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

1.1 Product identifier: **NALCO® 77211**
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 : Nalco Ltd.
P.O. BOX 11, WINNINGTON AVENUE
NORTHWICH, CHESHIRE, U.K. CW8 4DX
+44 (0)1606 74488
For Product Safety information please contact:
msdseame@nalco.com

1.4 Emergency telephone number:

Emergency telephone number : +44 1618841235
+32-(0)3-575-5555 Trans-European

Date of Compilation/Revision: 27.01.2022
Version Number: 1.10

Section: 2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Acute toxicity, Category 4	H302

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :

Signal Word	:	Danger	
Hazard Statements	:	H302	Harmful if swallowed.
Supplemental Hazard Statements	:	EUH031	Contact with acids liberates toxic gas.
Precautionary Statements	:	**Prevention:**	
		P270	Do not eat, drink or smoke when using this product.

P280	Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection.
Response:	
P301 + P312 + P330	IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Rinse mouth.
P308 + P313	IF exposed or concerned: Get medical advice/attention.
Disposal:	
P501	Dispose of contents/ container to an approved waste disposal plant.

Hazardous components which must be listed on the label:
Sodium BisulfiteCobalt Sulfate

2.3 Other hazards

The head space of containers containing this product may accumulate Sulphur Dioxide (SO2). SO2 is a toxic and irritating gas that can be hazardous if inhaled.

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: [%]
Sodium Bisulfite	7631-90-5 231-548-0 01-2119524563-42	Nota B Acute toxicity Category 4; H302	30 - < 50
Cobalt Sulfate	10124-43-3 233-334-2 01-2119517426-41	Note 1, *** Acute toxicity Category 4; H302 Respiratory sensitization Category 1; H334 Skin sensitization Category 1; H317 Germ cell mutagenicity Category 2; H341 Carcinogenicity Category 1B; H350i Reproductive toxicity Category 1B; H360F Acute aquatic toxicity Category 1; H400 Chronic aquatic toxicity Category 1; H410 Carcinogenicity Category 1B H350i >= 0.01 % M = 10 M(Chronic) = 10	0.01 - < 0.025

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 with soap and plenty of water. Get medical attention if symptoms occur.
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

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.
Unsuitable extinguishing media	:	None known.

5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting	:	Heating or fire can release toxic gas. May evolve oxides of sulfur (SOx) under fire conditions. Exposure to decomposition products may be a hazard to health.
Hazardous combustion products	:	Depending on combustion properties, decomposition products may include following materials: Sulphur 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.

Section: 7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Advice on safe handling : Do not ingest. Wash hands thoroughly after handling. Use only with adequate ventilation. Containers should be opened cautiously and only in well ventilated areas.

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 a well-ventilated place. Store in suitable labelled containers. Do not store at elevated temperature.

Suitable material : The following compatibility data is suggested based on similar product data and/or industry experience: Brass, EPDM, HDPE (high density polyethylene), Neoprene, Polyurethane, Plasite 4300, CPVC (rigid), Polypropylene (rigid), Polyethylene (rigid), Chlorosulfonated polyethylene rubber, Fluoroelastomer

Unsuitable material : The following compatibility data is suggested based on similar product data and/or industry experience: Buna-N, Plasite 7122, Stainless Steel 304, coated steel

7.3 Specific end uses

Specific use(s) : OXYGEN SCAVENGER

Section: 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Occupational Exposure Limits

Components	CAS-No.	Value type (Form	Control parameters	Basis

		of exposure)		
Sodium Bisulfite	7631-90-5	TWA	5 mg/m3	UKCOSSTD
Cobalt Sulfate	10124-43-3	TWA	0.1 mg/m3 (Cobalt(Co))	UKCOSSTD
Further information	Sen	Capable of causing occupational asthma.		
	Carc	Capable of causing cancer and/or heritable genetic damage.		

DNEL

Sodium Bisulfite	:	End Use: Workers Exposure routes: Inhalation Potential health effects: long term - systemic Value: 246 mg/m3

PNEC

Sodium Bisulfite	:	Fresh water Value: 1.09 mg/l
		Marine water Value: 0.11 mg/l
		STP Value: 82.5 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 0.3 mm for nitrile rubber 0.2 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 workers are facing concentrations above the exposure limit they must use appropriate certified respirators. Filter type: B-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	:	amber
Odour	:	Sulfurous
Flash point	:	does not flash
pH	:	3.0 - 5.0, 100 % (25 °C)
Odour Threshold	:	no data available
Melting point/freezing point	:	Freezing Point: -7 °C
Initial boiling point and boiling range	:	100 °C
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	:	32 mm Hg (28 °C)
Relative vapour density	:	no data available
Relative density	:	1.31 (25 °C)
Density	:	1.29 g/cm3
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	:	6 mPa.s (20 °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

Evolves SO2 when open to atmosphere. The rate of SO2 evolution increases with temperature and/or transfer of product.

10.3 Possibility of hazardous reactions

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

10.4 Conditions to avoid

Conditions to avoid : Keep away from heat and sources of ignition.

10.5 Incompatible materials

Materials to avoid : SO2 may react with vapors from neutralizing amines and may produce a visible cloud of amine salt particles.

10.6 Hazardous decomposition products

Hazardous decomposition products : Depending on combustion properties, decomposition products may include following materials:
Sulphur 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	:	Acute toxicity estimate : 1,324 mg/kg
Acute inhalation toxicity	:	There is no data available for this product.
Acute dermal toxicity	:	There is no data available for this product.
Skin corrosion/irritation	:	There is no data available for this product.
Serious eye damage/eye irritation	:	There is no data available for this product.
Respiratory or skin sensitization	:	There is no data available for this product.

Carcinogenicity	:	There is no data available for this product.
Reproductive effects	:	There is no data available for this product.
Germ cell mutagenicity	:	There is no data available for this product.
Teratogenicity	:	There is no data available for this product.
STOT - single exposure	:	Based on available data, the classification criteria are not met.
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	:	Health injuries are not known or expected under normal use.
Ingestion	:	Harmful if swallowed.
Inhalation	:	May release toxic, irritating and/or corrosive gases.
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	:	No symptoms known or expected.
Ingestion	:	No information available.
Inhalation	:	No symptoms known or expected.
Further information	:	no data available

Section: 12. ECOLOGICAL INFORMATION

12.1 Toxicity

Product

Environmental Effects	:	This product has no known ecotoxicological effects.
Toxicity to fish	:	96 hrs LC50 Lepomis macrochirus (Bluegill sunfish): 100 - 1,000 mg/l Test substance: Product 96 hrs LC50 Oncorhynchus mykiss (rainbow trout): 100 - 1,000 mg/l Test substance: Product
Toxicity to daphnia and other	:	no data available

aquatic invertebrates

Toxicity to algae : no data available

Components

Toxicity to fish : Sodium Bisulfite
96 h LC50 Fish: 177.8 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.

Chemical Oxygen Demand (COD): 75,000 mg/l

Components

Biodegradability : Sodium Bisulfite
Result: Not applicable - inorganic

Cobalt Sulfate
Result: Not applicable - inorganic

12.3 Bioaccumulative potential

Product

Bioaccumulation : This preparation or material is not expected to bioaccumulate.

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 data available

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 contents/container in accordance 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.

Land transport (ADR/ADN/RID)

14.1 UN number:	UN 2693
14.2 UN proper shipping name:	BISULPHITES, AQUEOUS SOLUTION, N.O.S. (Sodium Bisulfite)
14.3 Transport hazard class(es):	8
14.4 Packing group:	III
14.5 Environmental hazards:	No
14.6 Special precautions for user:	Not applicable.

Air transport (IATA)

14.1 UN number:	UN 2693
14.2 UN proper shipping name:	BISULPHITES, AQUEOUS SOLUTION, N.O.S. (Sodium Bisulfite)
14.3 Transport hazard class(es):	8
14.4 Packing group:	III
14.5 Environmental hazards:	No
14.6 Special precautions for user:	Not applicable.

Sea transport (IMDG/IMO)

14.1 UN number:	UN 2693
14.2 UN proper shipping name:	BISULPHITES, AQUEOUS SOLUTION, N.O.S. (Sodium Bisulfite)
14.3 Transport hazard class(es):	8
14.4 Packing group:	III
14.5 Environmental hazards:	No
14.6 Special precautions for user:	No special precautions required.
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:

Regulation (EU) 2019/1148 on the marketing and use of explosives precursors This product is regulated (containing reportable or/and restricted substances) by Regulation (EU) 2019/1148 (explosives precursors): all suspicious transactions, significant disappearances and thefts should be reported to the relevant national contact point.

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances. : Not applicable. Not applicable.

INTERNATIONAL REGULATIONS

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: 141486
This product is acceptable for treating boilers or steam lines where steam produced may contact edible products and/or cooling systems where the treated water may not contact edible products in and around food processing areas (G6).

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 TSCA Inventory

NATIONAL REGULATIONS GERMANY
Water contaminating class (Germany) : WGK 1
Classification according to AwSV, Annex 1

15.2 Chemical Safety Assessment:

A Chemical Safety Assessment has been carried out for the substance(s) that makes/make up this material or for the material itself.

Section: 16. OTHER INFORMATION

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

Classification	Justification
Acute toxicity 4, H302	Calculation method

Full text of H-Statements

H302	Harmful if swallowed.
H317	May cause an allergic skin reaction.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.

H341	Suspected of causing genetic defects.
H350i	May cause cancer by inhalation.
H360F	May damage fertility.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

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; AIIC - Australian Inventory of Industrial Chemicals; 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; SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

Sources of key data used to compile the Safety Data Sheet	:	IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Man, Geneva: World Health Organization, International Agency for Research on Cancer. The possible key literature references and data sources which may have been used in conjunction with the consideration of expert judgment to compile this Safety Data Sheet: European regulations/directives (including (EC) No. 1907/2006, (EC) No. 1272/2008), supplier data, inter-net, ESIS, IUCLID, ERIcards, Non European official regulatory data and other data sources.
Prepared By	:	Regulatory Affairs

Numbers quoted in the MSDS are given in the format: 1,000,000 = 1 million and 1,000 = 1 thousand. 0.1 = 1 tenth and 0.001 = 1 thousandth

REVISED INFORMATION: Significant changes to regulatory or health information for this revision is indicated by a bar in the left-hand margin of the SDS.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Annex: Exposure Scenarios

Exposure Scenario: Boiler treatment under 1T per day

Life Cycle Stage	:	Industrial uses: Uses of substances as such or in preparations at industrial sites	
Sector of use	:	**SU23**	Electricity, steam, gas water supply and sewage treatment

Contributing scenario controlling environmental exposure for:

Environmental release category	:	**ERC4**	Industrial use of processing aids in processes and products, not becoming part of articles
Daily amount per site	:	1000 kg	
Type of Sewage Treatment Plant	:	none	

Contributing scenario controlling worker exposure for:

Process category	:	**PROC15**	Use as laboratory reagent
Exposure duration	:	60.00 min	
Operational conditions and risk management measures	:	Indoor	
		Local Exhaust Ventilation with 90% efficiency is required	
General ventilation		Ventilation rate per hour:	1
Skin Protection	:	see section 8	
Respiratory Protection	:	see section 8	

Contributing scenario controlling worker exposure for:

Process category	:	**PROC1**	Use in closed process, no likelihood of exposure
Exposure duration	:	60 min	
Operational conditions and risk management measures	:	Indoor	
		Local Exhaust Ventilation is not required	
General ventilation		Ventilation rate per hour:	1
Skin Protection	:	see section 8	

Respiratory Protection	:	see section 8

Contributing scenario controlling worker exposure for:

Process category	:	**PROC8a**	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities
Exposure duration	:	15 min	
Operational conditions and risk management measures	:	Indoor	
		Local Exhaust Ventilation is not required	
General ventilation		Ventilation rate per hour:	1
Skin Protection	:	see section 8	
Respiratory Protection	:	see section 8	

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	:	see section 8	
Respiratory Protection	:	see section 8	