

# Safety Data Sheet

Version 4.0

Revision Date 02/02/2016

SDS Number 300000021374

Print Date 02/04/2016

## 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : TOMADRY<sup>®</sup> N-4 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  
Skin irritation - Category 2  
Serious Eye Damage - Category 1

### GHS label elements

#### Hazard pictograms/symbols



Signal Word: Danger

#### Hazard Statements:

H226: Flammable liquid and vapour.  
H302: Harmful if swallowed.

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H315:Causes skin irritation.  
H318:Causes serious eye damage.

## Precautionary Statements:

- Prevention**
- : 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.
- 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.
  - 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.
- Storage**
- : P403+P235:Store in a well-ventilated place. Keep cool.
- 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.  
Combustible Liquid.  
Severe eye irritant.  
Severe respiratory irritant.  
Severe skin irritant.  
Harmful in contact with skin.

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS Number	Concentration (Weight)
MINERAL OIL	64741-44-2	40% - 50 %

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Butoxyethanol, 2-	111-76-2	7% - 10 %
Propanol, 2-	67-63-0	3% - 7 %
Fatty acids, coco, reaction products with diethylenetriamine and soya fatty acids, ethoxylated, chloromethane-quaternized	68604-75-1	20% - 30 %
Poly(oxy-1,2-ethanediyl), a-undecyl-w-hydroxy-	34398-01-1	1% - 2 %
Ethanol, 2-chloro-	107-07-3	< 4 %

CHEMICAL FAMILY: Surfactant

## 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. 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.  
Dry sand.  
Limestone powder.
- Specific hazards : Incomplete combustion may form carbon monoxide. Burning produces noxious and toxic fumes. In the event of fire, cool tanks with water spray. Downwind personnel must be evacuated. Fire or intense heat may cause violent rupture of packages. May form explosive mixtures in air.
- 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.

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## 6. ACCIDENTAL RELEASE MEASURES

- Personal Precautions, Protective Equipment, and Emergency Procedures : Wear suitable protective clothing, gloves and eye/face protection. 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 : Open enclosed spaces to outside atmosphere. Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous. If possible, stop flow of product.

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## 7. HANDLING AND STORAGE

### Handling

Emergency showers and eye wash stations should be readily accessible. Adhere to work practice rules established by government regulations. Use only in well-ventilated areas. Avoid contact with eyes. Avoid breathing vapors and/or aerosols. See "Flammable and Combustible Liquid Code" NFPA No. 30, National Fire Protection Association, Boston, MA. Use personal protective equipment. When using, do not eat, drink or smoke.

### Storage

Keep away from direct sunlight. 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 (< 48.9 °C)

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## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

### Engineering measures

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

Ensure adequate ventilation.

Provide readily accessible eye wash stations and safety showers.

Provide natural or explosion-proof ventilation adequate to ensure concentrations are kept below exposure limits.

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## Personal protective equipment

- Respiratory protection : Wear appropriate respirator when ventilation is inadequate.
- Hand protection : Nitrile rubber.  
Polyvinyl Alcohol Gloves (PVA).  
Impervious gloves.  
Neoprene 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 : Wash hands at the end of each workshift and before eating, smoking or using the toilet. 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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Butoxyethanol, 2-	Time Weighted Average (TWA): ACGIH	20 ppm	-
Butoxyethanol, 2-	Recommended exposure limit (REL): NIOSH	5 ppm	24 mg/m3
Butoxyethanol, 2-	Permissible exposure limit: OSHA Z1	50 ppm	240 mg/m3
Butoxyethanol, 2-	Time Weighted Average (TWA): OSHA Z1A	25 ppm	120 mg/m3
Butoxyethanol, 2-	Time Weighted Average (TWA) Permissible Exposure Limit (PEL): US CA OEL	25 ppm	120 mg/m3
Butoxyethanol, 2-	Time Weighted Average (TWA): TN OEL	25 ppm	120 mg/m3
Propanol, 2-	Recommended exposure limit (REL): NIOSH	400 ppm	980 mg/m3
Propanol, 2-	Short Term Exposure Limit (STEL): NIOSH	500 ppm	1,225 mg/m3
Propanol, 2-	Permissible exposure limit: OSHA Z1	400 ppm	980 mg/m3
Propanol, 2-	Time Weighted Average (TWA): OSHA Z1A	400 ppm	980 mg/m3
Propanol, 2-	Short Term Exposure Limit (STEL): OSHA Z1A	500 ppm	1,225 mg/m3
Propanol, 2-	Time Weighted Average (TWA) Permissible Exposure Limit (PEL): US CA OEL	400 ppm	980 mg/m3
Propanol, 2-	Short Term Exposure Limit (STEL): US CA OEL	500 ppm	1,225 mg/m3
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/m3
Propanol, 2-	Short Term Exposure Limit (STEL): TN OEL	500 ppm	1,225 mg/m3
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/m3
Ethanol, 2-chloro-	Permissible exposure limit: OSHA Z1	5 ppm	16 mg/m3
Ethanol, 2-chloro-	Ceiling Limit Value: OSHA Z1A	1 ppm	3 mg/m3
Ethanol, 2-chloro-	Ceiling Limit Value: TN OEL	1 ppm	3 mg/m3

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	: Liquid. Amber.
Odor	: Alcoholic.
Odor threshold	: No data available.
pH	: No data available.
Melting point/range	: No data available.
Boiling point/range	: No data available.
Flash point	: 105 °F (40.6 °C)
Evaporation rate	: No data available.
Flammability (solid, gas)	: Not applicable.
Upper/lower	: Not applicable.

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explosion/flammability limit

Vapor pressure : 20.05 mmHg at 70 °F (21.1 °C)

Water solubility : Completely soluble.

Relative vapor density : Not applicable.

Relative density : 0.9

Partition coefficient (n-octanol/water) : No data available.

Auto-ignition temperature : No data available.

Decomposition temperature : No data available.

Viscosity : 70 mPa.s at 68 °F (20 °C)

Molecular Weight : No data available.

## 10. STABILITY AND REACTIVITY

Chemical Stability : Stable under normal conditions.

Conditions to avoid : Heat, flames and sparks.

Materials to avoid : Reactive metals (e.g. sodium, calcium, zinc etc.).  
Materials reactive with hydroxyl compounds.  
Dehydrating Agents.  
Oxidizing agents.  
Acids.  
Alkalies.  
Alkali and alkaline earth metals - powdered aluminum, zinc, etc.  
Reacts with water to form corrosive acids.

Hazardous decomposition products : 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.  
Carbon oxides.

Possibility of hazardous Reactions/Reactivity : No data available.

## 11. TOXICOLOGICAL INFORMATION

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## 11.1. Information on toxicological effects

### Likely routes of exposure

- Effects on Eye : Severe eye irritation.
- Effects on Skin : Harmful in contact with skin. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.
- Inhalation Effects : May cause nose, throat, and lung irritation. Inhalation of vapors and/or aerosols in high concentration may cause irritation of respiratory system.
- Ingestion Effects : No data available.
- Symptoms : Repeated and/or prolonged exposure to low concentrations of vapors and/or aerosols may cause: Sore throat. Eye disease., Asthma., Skin disorders and Allergies.

### Acute toxicity

- Acute Oral Toxicity : LD50 : 1,721 mg/kg Species : Rat. Method : Estimated.  
Acute toxicity estimate (ATE)
- Inhalation : Information given is based on data on the components and the toxicology of similar products. Testing was performed on this or similar materials.
- Inhalation - Components  
Butoxyethanol, 2- LC50 (6 h) : > 500 ppm Species : Rat.  
Propanol, 2- LC50 (4 h) : 42.3 mg/l Species : Rat. Female
- Acute Dermal Toxicity : LD50 : > 2,000 mg/kg Species : Rabbit.  
Acute toxicity estimate (ATE)
- Skin corrosion/irritation : Severe skin irritation.
- Serious eye damage/eye irritation : Severe eye irritation.
- Sensitization. : No data available.

### Chronic toxicity or effects from long term exposures

- Carcinogenicity : No data available.
- Reproductive toxicity : No data is available on the product itself.
- Germ cell mutagenicity : No data is available on the product itself.
- Specific target organ systemic toxicity (single exposure) : No data available.



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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.

NTP CARC :

IARC :

OSHA :

Butoxyethanol, 2- ACGIH :

This product contains listed carcinogen(s) according to IARC, ACGIH, NTP and/or OSHA in concentrations of 0.1 percent or greater. Prolonged contact may result in chemical burns and permanent damage. 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

Butoxyethanol, 2-

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

Species : Bluegill sunfish (*Lepomis macrochirus*).

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*).

Propanol, 2-

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

Species : Fathead minnow (*Pimephales promelas*).

Poly(oxy-1,2-ethanediyl), a-undecyl-w-hydroxy-

LC50 (96 h) : 1 - 10 mg/l

Species : Fathead minnow (*Pimephales promelas*).

#### Toxicity to daphnia - Components

Poly(oxy-1,2-ethanediyl), a-undecyl-w-hydroxy-

EC50 (48 h) : 1 - 10 mg/l

Species : Daphnia magna.

#### Toxicity to algae - Components

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Poly(oxy-1,2-ethanediyl), a-undecyl-w- EC50 (96 h) : 1 - 10 mg/l Species : Algae.  
hydroxy-

Toxicity to other organisms : No data available.

## Persistence and degradability

Biodegradability : Not biodegradable.  
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  
Proper shipping name : FLAMMABLE LIQUID, N.O.S., (2-Propanol)  
Class or Division : 3  
Packing group : III  
Label(s) : 3

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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	Included on Inventory.
China	SEPA	Included on Inventory.
Philippines	PICCS	Not on Inventory.

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

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

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

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.

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

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

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

Chloromethane

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## 16. OTHER INFORMATION

### HMIS Rating

Health : 2  
Flammability : 2  
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 : 02/04/2016

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

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