



SAFETY DATA SHEET according to Regulation (EC) No. 1907/2006

Star Oxygen Control (ELIMIN-OX) - PRODUCT CODE: 00950036

Section: 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier: **Star Oxygen Control (ELIMIN-OX)**
Substance type: CLP Mixture

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

Use of the Substance/Mixture : OXYGEN SCAVENGER
Identified uses : Boiler treatment under 1T per day
Recommended restrictions on use : Reserved for industrial and professional use.

1.3 Details of the supplier of the safety data sheet:

Company : Star International, Star House, Turbine Business Park, Turbine Road,
Birkenhead, Merseyside CH41 9BA United Kingdom
Tel: +44 (0) 1244 504500
Email: enquiries@star-international.co.uk
www.star-international.co.uk

1.4 Emergency telephone number:

Emergency telephone number : +44 (0) 1244 504 500

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Section: 2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Skin sensitization, Category 1 H317

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :



Signal Word : Warning

Hazard Statements : H317 May cause an allergic skin reaction.

Precautionary Statements : **Prevention:**
P261 Avoid breathing dust/ fume/ gas/ mist/
vapours/ spray.
P272 Contaminated work clothing should not be
allowed out of the workplace.
P280 Wear protective gloves.

Star Oxygen Control (ELIMIN-OX) - PRODUCT CODE: 00950036

Response:

P302 + P352

IF ON SKIN: Wash with plenty of water.

Disposal:

P501

Dispose of contents/ container to an approved waste disposal plant.

Hazardous components which must be listed on the label:
Carbohydrazide

2.3 Other hazards

None known.

Section: 3. COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixtures

Hazardous components

Chemical Name	CAS-No. EC-No. REACH No.	Classification (REGULATION (EC) No 1272/2008)	Concentration: [%]
Carbohydrazide	497-18-7 207-837-2 01-2119965166-31	Skin sensitization Sub-category 1A; H317	5 - < 10

For the full text of the H-Statements mentioned in this Section, see Section 16.

Section: 4. FIRST AID MEASURES

4.1 Description of first aid measures

- If inhaled : Get medical attention if symptoms occur.
- In case of skin contact : Wash off immediately with plenty of water for at least 15 minutes.
Use a mild soap if available.
Wash clothing before reuse.
Thoroughly clean shoes before reuse.
Get medical attention.
- In case of eye contact : Rinse with plenty of water.
Get medical attention if symptoms occur.
- If swallowed : Rinse mouth.
Get medical attention if symptoms occur.
- Protection of first-aiders : In event of emergency assess the danger before taking action.
Do not put yourself at risk of injury. If in doubt, contact emergency responders. Use personal protective equipment as required.

4.2 Most important symptoms and effects, both acute and delayed

See Section 11 for more detailed information on health effects and symptoms.

4.3 Indication of immediate medical attention and special treatment needed

Star Oxygen Control (ELIMIN-OX) - PRODUCT CODE: 00950036

Treatment : Treat symptomatically.

Section: 5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting : Not flammable or combustible.

Hazardous combustion products : Depending on combustion properties, decomposition products may include following materials:
Carbon oxides

5.3 Advice for firefighters

Special protective equipment for firefighters : Use personal protective equipment.

Further information : Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. In the event of fire and/or explosion do not breathe fumes.

Section: 6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel : Ensure clean-up is conducted by trained personnel only. Refer to protective measures listed in sections 7 and 8.

Advice for emergency responders : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials.

6.2 Environmental precautions

Environmental precautions : Do not allow contact with soil, surface or ground water.

6.3 Methods and materials for containment and cleaning up

Methods for cleaning up : Stop leak if safe to do so.
Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).
Flush away traces with water.
For large spills, dike spilled material or otherwise contain material to ensure runoff does not reach a waterway.

6.4 Reference to other sections

See Section 1 for emergency contact information.
For personal protection see section 8.
See Section 13 for additional waste treatment information.

Star Oxygen Control (ELIMIN-OX) - PRODUCT CODE: 00950036

Section: 7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Advice on safe handling : Do not get in eyes, on skin, or on clothing. Wash hands thoroughly after handling. Use only with adequate ventilation.

Hygiene measures : Handle in accordance with good industrial hygiene and safety practice. Remove and wash contaminated clothing before re-use. Wash face, hands and any exposed skin thoroughly after handling.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : Keep out of reach of children. Keep container tightly closed. Store in suitable labelled containers.

Suitable material : The following compatibility data is suggested based on similar product data and/or industry experience: Stainless Steel 304, Stainless Steel 316L, CPVC (rigid), HDPE (high density polyethylene), Plexiglass, Polypropylene, PVC, PTFE, Polyvinylidene difluoride, Perfluoroelastomer, EPDM, Fluoroelastomer, Nitrile, Plasite 7122, Buna-N

Unsuitable material : The following compatibility data is suggested based on similar product data and/or industry experience: Brass, Mild steel, Neoprene, Nylon

7.3 Specific end uses

Specific use(s) : OXYGEN SCAVENGER

Section: 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Contains no substances with occupational exposure limit values.

DNEL

Carbohydrazide	:	End Use: Workers Exposure routes: Inhalation Value: 2.64 mg/m ³
	:	End Use: Workers Exposure routes: Dermal Value: 0.75 mg/cm ²
	:	End Use: Consumers Exposure routes: Ingestion Value: 0.38 ppm

PNEC

Carbohydrazide	:	Fresh water Value: 0.0015 mg/l
	:	Marine water Value: 0.00015 mg/l
	:	Intermittent use/release Value: 0.015 mg/l

Star Oxygen Control (ELIMIN-OX) - PRODUCT CODE: 00950036

		Sewage treatment plant Value: 2.5 mg/l

8.2 Exposure controls

Appropriate engineering controls

Effective exhaust ventilation system.
Maintain air concentrations below occupational exposure standards.

Individual protection measures

Hygiene measures : Handle in accordance with good industrial hygiene and safety practice. Remove and wash contaminated clothing before re-use. Wash face, hands and any exposed skin thoroughly after handling.

Eye/face protection (EN 166) : Safety glasses

Hand protection (EN 374) : Recommended preventive skin protection
Gloves
Nitrile rubber
butyl-rubber
Breakthrough time: 1 – 4 hours
Minimum thickness for butyl-rubber 0.7 mm for nitrile rubber 0.4 mm or equivalent (please refer to the gloves manufacturer/distributor for advise).
Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.

Skin and body protection (EN 14605) : Wear suitable protective clothing.

Respiratory protection (EN 143, 14387) : When respiratory risks cannot be avoided or sufficiently limited by technical means of collective protection or by measures, methods or procedures of work organization, consider the use of certified respiratory protection equipment meeting EU requirements (89/656/EEC, (EU) 2016/425), or equivalent, with filter type: P

The Personal Protective Equipment (PPE) recommendations provided above have been made in good faith based on typical expected conditions of use. PPE selection should always be completed in conjunction with a proper risk assessment and in accordance with a PPE management program.

Environmental exposure controls

General advice : Consider the provision of containment around storage vessels.

Section: 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance : Liquid

Colour : colourless

Star Oxygen Control (ELIMIN-OX) - PRODUCT CODE: 00950036

Odour	: odourless
Flash point	: does not flash
pH	: 8.5 - 10, 100 % Method: ASTM E 70
Odour Threshold	: no data available
Melting point/freezing point	: Freezing Point: -2 °C
Initial boiling point and boiling range	: no data available
Evaporation rate	: no data available
Flammability (solid, gas)	: no data available
Upper explosion limit	: no data available
Lower explosion limit	: no data available
Vapour pressure	: 12 mm Hg (20 °C)
Relative vapour density	: no data available
Relative density	: 1.02 (20 °C)
Solubility(ies)	
Water solubility	: completely soluble
Solubility in other solvents	: no data available
Partition coefficient: n-octanol/water	: no data available
Auto-ignition temperature	: no data available
Thermal decomposition	: no data available
Viscosity	
Viscosity, dynamic	: 2.9 mPa.s (15.6 °C)
Viscosity, kinematic	: no data available
Explosive properties	: no data available
Oxidizing properties	: no data available

9.2 Other information

no data available

Section: 10. STABILITY AND REACTIVITY

10.1 Reactivity

No dangerous reaction known under conditions of normal use.

10.2 Chemical stability

Stable under normal conditions.

10.3 Possibility of hazardous reactions

Star Oxygen Control (ELIMIN-OX) - PRODUCT CODE: 00950036

Hazardous reactions : No dangerous reaction known under conditions of normal use.

10.4 Conditions to avoid

10.5 Incompatible materials

10.6 Hazardous decomposition products

Hazardous decomposition products : Depending on combustion properties, decomposition products may include following materials:
Carbon oxides

Section: 11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Information on likely routes of exposure : Inhalation, Eye contact, Skin contact

Toxicity

Product

Acute oral toxicity : LD50 rat: > 5,000 mg/kg
Test substance: Product

Acute inhalation toxicity : There is no data available for this product.

Acute dermal toxicity : LD50 rabbit: > 2,000 mg/kg
Test substance: Product

Skin corrosion/irritation : Species: Rabbit
Result: 0.2
Method: Draize Test
Test substance:Product

Serious eye damage/eye irritation : Species: rabbit
Result: 0.3
Method: Draize Test
Test substance: Product

Respiratory or skin sensitization : Result: May cause an allergic skin reaction.

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

Reproductive effects : No toxicity to reproduction

Germ cell mutagenicity : Not mutagenic in Ames Test.

Teratogenicity : There is no data available for this product.

STOT - single exposure : Based on available data, the classification criteria are not met.

Star Oxygen Control (ELIMIN-OX) - PRODUCT CODE: 00950036

STOT - repeated exposure : There is no data available for this product.

Aspiration toxicity : No aspiration toxicity classification

Potential Health Effects

Eyes : Health injuries are not known or expected under normal use.

Skin : May cause allergic skin reaction.

Ingestion : Health injuries are not known or expected under normal use.

Inhalation : Health injuries are not known or expected under normal use.

Chronic Exposure : Health injuries are not known or expected under normal use.

Experience with human exposure

Eye contact : No symptoms known or expected.

Skin contact : Redness, Irritation, Allergic reactions

Ingestion : No symptoms known or expected.

Inhalation : No symptoms known or expected.

Further information : no data available

Section: 12. ECOLOGICAL INFORMATION

12.1 Ecotoxicity

Product

Environmental Effects : This product has no known ecotoxicological effects.

Toxicity to fish : 96 hrs LC50 *Oncorhynchus mykiss* (rainbow trout): 360 mg/l
Test substance: Product

96 hrs LC50 *Lepomis macrochirus* (Bluegill sunfish):
190 mg/l
Test substance: Product

96 hrs LC50 *Pimephales promelas* (fathead minnow):
400 mg/l
Test substance: Product

96 hrs LC50 Flatfish, flounder: 156 mg/l
Test substance: Product
Test Type: Static
Method: OSPARCOM 1995
GLP: yes

96 hrs NOEC *Pimephales promelas* (fathead minnow):

Star Oxygen Control (ELIMIN-OX) - PRODUCT CODE: 00950036

100 mg/l
Test substance: Product

Toxicity to daphnia and other aquatic invertebrates : 48 hrs LC50 *Acartia tonsa*: 70 mg/l
Test substance: Product
Test Type: Static
Method: ISO TC147SC5WG2
GLP: yes

240 hrs LC50 *Corophium volutator*: > 10,000 mg/l
Test substance: Product
Test Type: Static
GLP: yes

Toxicity to algae : 72 hrs EC50 *Skeletonema costatum* (marine diatom):
45 mg/l
Test substance: Product
Method: ISO 10253 part B
GLP: yes

Components

Toxicity to fish : Carbohydrazide
96 h LC50: 17.93 mg/l

Components

Toxicity to daphnia and other aquatic invertebrates : Carbohydrazide
48 h EC50: 8.3 mg/l

Components

Toxicity to algae : Carbohydrazide
72 h EC50: 1.5 mg/l

Components

Toxicity to bacteria : Carbohydrazide
230 mg/l
Method: OECD Test Guideline 209

Components

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : Carbohydrazide
7 d NOEC: 0.98 mg/l

12.2 Persistence and degradability

Product

Biodegradability : Greater than 95% of this product consists of inorganic substances for which a biodegradation value is not applicable.
Result: Readily biodegradable.

Chemical Oxygen Demand (COD): 24,000 mg/l

BOD/COD Ratio: 100 % (Active Substance)

Components

Biodegradability : Carbohydrazide

Star Oxygen Control (ELIMIN-OX) - PRODUCT CODE: 00950036

Result: Readily biodegradable.

12.3 Bioaccumulative potential

no data available

12.4 Mobility in soil

Product

This substance is water soluble and is expected to remain primarily in water.

12.5 Results of PBT and vPvB assessment

Product

Assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Other adverse effects

No adverse effects expected.

Section: 13. DISPOSAL CONSIDERATIONS

Dispose of in accordance with the European Directives on waste and hazardous waste. Waste codes should be assigned by the user, preferably in discussion with the waste disposal authorities.

13.1 Waste treatment methods

- Product : Where possible recycling is preferred to disposal or incineration.
If recycling is not practicable, dispose of in compliance with local regulations.
Dispose of wastes in an approved waste disposal facility.
- Contaminated packaging : Dispose of as unused product.
Empty containers should be taken to an approved waste handling site for recycling or disposal.
Do not re-use empty containers.
- Guidance for Waste Code selection : Inorganic wastes containing dangerous substances. If this product is used in any further processes, the final user must redefine and assign the most appropriate European Waste Catalogue Code. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable European (EU Directive 2008/98/EC) and local regulations.

Section: 14. TRANSPORT INFORMATION

The shipper/consignor/sender is responsible to ensure that the packaging, labeling, and markings are in compliance with the selected mode of transport.

Star Oxygen Control (ELIMIN-OX) - PRODUCT CODE: 00950036

Land transport (ADR/ADN/RID)

14.1 UN number:	Not applicable.
14.2 UN proper shipping name:	PRODUCT IS NOT REGULATED DURING TRANSPORTATION
14.3 Transport hazard class(es):	Not applicable.
14.4 Packing group:	Not applicable.
14.5 Environmental hazards:	No
14.6 Special precautions for user:	Not applicable.

Air transport (IATA)

14.1 UN number:	Not applicable.
14.2 UN proper shipping name:	PRODUCT IS NOT REGULATED DURING TRANSPORTATION
14.3 Transport hazard class(es):	Not applicable.
14.4 Packing group:	Not applicable.
14.5 Environmental hazards:	No
14.6 Special precautions for user:	Not applicable.

Sea transport (IMDG/IMO)

14.1 UN number:	Not applicable.
14.2 UN proper shipping name:	PRODUCT IS NOT REGULATED DURING TRANSPORTATION
14.3 Transport hazard class(es):	Not applicable.
14.4 Packing group:	Not applicable.
14.5 Environmental hazards:	No
14.6 Special precautions for user:	Not applicable.
14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code:	Not applicable.

Section: 15. REGULATORY INFORMATION

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

INTERNATIONAL REGULATIONS

FOOD AND DRUG ADMINISTRATION (FDA) Federal Food, Drug and Cosmetic Act

When use situations necessitate compliance with FDA regulations, this product is acceptable under: 21 CFR 176.170 Components of paper and paperboard in contact with aqueous and fatty foods and 21 CFR 176.180 Components of paper and paperboard in contact with dry foods., the following use conditions.

For use only in pulp and papermill boilers where the steam is used to treat pulp and paper in the manufacture of paper and paperboard that may be used to package food. Limitations: no more than required to produce intended technical effect.

KOSHER

This product has been certified as KOSHER/PAREVE for year-round use EXCEPT FOR THE PASSOVER SEASON by the CHICAGO RABBINICAL COUNCIL.

NSF NON-FOOD COMPOUNDS REGISTRATION PROGRAM (former USDA List of Proprietary Substances & Non-Food Compounds):

NSF Registration number for this product is: 145925

This product is acceptable for treatment of cooling and retort water (G5) in and around food processing areas. This product is acceptable for treating boilers, steam lines, and/or cooling systems (G7) where neither the treated water nor the steam produced may contact edible products in and around food processing areas.

Star Oxygen Control (ELIMIN-OX) - PRODUCT CODE: 00950036

INTERNATIONAL CHEMICAL CONTROL LAWS

CANADA

The substance(s) in this preparation are included in or exempted from the Domestic Substance List (DSL).

United States TSCA Inventory

On or in compliance with the active portion of the TSCA inventory

15.2 Chemical Safety Assessment:

No Chemical Safety Assessment has been carried out.

Section: 16. OTHER INFORMATION

Procedure used to derive the classification according to REGULATION (EC) No 1272/2008

Classification	Justification
Skin sensitization 1, H317	Calculation method

Full text of H-Statements

H317 May cause an allergic skin reaction.

Full text of other abbreviations

ADN – European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR – European Agreement concerning the International Carriage of Dangerous Goods by Road; AICS – Australian Inventory of Chemical Substances; ASTM – American Society for the Testing of Materials; bw – Body weight; CLP – Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR – Carcinogen, Mutagen or Reproductive Toxicant; DIN – Standard of the German Institute for Standardisation; DSL – Domestic Substances List (Canada); ECHA – European Chemicals Agency; EC-Number – European Community number; ECx – Concentration associated with x% response; ELx – Loading rate associated with x% response; EmS – Emergency Schedule; ENCS – Existing and New Chemical Substances (Japan); ErCx – Concentration associated with x% growth rate response; GHS – Globally Harmonized System; GLP – Good Laboratory Practice; IARC – International Agency for Research on Cancer; IATA – International Air Transport Association; IBC – International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 – Half maximal inhibitory concentration; ICAO – International Civil Aviation Organization; IECSC – Inventory of Existing Chemical Substances in China; IMDG – International Maritime Dangerous Goods; IMO – International Maritime Organization; ISHL – Industrial Safety and Health Law (Japan); ISO – International Organisation for Standardization; KECI – Korea Existing Chemicals Inventory; LC50 – Lethal Concentration to 50 % of a test population; LD50 – Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL – International Convention for the Prevention of Pollution from Ships; n.o.s. – Not Otherwise Specified; NO(A)EC – No Observed (Adverse) Effect Concentration; NO(A)EL – No Observed (Adverse) Effect Level; NOELR – No Observable Effect Loading Rate; NZIoC – New Zealand Inventory of Chemicals; OECD – Organization for Economic Co-operation and Development; OPPTS – Office of Chemical Safety and Pollution Prevention; PBT – Persistent, Bioaccumulative and Toxic substance; PICCS – Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR – (Quantitative) Structure Activity Relationship; REACH – Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID – Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT – Self-Accelerating Decomposition Temperature; SDS – Safety Data Sheet; TCSI – Taiwan Chemical Substance Inventory; TRGS – Technical Rule for Hazardous Substances; TSCA – Toxic Substances Control Act (United States); UN – United Nations; vPvB – Very Persistent and Very Bioaccumulative

Star Oxygen Control (ELIMIN-OX) - PRODUCT CODE: 00950036

Contributing scenario controlling worker exposure for:

Process category : **PROC28** Manual maintenance (cleaning and repair) of machinery

Exposure duration : 240 min

Operational conditions and risk management measures : Indoor

Local Exhaust Ventilation is not required

General ventilation Ventilation rate per hour: 1

Skin Protection : Yes: See Section 8

Respiratory Protection : No



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