



## T\*MEEN LO

Trico Technologies, Inc.

Version No: 3.5

Safety Data Sheet according to OSHA HazCom Standard (2012) requirements

Issue Date: 09/11/2017

Print Date: 09/11/2017

S.GHS.USA.EN

### SECTION 1 IDENTIFICATION

#### Product Identifier

Product name: T\*MEEN LO

Synonyms: Lauramine Oxide

Proper shipping name: Environmentally hazardous substance, liquid, n.o.s. (contains (C12-14)alkyldimethylamine oxide)

Other means of identification: Not Available

#### Recommended use of the chemical and restrictions on use

Relevant identified uses: Detergent applications

#### Name, address, and telephone number of the chemical manufacturer, importer, or other responsible party

Registered company name	Trico Technologies, Inc.
Address	209 Ambrogio Drive Gurnee IL 60031 United States
Telephone	(847) 662-9224
Fax	(847) 662-9238
Website	tricotecnologies.com
Email	info@tricotecnologies.com

#### Emergency phone number

Association / Organisation	CHEMTREC Account CCN727264
Emergency telephone numbers	(800) 424-9300
Other emergency telephone numbers	(847) 662-9238

### SECTION 2 HAZARD(S) IDENTIFICATION

#### Classification of the substance or mixture

Classification	Skin Corrosion/Irritation Category 1B, Serious Eye Damage Category 1, Acute Toxicity (Oral) Category 4, Acute Aquatic Hazard Category 1
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#### Label elements

##### Hazard pictogram(s)



SIGNAL WORD: DANGER

#### Hazard statement(s)

H314: Causes severe skin burns and eye damage.

H302: Harmful if swallowed.

H400: Very toxic to aquatic life.

#### Hazard(s) not otherwise specified

Continued...

Not Applicable

#### Supplementary statement(s)

Not Applicable

#### Precautionary statement(s) Prevention

- P101: If medical advice is needed, have product container or label at hand.
- P102: Keep out of reach of children.
- P103: Read label before use.
- P260: Do not breathe dust/fume/gas/mist/vapours/spray.
- P280: Wear protective gloves/protective clothing/eye protection/face protection.
- P270: Do not eat, drink or smoke when using this product.
- P273: Avoid release to the environment.

#### Precautionary statement(s) Response

- P301+P330+P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
- 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 CENTER or doctor/physician.
- P363: Wash contaminated clothing before reuse.
- P391: Collect spillage.
- P301+P312: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
- P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

#### Precautionary statement(s) Storage

- P405: Store locked up.

#### Precautionary statement(s) Disposal

- P501: Dispose of contents/container in accordance with local regulations.

### SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

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#### Substances

See section below for composition of Mixtures

#### Mixtures

CAS No	%[weight]	Name
70592-80-2	29-31	(C12-14)alkyldimethylamine oxide
7732-18-5	69-71	water
7722-84-1	<1	hydrogen peroxide
68439-70-3	<0.2	(C12-16)alkyldimethylamine

### SECTION 4 FIRST-AID MEASURES

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#### Description of first aid measures

##### Eye Contact

If this product comes in contact with the eyes:

- Immediately hold eyelids apart and flush the eye continuously with running water.
- Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
- Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes.
- Transport to hospital or doctor without delay.
- Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

##### Skin Contact

If skin or hair contact occurs:

- Immediately flush body and clothes with large amounts of water, using safety shower if available.
- Quickly remove all contaminated clothing, including footwear.
- Wash skin and hair with running water. Continue flushing with water until advised to stop by the Poisons Information Centre.
- Transport to hospital, or doctor.

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#### Inhalation

- If fumes or combustion products are inhaled remove from contaminated area.
- Lay patient down. Keep warm and rested.
- Prosthesis such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.
- Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.
- Transport to hospital, or doctor, without delay.

#### Ingestion

- For advice, contact a Poisons Information Centre or a doctor at once.
- Urgent hospital treatment is likely to be needed.
- If swallowed do NOT induce vomiting.
- If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.
- Observe the patient carefully.
- Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious.
- Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink.
- Transport to hospital or doctor without delay.

#### Most important symptoms and effects, both acute and delayed

See Section 11

#### Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

For acute or short-term repeated exposures to highly alkaline materials:

- Respiratory stress is uncommon but present occasionally because of soft tissue edema.
- Unless endotracheal intubation can be accomplished under direct vision, cricothyroidotomy or tracheotomy may be necessary.
- Oxygen is given as indicated.
- The presence of shock suggests perforation and mandates an intravenous line and fluid administration.
- Damage due to alkaline corrosives occurs by liquefaction necrosis whereby the saponification of fats and solubilisation of proteins allow deep penetration into the tissue.

Alkalis continue to cause damage after exposure.

##### INGESTION:

- Milk and water are the preferred diluents

No more than 2 glasses of water should be given to an adult.

- Neutralising agents should never be given since exothermic heat reaction may compound injury.

\* Catharsis and emesis are absolutely contra-indicated.

\* Activated charcoal does not absorb alkali.

\* Gastric lavage should not be used.

Supportive care involves the following:

- Withhold oral feedings initially.
- If endoscopy confirms transmucosal injury start steroids only within the first 48 hours.
- Carefully evaluate the amount of tissue necrosis before assessing the need for surgical intervention.
- Patients should be instructed to seek medical attention whenever they develop difficulty in swallowing (dysphagia).

##### SKIN AND EYE:

- Injury should be irrigated for 20-30 minutes.

Eye injuries require saline. [Ellenhorn & Barceloux: Medical Toxicology]

Hydrogen peroxide at moderate concentrations (5% or more) is a strong oxidant.

- Direct contact with the eye is likely to cause corneal damage especially if not washed immediately. Careful ophthalmologic evaluation is recommended and the possibility of local corticosteroid therapy should be considered.
- Because of the likelihood of systemic effects attempts at evacuating the stomach via emesis induction or gastric lavage should be avoided.
- There is remote possibility, however, that a nasogastric or orogastric tube may be required for the reduction of severe distension due to gas formation\*

Fisher Scientific SDS

## SECTION 5 FIRE-FIGHTING MEASURES

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#### Extinguishing media

The product contains a substantial proportion of water, therefore there are no restrictions on the type of extinguishing media which may be used. Choice of extinguishing media should take into account surrounding areas.

Though the material is non-combustible, evaporation of water from the mixture, caused by the heat of nearby fire, may produce floating layers of combustible substances.

In such an event consider:

- foam.
- dry chemical powder.
- carbon dioxide.

#### Special hazards arising from the substrate or mixture

##### Fire incompatibility

Continued...

None known.

### Special protective equipment and precautions for fire-fighters

#### Fire Fighting

- Alert Fire Brigade and tell them location and nature of hazard.
- Wear full body protective clothing with breathing apparatus.
- Prevent, by any means available, spillage from entering drains or water course.
- Use water delivered as a fine spray to control fire and cool adjacent area.
- Avoid spraying water onto liquid pools.
- **DO NOT** approach containers suspected to be hot.
- Cool fire exposed containers with water spray from a protected location.
- If safe to do so, remove containers from path of fire.

#### Fire/Explosion Hazard

The emulsion is not combustible under normal conditions. However, it will break down under fire conditions and the hydrocarbon component will burn.

- Combustible.
- Slight fire hazard when exposed to heat or flame.
- Heating may cause expansion or decomposition leading to violent rupture of containers.
- On combustion, may emit toxic fumes of carbon monoxide (CO).
- May emit acrid smoke.
- Mists containing combustible materials may be explosive.

Combustion products include:

carbon dioxide (CO<sub>2</sub>)

nitrogen oxides (NO<sub>x</sub>)

other pyrolysis products typical of burning organic material.

## SECTION 6 ACCIDENTAL RELEASE MEASURES

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### Personal precautions, protective equipment and emergency procedures

See section 8

### Environmental precautions

See section 12

### Methods and material for containment and cleaning up

#### Minor Spills

Environmental hazard - contain spillage.

- Clean up all spills immediately.
- Avoid breathing vapours and contact with skin and eyes.
- Control personal contact with the substance, by using protective equipment.
- Contain and absorb spill with sand, earth, inert material or vermiculite.
- Wipe up.
- Place in a suitable, labelled container for waste disposal.

#### Major Spills

Environmental hazard - contain spillage.

Moderate hazard.

- Clear area of personnel and move upwind.
- Alert Fire Brigade and tell them location and nature of hazard.
- Wear breathing apparatus plus protective gloves.
- Prevent, by any means available, spillage from entering drains or water course.
- No smoking, naked lights or ignition sources.
- Increase ventilation.
- Stop leak if safe to do so.
- Contain spill with sand, earth or vermiculite.
- Collect recoverable product into labelled containers for recycling.
- Absorb remaining product with sand, earth or vermiculite.
- Collect solid residues and seal in labelled drums for disposal.
- Wash area and prevent runoff into drains.
- If contamination of drains or waterways occurs, advise emergency services.

For hydrogen peroxide:

- Dilute with large quantities of water (at least ten (10) times the volume of hydrogen peroxide).
- Sodium bicarbonate may be used to accelerate breakdown.

Personal Protective Equipment advice is contained in Section 8 of the SDS.

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## SECTION 7 HANDLING AND STORAGE

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### Precautions for safe handling

#### Safe handling

- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.
- Prevent concentration in hollows and sumps.
- **DO NOT** enter confined spaces until atmosphere has been checked.
- Avoid smoking, naked lights or ignition sources.
- Avoid contact with incompatible materials.
- When handling, **DO NOT** eat, drink or smoke.
- Keep containers securely sealed when not in use.
- Avoid physical damage to containers.
- Always wash hands with soap and water after handling.
- Work clothes should be laundered separately.
- Use good occupational work practice.
- Observe manufacturer's storage and handling recommendations contained within this SDS.
- Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions.
- **DO NOT** allow clothing wet with material to stay in contact with skin

#### Other information

- Store in original containers.
- Keep containers securely sealed.
- Store in a cool, dry, well-ventilated area.
- Store away from incompatible materials and foodstuff containers.
- Protect containers against physical damage and check regularly for leaks.
- Observe manufacturer's storage and handling recommendations contained within this SDS.

### Conditions for safe storage, including any incompatibilities

#### Suitable container

- Metal can or drum
- Packaging as recommended by manufacturer.
- Check all containers are clearly labelled and free from leaks.

Hydrogen peroxide containing/ generating materials requiring rigid packaging.

Store in:

- containers with vented lids.
- properly passivated aluminium containers.
- properly passivated stainless steel.
- polyethylene containers.
- porcelain, vitreous stoneware
- Teflon lined containers.

#### Storage incompatibility

Hydrogen peroxide

- is a powerful oxidiser
- contamination or heat may cause self accelerating exothermic decomposition with oxygen gas and steam release - this may generate dangerous pressures - steam explosion.
- reacts dangerously with rust, dust, dirt, iron, copper, acids, metals and salts, organic material.
- is unstable if heated. (e.g): one volume of 70% hydrogen peroxide solution decomposes to produce 300 volumes of oxygen gas.
- in presence of a strong initiating source may be explosively reactive
- concentrated or pure material can generate heat and decompose spontaneously; can ignite or explode when heated, shocked, contaminated; or if placed in a basic (>7) environment, especially in the presence of metal ions
- mixtures with combustible materials may result in spontaneous combustion or may be impact- or heat- sensitive - evaporation or drying on towels or mop may cause a fire.
- reacts violently with reducing agents, alcohols, ammonia, carboxylic acids, acetic acid, cobalt oxides, copper(II) chloride, ethers, metal powder, permanganates, acetone, benzenesulfonic anhydride, 1,1-dimethylhydrazine, dimethylphenylphosphine, gadolinium hydroxide, hydrogen selenide, iron oxides, lithium tetrahydroaluminate, magnesium tetrahydroaluminate, manganese(II) oxide, mercury oxide, methyl hydrazine, nickel monoxide, nitrogenous bases, osmium tetroxide, alpha-phenylselenoketones, phosphorus, phosphorus(V) oxide, quinoline, tetrahydrothiophene, tin(II) chloride, thiodiglycol, thiophane, tin(II) chloride, unsaturated organic compounds, readily oxidisable and combustible materials; avoid contact with combustibles including lubricants and graphite
- reacts with cobalt, copper and its alloys, chromium, iridium, iron, lead, manganese, Monel, osmium, palladium, platinum, gold, silver, zinc, and other catalytic metals, metal oxides and salts - avoid metallic bowls and stirrers.
- violent catalytic decomposition will occur in contact with certain metals such as iron, copper, chromium, brass, bronze, lead, silver, manganese or their salts.
- forms unstable and possible explosive materials with acetic anhydride, aconitic acid, aniline, carboxylic acids, 1,4-diazabicyclo[2,2,2]octane, diphenyl diselenide, ethyl acetate, glycols, ketene, ketones, triethyltin hydroperoxide, 1,3,5-trioxane, vinyl acetate.
- is incompatible with mercurous chloride

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**T\*MEEN LO**

- decomposes in presence of alkalis and even ordinary dust or rust
- decomposes slowly at ordinary temperatures and builds up pressure in a closed container; the rate of decomposition doubles for each 10 deg C rise in temperature and decomposition becomes self-sustaining at 141 deg. C
- contact with rough surfaces can cause decomposition
- attacks and may ignite some plastics, rubber and coatings
- Avoid strong acids, acid chlorides, acid anhydrides and chloroformates.
- Avoid contact with copper, aluminium and their alloys.

**SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION**

**Control parameters**

**Occupational Exposure Limits (OEL)**

**INGREDIENT DATA**

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
US NIOSH Recommended Exposure Limits (RELs)	hydrogen peroxide	High-strength hydrogen peroxide, Hydrogen dioxide, Hydrogen peroxide (aqueous), Hydroperoxide, Peroxide	1.4 mg/m <sup>3</sup> / 1 ppm	Not Available	Not Available	Not Available
US ACGIH Threshold Limit Values (TLV)	hydrogen peroxide	Hydrogen peroxide	1 ppm	Not Available	Not Available	TLV® Basis: Eye, URT, & skin irr
US OSHA Permissible Exposure Levels (PELs) - Table Z1	hydrogen peroxide	Hydrogen peroxide	1.4 mg/m <sup>3</sup> / 1 ppm	Not Available	Not Available	Not Available

**Exposure controls**

**Appropriate engineering controls**

Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.

The basic types of engineering controls are:

Process controls which involve changing the way a job activity or process is done to reduce the risk.

Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment. Ventilation can remove or dilute an air contaminant if designed properly. The design of a ventilation system must match the particular process and chemical or contaminant in use.

Employers may need to use multiple types of controls to prevent employee overexposure.

Local exhaust ventilation usually required. If risk of overexposure exists, wear approved respirator. Correct fit is essential to obtain adequate protection. Supplied-air type respirator may be required in special circumstances. Correct fit is essential to ensure adequate protection.

An approved self contained breathing apparatus (SCBA) may be required in some situations.

Provide adequate ventilation in warehouse or closed storage area. Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to effectively remove the contaminant.

Type of Contaminant:	Air Speed:
solvent, vapours, degreasing etc., evaporating from tank (in still air).	0.25-0.5 m/s (50-100 f/min.)
aerosols, fumes from pouring operations, intermittent container filling, low speed conveyer transfers, welding, spray drift, plating acid fumes, pickling (released at low velocity into zone of active generation)	0.5-1 m/s (100-200 f/min.)
direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)	1-2.5 m/s (200-500 f/min.)
grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion).	2.5-10 m/s (500-2000 f/min.)

Within each range the appropriate value depends on:

Lower end of the range	Upper end of the range
1: Room air currents minimal or favourable to capture	1: Disturbing room air currents
2: Contaminants of low toxicity or of nuisance value only.	2: Contaminants of high toxicity
3: Intermittent, low production.	3: High production, heavy use
4: Large hood or large air mass in motion	4: Small hood-local control only

Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 1-2 m/s (200-400 f/min) for extraction of solvents generated in a tank 2 meters distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are

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installed or used.

#### Personal protection



#### Eye and face protection

- Chemical goggles.
- Full face shield may be required for supplementary but never for primary protection of eyes.
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59], [AS/NZS 1336 or national equivalent]

#### Skin protection

See Hand protection below

#### Hands/feet protection

- Wear chemical protective gloves, e.g. PVC.
- Wear safety footwear or safety gumboots, e.g. Rubber
- When handling corrosive liquids, wear trousers or overalls outside of boots, to avoid spills entering boots.

The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice.

Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended.

Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include:

- frequency and duration of contact,
- chemical resistance of glove material,
- glove thickness and
- dexterity

Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739, AS/NZS 2161.1 or national equivalent).

- When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.
- When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.
- Some glove polymer types are less affected by movement and this should be taken into account when considering gloves for long-term use.
- Contaminated gloves should be replaced.

For general applications, gloves with a thickness typically greater than 0.35 mm, are recommended.

It should be emphasised that glove thickness is not necessarily a good predictor of glove resistance to a specific chemical, as the permeation efficiency of the glove will be dependent on the exact composition of the glove material. Therefore, glove selection should also be based on consideration of the task requirements and knowledge of breakthrough times.

Glove thickness may also vary depending on the glove manufacturer, the glove type and the glove model. Therefore, the manufacturers' technical data should always be taken into account to ensure selection of the most appropriate glove for the task.

Note: Depending on the activity being conducted, gloves of varying thickness may be required for specific tasks. For example:

- Thinner gloves (down to 0.1 mm or less) may be required where a high degree of manual dexterity is needed. However, these gloves are only likely to give short duration protection and would normally be just for single use applications, then disposed of.
- Thicker gloves (up to 3 mm or more) may be required where there is a mechanical (as well as a chemical) risk i.e. where there is abrasion or puncture potential

Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.

- Where hydrogen peroxide exposure may occur do NOT wear PVA gloves.
- DO NOT use leather or cotton gloves, leather shoes as spill may cause fire.
- Care: Effects may be delayed.
- Hand cream offers no protection for hydrogen peroxide and should not be used.

#### Body protection

See Other protection below

#### Other protection

- Overalls.
- P.V.C. apron.
- Barrier cream.
- Skin cleansing cream.
- Eye wash unit.

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**Thermal hazards**  
Not Available

## SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

### Information on basic physical and chemical properties

**Appearance:** Clear colorless liquid

<b>Physical state</b>	Liquid	<b>Relative density (Water = 1)</b>	0.986
<b>Odour</b>	Not Available	<b>Partition coefficient n-octanol / water</b>	Not Available
<b>Odour threshold</b>	Not Available	<b>Auto-ignition temperature (°C)</b>	Not Available
<b>pH (as supplied)</b>	Not Available	<b>Decomposition temperature</b>	Not Available
<b>Melting point / freezing point (°C)</b>	-13	<b>Viscosity (cSt)</b>	18
<b>Initial boiling point and boiling range (°C)</b>	100	<b>Molecular weight (g/mol)</b>	Not Available
<b>Flash point (°C)</b>	>94	<b>Taste</b>	Not Available
<b>Evaporation rate</b>	<1 BuAC = 1	<b>Explosive properties</b>	Not Available
<b>Flammability</b>	Not Applicable	<b>Oxidising properties</b>	Not Available
<b>Upper Explosive Limit (%)</b>	Not Available	<b>Surface Tension (dyn/cm or mN/m)</b>	Not Available
<b>Lower Explosive Limit (%)</b>	Not Available	<b>Volatile Component (%vol)</b>	68-71
<b>Vapour pressure (kPa)</b>	>1	<b>Gas group</b>	Not Available
<b>Solubility in water (g/L)</b>	Miscible	<b>pH as a solution (5%)</b>	8
<b>Vapour density (Air = 1)</b>	>1	<b>VOC g/L</b>	Not Available

## SECTION 10 STABILITY AND REACTIVITY

**Reactivity:**

See section 7

**Chemical stability:**

- Unstable in the presence of incompatible materials.
- Product is considered stable.
- Hazardous polymerisation will not occur.

Solutions of hydrogen peroxide slowly decompose, releasing oxygen, and so are often stabilised by the addition of acetanilide, etc.

**Possibility of hazardous reactions:**

See section 7

**Conditions to avoid:**

See section 7

**Incompatible materials:**

See section 7

**Hazardous decomposition products:**

See section 5

## SECTION 11 TOXICOLOGICAL INFORMATION

### Information on toxicological effects

**Inhaled**

The material can cause respiratory irritation in some persons. The body's response to such irritation can cause further lung damage.

Not normally a hazard due to non-volatile nature of product

Inhalation of amine vapours may cause irritation of the mucous membrane of the nose and throat, and lung irritation with respiratory distress and cough.

Swelling and inflammation of the respiratory tract is seen in serious cases; with headache, nausea, faintness and anxiety.

**Ingestion**

Accidental ingestion of the material may be harmful; animal experiments indicate that ingestion of less than 150 gram may be fatal or may produce serious damage to the health of the individual.

The material can produce chemical burns within the oral cavity and gastrointestinal tract following ingestion.

Hydrogen peroxide may cause blistering and bleeding from the throat and stomach. When swallowed, it may release large quantities of oxygen which could hyper-distend the stomach and gut and may cause internal bleeding, mouth and throat burns and rupture of the gut. There may also be fever, nausea, foaming at the mouth, vomiting, chest and stomach pain, loss of consciousness, and movement disorders and death. Large amounts can also cause cessation of breath, dizziness, headache, tremors weakness or numbness in the extremities and convulsions. Hydrogen peroxide concentrate is corrosive and must not be taken undiluted.

Nonionic surfactants may produce localised irritation of the oral or gastrointestinal lining and induce vomiting and mild diarrhoea.

Amines without benzene rings when swallowed are absorbed throughout the gut. Corrosive action may cause damage throughout the gastrointestinal tract.

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**Skin Contact**

The material can produce chemical burns following direct contact with the skin.  
 Non-ionic surfactants cause less irritation than other surfactants as they have less ability to denature protein in the skin.  
 Open cuts, abraded or irritated skin should not be exposed to this material  
 Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.  
 Hydrogen peroxide is used topically as dental gel and to clean minor wounds. It may cause dose dependent effect on the skin including bleaching, blistering, reddening and corrosion ( at >50% concentration).  
 This material can cause inflammation of the skin on contact in some persons.  
 Volatile amine vapours produce irritation and inflammation of the skin. Direct contact can cause burns.

**Eye**

The material can produce chemical burns to the eye following direct contact. Vapours or mists may be extremely irritating.  
 If applied to the eyes, this material causes severe eye damage.  
 Non-ionic surfactants can cause numbing of the cornea, which masks discomfort normally caused by other agents and leads to corneal injury. Irritation varies depending on the duration of contact, the nature and concentration of the surfactant.  
 Hydrogen peroxide concentrations above 10% are corrosive to the eye and may cause corneal ulceration even days after exposure.

**Chronic**

Repeated or prolonged exposure to corrosives may result in the erosion of teeth, inflammatory and ulcerative changes in the mouth and necrosis (rarely) of the jaw. Bronchial irritation, with cough, and frequent attacks of bronchial pneumonia may ensue.  
 Long-term exposure to respiratory irritants may result in airways disease, involving difficulty breathing and related whole-body problems.  
 Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.  
 Prolonged or repeated skin contact may cause degreasing, followed by drying, cracking and skin inflammation.  
 Hydrogen peroxide as a human food additive is generally regarded as safe, when used with certain limitations. In experimental animals hydrogen peroxide given by mouth causes damage to the teeth, liver, kidney, stomach and bowel. Inhalation exposure to hydrogen peroxide caused skin irritation, sneezing and death in animals. Skin irritation, sneezing, excessive secretion of tears, and whitening of the hair was also seen in animals chronically exposed to hydrogen peroxide.

<b>T*MEEN LO</b>	<b>TOXICITY</b> Not Available	<b>IRRITATION</b> Not Available
<b>(C12-14)alkyldimethylamine oxide</b>	<b>TOXICITY</b> dermal (rat) LD50: >2000 mg/kg <sup>[1]</sup>	<b>IRRITATION</b> Not Available
<b>water</b>	<b>TOXICITY</b> Not Available	<b>IRRITATION</b> Not Available
<b>hydrogen peroxide</b>	<b>TOXICITY</b> dermal (rat) LD50: 4060 mg/kg <sup>[2]</sup> Inhalation (rat) LC50: >0.00017 mg/L.4 h <sup>[1]</sup> Oral (rat) LD50: 376 mg/kg <sup>[2]</sup>	<b>IRRITATION</b> Not Available
<b>(C12-16)alkyldimethylamine</b>	<b>TOXICITY</b> Oral (rat) LD50: 1150 mg/kg <sup>[2]</sup>	<b>IRRITATION</b> Skin (rabbit): 6.29/8 SEVERE

**Legend:** 1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2.\* Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances

**(C12-14)ALKYLDIMETHYLAMINE OXIDE**

Amine oxides are readily metabolised and excreted after oral intake. They produced no mortality or skin sensitization on exposure but caused reversible irritation of the eyes, skin and airways. They may also cause cataracts. Repeat dosing showed no abnormal changes except for diarrhoea and weight loss. They are not noted to cause cancer, reproductive, genetic or developmental defects.

**HYDROGEN PEROXIDE**

Exposure to hydrogen peroxide via the skin or oral route can produce toxic effects. Animal studies have shown evidence of damage to the kidney, gut, thymus and liver. Stomach and intestinal lesions including benign and malignant cancers have been observed in mice. It may produce genetic and developmental defects but no reproductive toxicity was reported in mice.

The substance is classified by IARC as Group 3:

**NOT** classifiable as to its carcinogenicity to humans.

Evidence of carcinogenicity may be inadequate or limited in animal testing.

Continued...

**T\*MEEN LO**

**(C12-16)ALKYLDIMETHYLAMINE**

FND ether amines and FND amines are very similar in structure (length of chain or degree of saturation), function and toxicity. Acute exposure to FND ether amines by oral, dermal and inhalation may produce moderate to slight toxicity but repeated skin contact can be highly irritating. However, exposure did not produce any organ-specific toxicity, genetic, reproductive or developmental defect same as in FND amines.

The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.

The material may produce respiratory tract irritation, and result in damage to the lung including reduced lung function.

The material may cause severe skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin. Repeated exposures may produce severe ulceration.

Lonza Corp \* Eye (rabbit): SEVERE

**(C12-14)ALKYLDIMETHYLAMINE OXIDE & HYDROGEN PEROXIDE & (C12-16)ALKYLDIMETHYLAMINE**

Asthma-like symptoms may continue for months or even years after exposure to the material ends. This may be due to a non-allergic condition known as reactive airways dysfunction syndrome (RADS) which can occur after exposure to high levels of highly irritating compound. Main criteria for diagnosing RADS include the absence of previous airways disease in a non-atopic individual, with sudden onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. Other criteria for diagnosis of RADS include a reversible airflow pattern on lung function tests, moderate to severe bronchial hyperreactivity on methacholine challenge testing, and the lack of minimal lymphocytic inflammation, without eosinophilia. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. On the other hand, industrial bronchitis is a disorder that occurs as a result of exposure due to high concentrations of irritating substance (often particles) and is completely reversible after exposure ceases. The disorder is characterized by difficulty breathing, cough and mucus production.

**WATER & HYDROGEN PEROXIDE**

No significant acute toxicological data identified in literature search.

Acute Toxicity	✓	Carcinogenicity	⊗
Skin Irritation/Corrosion	✓	Reproductivity	⊗
Serious Eye Damage/Irritation	✓	STOT - Single Exposure	⊗
Respiratory or Skin sensitisation	⊗	STOT - Repeated Exposure	⊗
Mutagenicity	⊗	Aspiration Hazard	⊗

**Legend:** ✗ – Data available but does not fill the criteria for classification  
 ✓ – Data available to make classification  
 ⊗ – Data Not Available to make classification

**SECTION 12 ECOLOGICAL INFORMATION**

**Toxicity**

	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
T*MEEN LO	Not Available	Not Available	Not Available	Not Available	Not Available
(C12-14)alkyldimethylamine oxide	EC50	48	Crustacea	14mg/L	2
	EC50	72	Algae or other aquatic plants	0.076mg/L	2
	NOEC	72	Algae or other aquatic plants	0.01mg/L	2
water	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	Not Available	Not Available	Not Available	Not Available	Not Available
hydrogen peroxide	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	LC50	96	Fish	16.4mg/L	2
	EC50	48	Crustacea	2.32mg/L	4
	EC50	72	Algae or other aquatic plants	0.71mg/L	4
	EC0	24	Crustacea	=3.8mg/L	1
NOEC	192	Fish	0.028mg/L	4	
(C12-16)alkyldimethylamine	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	EC50	48	Crustacea	0.083mg/L	2
NOEC	48	Crustacea	0.19mg/L	2	

Continued...

**Legend:** Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 3. EPIWIN Suite V3.12 (QSAR) - Aquatic Toxicity Data (Estimated) 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data

Very toxic to aquatic organisms.

Do NOT allow product to come in contact with surface waters or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment wash-waters.

Wastes resulting from use of the product must be disposed of on site or at approved waste sites.

For Surfactants: Kow cannot be easily determined due to hydrophilic/hydrophobic properties of the molecules in surfactants. BCF value: 1-350.

Aquatic Fate: Surfactants tend to accumulate at the interface of the air with water and are not extracted into one or the other liquid phases.

Terrestrial Fate: Anionic surfactants are not appreciably sorbed by inorganic solids. Cationic surfactants are strongly sorbed by solids, particularly clays.

Significant sorption of anionic and non-ionic surfactants has been observed in activated sludge and organic river sediments. Surfactants have been shown to improve water infiltration into soils with moderate to severe hydrophobic or water-repellent properties.

Ecotoxicity: Some surfactants are known to be toxic to animals, ecosystems and humans, and can increase the diffusion of other environmental contaminants. The acute aquatic toxicity generally is considered to be related to the effects of the surfactant properties on the organism and not to direct chemical toxicity. Surfactants should be considered to be toxic to aquatic species under conditions that allow contact of the chemicals with the organisms. Surfactants are expected to transfer slowly from water into the flesh of fish. During this process, readily biodegradable surfactants are expected to be metabolized rapidly during the process of bioaccumulation. Surfactants are not to be considered to show bioaccumulation potential if they are readily biodegradable.

For hydrogen peroxide:log Kow: -1.36:

Environmental Fate: Hydrogen peroxide is a naturally occurring substance (typical background concentrations < 1 - 30 g/l), which is produced by almost all cells in their metabolism, with the exception of anaerobic bacteria. Hydrogen peroxide is a reactive substance in the presence of other substances, elements, radiation, materials and can be degraded by micro-organisms or higher organisms. Air - Hydrogen peroxide is degraded by light and thus may be removed from the atmosphere by photolysis giving rise to hydroxyl radicals, by reaction with hydroxyl radicals, or by heterogenous loss processes such as rain-out. Significantly higher hydrogen peroxide concentrations are found in polluted atmospheres as compared with clean air, presumably due to oxidation of reactive hydrocarbons as a result of exposure to light. Soil - No information was found regarding the transformation or persistence of hydrogen peroxide in soil, however, solutions of hydrogen peroxide gradually deteriorate. Water - Hydrogen peroxide is a naturally occurring substance. Surface water concentrations of hydrogen peroxide have been found to vary between 51-231 mg/L, increasing both with exposure to sunlight and the presence of dissolved organic matter. Hydrogen peroxide degrades by various mechanisms, including chemical reduction and enzymatic decomposition by algae, zooplankton, and bacteria. However microorganisms, especially bacteria, account for the majority of degradation. The rate of decomposition in natural water varies from a few minutes to more than a week, depending on numerous chemical, biological, and physical factors. Hydrogen peroxide is rapidly degraded in a biological waste water treatment plant. Hydrogen peroxide adsorbs poorly to sediment particles and is rapidly degraded, thus accumulation in the sediment is also not expected. Hydrogen peroxide (log Kow < -1) is an inorganic substance and therefore shows little potential to bioaccumulate.

Ecotoxicity: Fish LC50 (96 h): catfish 37.4 mg/l/Fish LC50 (24 h): mackerel 89 mg/l; chameleon gobi 155 mg/l/Zebra mussel LC50 (28 h) 30 mg/l; (228 h): 12 mg/l

Ecotoxicity data show that microorganisms (i.e., bacteria, algae) and zooplankton present in aquatic ecosystems are generally less tolerant of hydrogen peroxide exposure than fish or other vertebrates. Effects of short-term exposures on sensitive bacteria and invertebrates (e.g., Daphnia pulex) have been observed at concentrations in the low mg/L (ppm) range, while effects on sensitive algae have been reported at levels less than 1.0 mg/L. Algae are the most sensitive species for hydrogen peroxide. The algal EC50 of hydrogen peroxide was 1.6-5 mg/l, while the NOEC was 0.1 mg/l. In a 21-d continuous exposure study on Daphnia magna, the chronic no observable effect concentration (NOEC) for reproduction was 0.63 mg/L and the NOEC for mortality was 1.25 mg/L. In chronic toxicity studies with invertebrates (zebra mussels) and hydrogen peroxide shows an NOEC of 2 mg/l. The PNEC of hydrogen peroxide is equal to 10 ug/l. Risk mitigation is needed to ensure that use of hydrogen peroxide will not adversely impact aquatic life. An acute water quality criterion or "benchmark" has been determined. For hydrogen peroxide, the acute benchmark is 0.7 mg/L. This value was calculated using the extensive toxicity database for hydrogen peroxide and procedures in U.S. Environmental Protection Agency guidance for deriving numerical national water quality criteria. The use of hydrogen peroxide in intensive aquaculture in finfish (at up to 100 mg/L for 60 minutes) and finfish eggs (at up to 1,000 mg/L for 15 minutes) is not expected to have a significant impact on the environment.

DO NOT discharge into sewer or waterways.

**Persistence and degradability**

Ingredient	Persistence: Water/Soil	Persistence: Air
(C12-14)alkyldimethylamine oxide	LOW	LOW
water	LOW	LOW
hydrogen peroxide	LOW	LOW

**Bioaccumulative potential**

Ingredient	Bioaccumulation
(C12-14)alkyldimethylamine oxide	HIGH (LogKOW = 4.673)
water	LOW (LogKOW = -1.36)
hydrogen peroxide	LOW (LogKOW = -1.571)

**Mobility in soil**

Ingredient	Mobility
(C12-14)alkyldimethylamine oxide	LOW (KOC = 18660)
water	LOW (KOC = 14.3)

Continued...

**T\*MEEN LO**

hydrogen peroxide

LOW (KOC = 14.3)

**SECTION 13 DISPOSAL CONSIDERATIONS**

**Waste treatment methods**

**Product / Packaging disposal**

- Containers may still present a chemical hazard/ danger when empty.
- Return to supplier for reuse/ recycling if possible.

**Otherwise:**

- If container can not be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use, and bury at an authorised landfill.
- Where possible retain label warnings and SDS and observe all notices pertaining to the product.

Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.

A Hierarchy of Controls seems to be common - the user should investigate:

- Reduction
- Reuse
- Recycling
- Disposal (if all else fails)

This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. If it has been contaminated, it may be possible to reclaim the product by filtration, distillation or some other means. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate.

- DO NOT allow wash water from cleaning or process equipment to enter drains.
- It may be necessary to collect all wash water for treatment before disposal.
- In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.
- Where in doubt contact the responsible authority.
- Recycle wherever possible or consult manufacturer for recycling options.
- Consult State Land Waste Authority for disposal.
- Bury or incinerate residue at an approved site.
- Recycle containers if possible, or dispose of in an authorised landfill.

**SECTION 14 TRANSPORT INFORMATION**

**Labels Required**



**Marine Pollutant**



	Land transport (DOT): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS	Air transport (ICAO-IATA / DGR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS	Sea transport (IMDG-Code / GGVSee): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS
UN number: 3082 UN proper shipping name: Environmentally hazardous substance, liquid, n.o.s. (contains (C12-14)alkyldimethylamine oxide) Transport hazard class(es): Not Applicable Subrisk: Not Applicable Packing group: III			

**SECTION 15 REGULATORY INFORMATION**

**Safety, health and environmental regulations / legislation specific for the substance or mixture**

(C12-14)alkyldimethylamine oxide(70592-80-2) is found on the following regulatory lists

Continued...

**T\*MEEN LO**

- US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants
- US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

**water(7732-18-5) is found on the following regulatory lists**

- US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

**hydrogen peroxide(7722-84-1) is found on the following regulatory lists**

- International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs
- International Air Transport Association (IATA) Dangerous Goods Regulations - Prohibited List Passenger and Cargo Aircraft
- US - Alaska Limits for Air Contaminants
- US - California Permissible Exposure Limits for Chemical Contaminants
- US - Hawaii Air Contaminant Limits
- US - Idaho - Limits for Air Contaminants
- US - Massachusetts - Right To Know Listed Chemicals
- US - Michigan Exposure Limits for Air Contaminants
- US - Minnesota Permissible Exposure Limits (PELs)
- US - New Jersey Right to Know - Special Health Hazard Substance List (SHHSL): Mutagens
- US - Oregon Permissible Exposure Limits (Z-1)
- US - Pennsylvania - Hazardous Substance List
- US - Rhode Island Hazardous Substance List
- US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants
- US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants
- US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants
- US - Washington Permissible exposure limits of air contaminants
- US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants
- US ACGIH Threshold Limit Values (TLV)
- US ACGIH Threshold Limit Values (TLV) - Carcinogens
- US NIOSH Recommended Exposure Limits (RELs)
- US OSHA Permissible Exposure Levels (PELs) - Table Z1
- US SARA Section 302 Extremely Hazardous Substances
- US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

**(C12-16)alkyldimethylamine(68439-70-3) is found on the following regulatory lists**

- US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

**Federal Regulations**

**Superfund Amendments and Reauthorization Act of 1986 (SARA)**

**Section 311/312 hazard categories**

Immediate (acute) health hazard	Yes
Delayed (chronic) health hazard	No
Fire hazard	No
Pressure hazard	No
Reactivity hazard	No

**US. EPA CERCLA Hazardous Substances and Reportable Quantities (40 CFR 302.4)**

None Reported

**State Regulations**

**US. California Proposition 65**

None Reported

National Inventory	Status
Australia - AICS	Y
Canada - DSL	Y
Canada - NDSL	N (hydrogen peroxide; water; (C12-16)alkyldimethylamine; (C12-14)alkyldimethylamine oxide)
China - IECSC	Y
Europe - EINEC / ELINCS / NLP	Y
Japan - ENCS	N ((C12-16)alkyldimethylamine; (C12-14)alkyldimethylamine oxide)
Korea - KECI	Y
New Zealand - NZIoC	Y
Philippines - PICCS	Y
USA - TSCA	Y
<b>Legend:</b>	Y = All ingredients are on the inventory N = Not determined or one or more ingredients are not on the inventory and are not exempt from listing(see specific ingredients in brackets)

**SECTION 16 OTHER INFORMATION**

Continued...

## Other information

### Ingredients with multiple cas numbers

Name	CAS No
(C12-14)alkyldimethylamine oxide	308062-28-4, 70592-80-2, 61788-90-7, 1643-20-5, 135526-66-8, 160714-02-3, 163221-07-6, 177162-47-9, 209122-49-6, 244235-92-5, 311814-25-2, 607690-42-6, 73502-08-6

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references. The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

### Definitions and abbreviations

PC—TWA: Permissible Concentration-Time Weighted Average  
PC—STEL: Permissible Concentration-Short Term Exposure Limit  
IARC: International Agency for Research on Cancer  
ACGIH: American Conference of Governmental Industrial Hygienists  
STEL: Short Term Exposure Limit  
TEEL: Temporary Emergency Exposure Limit  
IDLH: Immediately Dangerous to Life or Health Concentrations  
OSF: Odour Safety Factor  
NOAEL :No Observed Adverse Effect Level  
LOAEL: Lowest Observed Adverse Effect Level  
TLV: Threshold Limit Value  
LOD: Limit Of Detection  
OTV: Odour Threshold Value  
BCF: BioConcentration Factors  
BEI: Biological Exposure Index

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