

Material Safety Data Sheet

Version 2.0
Revision Date 12/03/2014

SDS Number 300000021384
Print Date 12/04/2014

1. PRODUCT AND COMPANY IDENTIFICATION

Product name : TOMAMINE[®] AO-455 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

Eye irritation - Category 2A

GHS label elements

Hazard pictograms/symbols



Signal Word: Warning

Hazard Statements:

H319: Causes serious eye irritation.

Precautionary Statements:

Prevention : P264: Wash hands thoroughly after handling.
: Wear eye protection/face protection.

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Response : P305+P351+P338 :IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337+P313 :If eye irritation persists: Get medical advice/attention.

Hazards not otherwise classified

Irritating to eyes.
Moderate respiratory irritant.
Moderate skin irritant.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS Number	Concentration
Oxirane, methyl-, polymer with oxirane, ether with 2,2'-(oxidoimino)bis[ethanol] (2:1), N-[3-(C9-11-isoalkyloxy)propyl] derivs., C10	218141-49-2	50 %
Water	7732-18-5	50 %
Hydrogen Peroxide	7722-84-1	0.2 %

CHEMICAL FAMILY: Amine Oxide

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.

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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. May generate ammonia gas. May generate toxic nitrogen oxide gases. Burning produces noxious and toxic fumes. Downwind personnel must be evacuated.
- 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, Protective Equipment, and Emergency Procedures : Wear suitable protective clothing, gloves and eye/face protection. Use self-contained breathing apparatus and chemically protective clothing. Evacuate personnel to safe areas.
- Environmental precautions : Construct a dike to prevent spreading.
- Methods for cleaning up : Contact Air Products' Emergency Response Center for advice. Approach suspected leak areas with caution. Place in appropriate chemical waste container.
- Additional advice : Open enclosed spaces to outside atmosphere. If possible, stop flow of 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. 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.

Storage Temperature : < 120 °F (< 48.9 °C)

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.

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Personal protective equipment

- Respiratory protection : Wear appropriate respirator when ventilation is inadequate.
- Hand protection : Neoprene gloves.
Polyvinyl Alcohol Gloves (PVA).
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.
- Special instructions for protection and hygiene : Discard contaminated leather articles. Wash hands at the end of each workshift and before eating, smoking or using the toilet. Provide readily accessible eye wash stations and safety showers.

Exposure limit(s)

Hydrogen Peroxide	Time Weighted Average (TWA): ACGIH	1 ppm	-
Hydrogen Peroxide	Recommended exposure limit (REL): NIOSH	1 ppm	1.4 mg/m3
Hydrogen Peroxide	Permissible exposure limit: OSHA Z1	1 ppm	1.4 mg/m3
Hydrogen Peroxide	Time Weighted Average (TWA): OSHA Z1A	1 ppm	1.4 mg/m3
Hydrogen Peroxide	Time Weighted Average (TWA) Permissible Exposure Limit (PEL): US CA OEL	1 ppm	1.4 mg/m3
Hydrogen Peroxide	Time Weighted Average (TWA): TN OEL	1 ppm	1.4 mg/m3

9. PHYSICAL AND CHEMICAL PROPERTIES

- Appearance : Liquid. Colorless - Light yellow
- Odor : Irritating.
- Odor threshold : No data available.
- pH : No data available.
- Melting point/range : 32 °F (0 °C)
- Boiling point/range : 1,812 °F (98,9 °C)
- Flash point : > 212 °F (> 100 °C)
- Evaporation rate : No data available.

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Flammability (solid, gas)	: Not applicable.
Upper/lower explosion/flammability limit	: Not applicable.
Vapor pressure	: No data available.
Water solubility	: No data available.
Relative vapor density	: Not applicable.
Relative density	: 1.035
Partition coefficient (n-octanol/water)	: No data available.
Auto-ignition temperature	: No data available.
Decomposition temperature	: No data available.
Viscosity	: 80 mPa.s at 71 °F (21.7 °C)
Molecular Weight	: No data available.

10. STABILITY AND REACTIVITY

Chemical Stability	: Stable under normal conditions.
Conditions to avoid	: No data available.
Materials to avoid	: Organic acids (i.e. acetic acid, citric acid etc.). Mineral acids. Sodium hypochlorite. Reaction with peroxides may result in violent decomposition of peroxide possibly creating an explosion. Oxidizing agents.
Hazardous decomposition products	: Carbon monoxide. Carbon dioxide (CO ₂). Nitrogen oxides (NO _x). Nitrogen oxide can react with water vapors to form corrosive nitric acid. Ammonia
Possibility of hazardous Reactions/Reactivity	: No data available.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Likely routes of exposure

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- Effects on Eye : Contact with eyes may cause irritation.
- Effects on Skin : Causes skin irritation.
- 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 : No data is available on the product itself.

Acute Oral Toxicity - Components
Hydrogen Peroxide

LD50 : 376 mg/kg

Species : Rat.

Inhalation : No data is available on the product itself.

Inhalation - Components
Hydrogen Peroxide

LC50 (4 h) : 2 mg/l

Species : Rat.

Acute Dermal Toxicity : No data is available on the product itself.

Acute Dermal Toxicity - Components
Hydrogen Peroxide

LD50 : 4,060 mg/kg

Species : Rat.

Skin corrosion/irritation : Skin irritation.

Serious eye damage/eye irritation : 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.

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

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Aspiration hazard : No data available.

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

Hydrogen Peroxide 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.

This product contains listed carcinogen(s) according to IARC, ACGIH, NTP and/or OSHA in concentrations of 0.1 percent or greater. Eye disease., Asthma., Skin disorders and Allergies.

12. ECOLOGICAL INFORMATION

Ecotoxicity effects

Aquatic toxicity : (96 h) : 25 - 50 mg/l Species : Fathead minnow (*Pimephales promelas*).

Toxicity to fish - Components
Hydrogen Peroxide

LC50 (96 h) : 22 mg/l

Species : Rainbow trout (*Oncorhynchus mykiss*).

Hydrogen Peroxide

LC50 (96 h) : 26.7 mg/l

Species : Bluegill sunfish (*Lepomis macrochirus*).

Toxicity to daphnia - Components
Hydrogen Peroxide

EC50 (48 h) : 24 mg/l

Species : Daphnia

Toxicity to other organisms : No data available.

Persistence and degradability

Biodegradability : Not readily biodegradable.

Mobility : No data available.

Bioaccumulation : No data is available on the product itself.

Bioaccumulation - Components
Hydrogen Peroxide

Negligible bioaccumulation potential.

13. DISPOSAL CONSIDERATIONS

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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

DOT

Not dangerous goods

IATA

Not dangerous goods

IMDG

Not dangerous goods

TDG

Not dangerous goods

Further Information

Not classified as dangerous in the meaning of transport regulations. 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	Included on EINECS inventory or polymer substance, monomers included on EINECS inventory or no longer polymer.
Canada	DSL	Not on Inventory.
Australia	AICS	Not on Inventory.
Japan	ENCS	Not on Inventory.

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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

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.

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

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

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