



PRODUCT: TENOX AO AMINE OXIDE (TENOXAO) REVISION: 3 DATED: 13/05/15 PAGE 1 OF 6

PRODUCT SPECIFICATION

Product Name	Tenox AO Amine Oxide
Specification Reference	TENOXAO/3 (15/05/0092395)

SALES SPECIFICATION

Description	A colourless or very pale yellow clear liquid, with a mild odour. The sample should be free from particulate contamination
Chemical composition	Cocodimethyl Amine Oxide
CAS Number	70592-80-2 (61788-90-7)
EINECS Number	274-687-2 (263-016-9)
Appearance	Colourless to pale straw liquid
Active content	29.0 – 31.0%
pH (10% aqueous solution)	6.0-8.0
Free Amine	0.5% maximum
Free peroxide	0.2% maximum
Relative density	0.96-0.97 @25°C
Viscosity	~50 CPS @25°C
Pour point	<0°C
Storage	Store in original containers, tightly closed and properly labelled at temperatures between 20 - 30°C. If material becomes hazy after exposure to cold, gently warm to 35°C and mix before use. Avoid prolonged exposure to heat as this may lead to degradation.

NOTES

Exclusion of Liability

Information contained in this publication is accurate to the best of the knowledge and belief of Tennants.

Any information or advice obtained from Tennants otherwise than by means of this publication and whether relating to Tennants materials or other materials, is also given in good faith. However, it remains at all times the responsibility of the customer to ensure that Tennants materials are suitable for the particular purpose intended.

Tennants accepts no liability whatsoever (except as otherwise provided by law) arising out of the use of information supplied, the application, adaptation or processing of the products described herein, the use of other materials in lieu of Tennants materials or the use of Tennants materials in conjunction with such other materials.

Health and Safety

A Material Safety Data Sheet has been issued describing the health, safety and environmental properties of this product, identifying the potential hazards and giving advice on the handling precautions and emergency procedures. This must be consulted fully before handling, storage and use.



SAFETY DATA SHEET

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY

1.1 Product Identifier

Trade Name Tenox AO
REACH Registration number 01-2119490061-47-XXXX
CAS-No. 308062-28-4
EC No. 931-292-6

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified use(s): Personal care & industrial applications.
Uses advised against: No specific uses advised against are identified.

1.3 Details of the supplier of the safety data sheet

Tennants Distribution Limited
Hazelbottom Road
Cheetham
Manchester
M8 0GR
Tel: 44(0)161 205 4454
Fax: 44(0) 161 203 4298
Email: msds@tennantsdistribution.com

1.4 Emergency telephone number

Tel: 44(0)844 335 0001 (24 hours)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Human health: Acute Tox. 4 - H302; Skin Irrit. 2 - H315; Eye Dam. 1 - H318
Environment: Aquatic Acute 1 - H400; Aquatic Chronic 2 - H411

Classification 67/548/EEC

Xi; R38, R41. N; R50.

The Full Text for all R-Phrases and Hazard Statements are Displayed in Section 16.

2.2 Label elements

EC No.: 931-292-6

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms



Signal word: Danger

Hazard statements

H302: Harmful if swallowed.
H315: Causes skin irritation.
H318: Causes serious eye damage.
H400: Very toxic to aquatic life.
H411: Toxic to aquatic life with long lasting effects.

Precautionary statements

P280: Wear protective gloves/ protective clothing/ eye protection/ face protection.
P262: Do not get in eyes, on skin, or on clothing.
P301 + P312: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
P302 + 352: IF ON SKIN: Wash with plenty of soap and water.
P305+351+338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician.

Supplementary Precautionary Statements

P273: Avoid release to the environment.
P264: Wash contaminated skin thoroughly after handling.
P330: Rinse mouth.
P403 + P233: Store in a well-ventilated place. Keep container tightly closed.
P501a: Dispose of this material and its container to hazardous or special waste collection point



PRODUCT: TENOX AO AMINE OXIDE (TENOXAO) REVISION: 3 DATED: 13/05/15 PAGE 3 OF 6

2.3 Other hazards None known.
3. COMPOSITION/INFORMATION ON INGREDIENTS
3.1 Substances
Product name: Tenox AO REACH Registration number: 01-2119490061-47-XXXX CAS-No. : 308062-28-4 EC No.: 931-292-6
4. FIRST AID MEASURES
4.1 Description of first aid measures
Inhalation General first aid, rest, warmth and fresh air. For breathing difficulties oxygen may be necessary. If respiratory problems, artificial respiration/oxygen. Get medical attention.
Skin contact Remove contaminated clothing immediately and wash skin with soap and water. Get medical attention if irritation persists after washing.
Eye contact Immediately flush with plenty of water for up to 15 minutes. Remove any contact lenses and open eyes wide apart. Continue to rinse for at least 15 minutes and get medical attention.
Ingestion NEVER MAKE AN UNCONSCIOUS PERSON VOMIT OR DRINK FLUIDS! Rinse nose, mouth and throat with water. Get medical attention.
4.2 Most important symptoms and effects, both acute and delayed Inhalation: May cause irritation to the respiratory system. Ingestion: Harmful if swallowed. Eye contact: Risk of serious eye damage Skin contact: Skin irritation
4.3 Indication of any immediate medical attention and special treatment needed Treatment: No recommendation given, but first aid may still be required in case of accidental exposure, inhalation or ingestion of this chemical. If in doubt, GET MEDICAL ATTENTION PROMPTLY!
5. FIRE FIGHTING MEASURES
5.1 Extinguishing Media Extinguish with foam, carbon dioxide, dry powder or water fog. Unsuitable extinguishing media: Do not use water jet as an extinguisher, as this will spread the fire.
5.2 Special hazards arising from the substance or mixture Hazardous combustion products: Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapours. Unusual Fire & Explosion Hazards: Heat may cause the containers to explode. Specific hazards: Not known.
5.3 Advice for firefighters Special fire fighting procedures: Use special protective clothing. Regular protection may not be safe. Keep run-off water out of sewers and water sources. Dike for water control. Protective equipment for fire-fighters: Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
6. ACCIDENTAL RELEASE MEASURES
6.1 Personal precautions For personal protection, see section 8.
6.2 Environmental precautions Collect and dispose of spillage as indicated in section 13. Do not discharge into drains, water courses or onto the ground.
6.3 Methods and material for containment and cleaning up Extinguish all ignition sources. Avoid sparks, flames, heat and smoking. Ventilate. Dam and absorb spillages with sand, earth or other non-combustible material. Collect spillage in containers, seal securely and deliver for disposal according to local regulations. Wash thoroughly after dealing with a spillage.
6.4 Reference to other sections For personal protection, see section 8. For waste disposal, see section 13.



PRODUCT: TENOX AO AMINE OXIDE (TENOXAO) REVISION: 3 DATED: 13/05/15 PAGE 4 OF 6

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid inhalation of vapours/spray and contact with skin and eyes. Ventilate well, avoid breathing vapours. Use approved respirator if air contamination is above accepted level. Eliminate all sources of ignition. Do not eat, drink or smoke when using the product.

7.2 Conditions for safe storage, including any incompatibilities
Store in tightly closed original container in a dry and cool place. Do not store near heat sources or expose to high temperatures. Protect from light, including direct sunrays.
Storage Class: Chemical storage.

7.3 Specific end uses
The identified uses for this product are detailed in Section 1.2.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters
DNEL
Workers: Dermal, Systemic Effects: 11 mg/kg/day
Workers: Inhalation, Systemic Effects: 15.5 8h mg/m³
Workers: Dermal Local Effects: 0.27%
Consumer: Dermal, Systemic Effects: 5.5 mg/kg/day
Consumer: Inhalation, Systemic Effects: 3.8 mg/m³
Consumer: Oral, Systemic Effects: 0.44 mg/kg/day

PNEC
Freshwater: 0.335 mg/l
Marinewater: 0.00335 mg/l
Water Intermittent release: 0.0335 mg/kg
Sediment (Freshwater): 5.24 mg/kg
Sediment (Marinewater): 0.524 mg/kg
Soil: 1.02 mg/kg
STP: 24 mg/kg

8.2 Exposure controls

Protective equipment



Process conditions
Use engineering controls to reduce air contamination to permissible exposure level.

Engineering measures
Provide adequate general and local exhaust ventilation

Respiratory equipment
If ventilation is insufficient, suitable respiratory protection must be provided.

Hand protection
The most suitable glove must be chosen in consultation with the gloves supplier, who can inform about the breakthrough time of the glove material.

Eye protection
Use approved safety goggles or face shield

Skin and body protection
Wear apron or protective clothing in case of contact

Hygiene measures
Wash contaminated clothing before reuse. Provide shower facilities near the work place. Have eye wash bottle or eye rinse ready at work place. No specific hygiene procedures noted, but good personal hygiene practices are always advisable, especially when working with chemicals.

Environmental exposure controls
General Advice: Should not be released into the environment.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	Clear liquid
Colour	Light or pale yellow
Odour	Mild
Solubility	Miscible with water, Miscible with Alcohol



PRODUCT: TENOX AO AMINE OXIDE (TENOXAO) REVISION: 3 DATED: 13/05/15 PAGE 5 OF 6

pH value, Conc. Solution	6 - 8
Melting point/range	<0°C
Boiling point/range	>100°C
Relative density	0.965 – 0.975 @ 15°C
Flash point	>100°C
9.2 Other data	
None known	
10. STABILITY AND REACTIVITY	
10.1 Reactivity	
No specific reactivity hazards associated with this product.	
10.2 Chemical stability	
Stable under normal temperature conditions and recommended use.	
10.3 Possibility of hazardous reactions	
Not available. Hazardous Polymerisation: Will not polymerise.	
10.4 Conditions to avoid	
Avoid heat, flames and other sources of ignition. Avoid exposure to high temperatures or direct sunlight.	
10.5 Incompatible materials to avoid	
Materials To Avoid, Strong oxidising substances. Strong acids	
10.6 Hazardous decomposition products	
Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapours.	
11. TOXICOLOGICAL INFORMATION	
11.1 Information on toxicological effects	
Acute Toxicity	
Acute Toxicity (Oral LD50)	
1064 mg/kg Rat	
Acute Toxicity (Dermal LD50)	
> 2000 mg/kg Rat	
Acute Toxicity (Inhalation LC50): Not available.	
Skin corrosion/irritation	
Skin irritation	
Effect: Irritation	
Route: OPT DRM	
Basis: Hazardous (calculated)	
Respiratory or skin sensitization	
Respiratory sensitisation	
Not available.	
Non-classification (conclusive but not sufficient for classification)	
Germ cell mutagenicity	
Genotoxicity in vitro	
Not available	
Carcinogenicity	
Not available	
Reproductive toxicity	
Reproductive Toxicity – Fertility: Not available.	
Specific target organ toxicity – single exposure	
STOT - single exposure	
Data lacking.	
STOT - repeated exposure	
Data lacking	
Aspiration hazard	
Data not available.	
Inhalation	
Vapours may irritate throat and respiratory system and cause coughing	
Ingestion	
Harmful if swallowed	
Skin contact	
Irritating to skin	
Eye contact	
Risk of serious damage to eyes.	



PRODUCT: TENOX AO AMINE OXIDE (TENOXAO) REVISION: 3 DATED: 13/05/15 PAGE 6 OF 6

12. ECOLOGICAL INFORMATION
12.1 Toxicity Acute Toxicity – Fish. LC50 96 hours 2.67-3.46 mg/l Fish Acute Toxicity - Aquatic Invertebrates EC50 48 hours 3.1 mg/l, Daphnia magna IC 50, 72 Hrs, Algae, 0.14 mg/l Acute Toxicity – Microorganisms: Not available.
12.2 Persistence and degradability Degradability: The product is not biodegradable.
12.3 Bioaccumulative potential The product contains potentially bioaccumulating substances. Partition coefficient: Not available.
12.4 Mobility in soil Mobility: The product is soluble in water.
12.5 Results of PBT and vPvB assessment This product does not contain any PBT or vPvB substances.
12.6 Other adverse effects None known
13. DISPOSAL CONSIDERATIONS
13.1 Waste treatment methods Dispose of waste and residues in accordance with local authority requirements.
14. TRANSPORT INFORMATION
ADR/RID/ADNR/IMDG/ICAO/IATA UN number: 3082 Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Amines, C12-14(even numbered) alkyldimethyl, N-oxides). Transport hazard class: 9 Packing group: III Environmental hazards: Yes Marine pollutant: Yes Tunnel restriction code: E EmS Number 1: F-A EmS Number 2: S-F
15. REGULATORY INFORMATION
5.1 Safety, health and environmental regulations/legislation specific for the substance or mixture EU legislation Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006 with amendments. Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC, including amendments.
15.2 Chemical Safety Assessment: A chemical safety assessment has been carried out.
16. OTHER INFORMATION
Risk Phrases In Full R38 Irritating to skin. R41 Risk of serious damage to eyes. R50 Very toxic to aquatic organisms. Hazard Statements In Full H318 Causes serious eye damage. H315 Causes skin irritation. H302 Harmful if swallowed. H411 Toxic to aquatic life with long lasting effects. H400 Very toxic to aquatic life.
Modifications from last revision The Specification has been reviewed and updated. The Safety Data Sheets have been revised in accordance with current requirements. Date: 13/05/15 Copyright© Tennants Distribution Ltd (2015)