids. Sodium hypochlorite. Product slowly corrodes copper, aluminum, zinc and galvanized surfaces. Reaction with peroxides may result in violent decomposition of peroxide possibly creating an explosion. Oxidizing agents. Acids. Alkalies.
Hazardous decomposition products	: Nitric acid. Ammonia Nitrogen oxides (NO <sub>x</sub> ). Nitrogen oxide can react with water vapors to form corrosive nitric acid. Carbon monoxide. Carbon dioxide (CO <sub>2</sub> ). Aldehydes Flammable hydrocarbon fragments. Heating above 65 °C in the presence of strong base can liberate flammable hydrocarbon fragments.

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Carbon oxides.

Under lean oxygen conditions and temperatures above 180F, hydrochloric acid, amides, and low molecular weight hydrocarbons can be produced.

Possibility of hazardous Reactions/Reactivity : No data available.

## 11. TOXICOLOGICAL INFORMATION

### 11.1. Information on toxicological effects

Likely routes of exposure

Effects on Eye : Severe eye irritation.

Effects on Skin : If absorbed through the skin, may cause central nervous system effects, such as headache, nausea, dizziness, confusion, breathing difficulties. Causes skin irritation. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. Harmful in contact with skin.

Inhalation Effects : Harmful if inhaled and may cause delayed lung injury. May cause central nervous system effects, such as headache, nausea, dizziness, confusion, breathing difficulties. Severe cases of overexposure can result in respiratory failure. May cause nose, throat, and lung irritation. Inhalation of vapors and/or aerosols in high concentration may cause irritation of respiratory system. Harmful if inhaled. May cause headache and dizziness.

Ingestion Effects : Harmful if swallowed.

Symptoms : Repeated and/or prolonged exposure to low concentrations of vapors and/or aerosols may cause: Sore throat. Kidney disorders., Neurological disorders, Liver disorders., Eye disease., Asthma., Skin disorders and Allergies.

Acute toxicity

Acute Oral Toxicity : LD50 : 968 mg/kg Species : Rat. Method : Estimated.  
Acute toxicity estimate (ATE)

Inhalation : LC50 (4 h) : > 1 mg/l Species : Rat. (as aerosol) Information given is based on data on the components and the toxicology of similar products. Testing was performed on this or similar materials.

Acute Dermal Toxicity : LD50 : > 1,000 mg/kg Species : Rabbit.  
Method : OECD Test Guideline 402

Skin corrosion/irritation : Moderate skin irritation. Non-corrosive in an in vitro test.

Serious eye damage/eye irritation : Severe eye irritation., Corrosive in an in vitro test.



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Sensitization. : No data available.

## Chronic toxicity or effects from long term exposures

Carcinogenicity : No data available.

Reproductive toxicity : There is no evidence of teratogenic or embryotoxic effects in animals in the absence of maternal toxicity.

Germ cell mutagenicity : This product or a component caused chromosome damage in an in vivo micronucleus assay.

Specific target organ systemic toxicity (single exposure) : No data available.

Specific target organ systemic toxicity (repeated exposure) : No data available.

Aspiration hazard : No data available.

## Delayed and Immediate Effects and Chronic Effects from Short and Long Term Exposure

Butoxyethanol, 2- ACGIH : Group A3 - Confirmed animal carcinogen with unknown relevance to humans. Available evidence does not suggest that the agent is likely to cause cancer in humans except under uncommon or unlikely routes or levels of exposure.

Coconut oil diethanolamide IARC : 2B - Possibly carcinogenic to humans.

This product contains listed carcinogen(s) according to IARC, ACGIH, NTP and/or OSHA in concentrations of 0.1 percent or greater. Investigated as a human carcinogen., Subchronic exposure of this material or component in test animals has caused abnormalities in the following organ(s):, Fetotoxicity., Kidney., Liver., Blood. Kidney disorders., Neurological disorders, Liver disorders., Eye disease., Asthma., Skin disorders and Allergies.

## 12. ECOLOGICAL INFORMATION

### Ecotoxicity effects

Aquatic toxicity : No data is available on the product itself.

#### Toxicity to fish - Components

Propanol, 2-	EC50 (48 h) : 10,000 mg/l	Species : Fathead minnow (Pimephales promelas).
Propanol, 2-	LC50 (96 h) : > 1,400 mg/l	Species : Bluegill sunfish (Lepomis macrochirus).

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Propanol, 2-

LC50 (96 h) : 6,550 mg/l

Species : Fathead  
minnow (Pimephales  
promelas).

Butoxyethanol, 2-

LC50 (96 h) : 1,490 mg/l

Species : Bluegill  
sunfish (Lepomis  
macrochirus).

Toxicity to other organisms : No data available.

## Persistence and degradability

Biodegradability : No data is available on the product itself.

Mobility : No data available.

Bioaccumulation : No data is available on the product itself.

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## 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.

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## 14. TRANSPORT INFORMATION

### DOT

UN/ID No. : UN1993  
Proper shipping name : Flammable liquids, n.o.s., (2-Propanol)  
Class or Division : 3  
Packing group : III  
Label(s) : 3  
Marine Pollutant : No

### IATA

UN/ID No. : UN1993  
Proper shipping name : Flammable liquid, n.o.s., (2-Propanol)  
Class or Division : 3  
Packing group : III  
Label(s) : 3  
Marine Pollutant : No

### IMDG

UN/ID No. : UN1993

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Proper shipping name : FLAMMABLE LIQUID, N.O.S., (2-Propanol)  
Class or Division : 3  
Packing group : III  
Label(s) : 3  
Marine Pollutant : No

## TDG

UN/ID No. : UN1993  
Proper shipping name : FLAMMABLE LIQUID, N.O.S., (2-Propanol)  
Class or Division : 3  
Packing group : III  
Label(s) : 3  
Marine Pollutant : No

## Further Information

The transportation information is not intended to convey all specific regulatory data relating to this material. For complete transportation information, contact an Air Products customer service representative.

## 15. REGULATORY INFORMATION

Toxic Substance Control Act (TSCA) 12(b) Component(s):

None.

Country	Regulatory list	Notification
USA	TSCA	Included on Inventory.
EU	EINECS	Not on Inventory.
Canada	DSL	Included on Inventory.
Australia	AICS	Not on Inventory.
Japan	ENCS	Not on Inventory.
South Korea	ECL	Not on Inventory.
China	SEPA	Air Products has received a polymer exemption from the Chinese government to import, manufacture or use.
Philippines	PICCS	Not on Inventory.

EPA SARA Title III Section 312 (40 CFR 370) Hazard Classification  
Fire Hazard. Acute Health Hazard Chronic Health Hazard

Fire Hazard. Acute Health Hazard Chronic Health Hazard

EPA SARA Title III Section 313 (40 CFR 372) Component(s) above 'de minimus' level  
Butoxyethanol, 2-  
Propanol, 2-

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US. California Safe Drinking Water & Toxic Enforcement Act (Proposition 65)

WARNING! This product contains a chemical known in the State of California to cause cancer., WARNING! This product contains a chemical known in the State of California to cause birth defects or other reproductive harm.

Coconut oil diethanolamide

Chloromethane

Ethylene oxide

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## 16. OTHER INFORMATION

### HMIS Rating

Health : 2\*  
Flammability : 3  
Physical hazard : 0

REVISION NOTES : 15. REGULATORY INFORMATION

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

Telephone : 1-610-481-4911 Corporate  
1-800-345-3148 Chemicals Cust Serv  
1-800-752-1597 Gases/Electronics Cust Serv

Preparation Date : 03/23/2016

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

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