1. IDENTIFICATION

Product Name	**Chondroitin Sulfate Sodium**
Other Names	Chondroitin Sulfate A And Chondroitin Sulfate Sodium C; Sodium salt of the sulfate ester of N-acetylchondrosamine (2-acetamido-2-deoxy-beta-D-galactopyranose) and D-glucuronic acid copolymer
Uses	For nutraceuticals, pharmaceuticals, and veterinary use.
Chemical Family	Sulfated linear mucopolysaccharide
Chemical Formula	(C14H19NO14SNa2)n
Chemical Name	Chondroitin Sulfate Sodium
Product Description	Pure material.

Contact Details of the Supplier of this Safety Data Sheet

Organisation	Location	Telephone
Redox Pty Ltd	2 Swettenham Road Minto NSW 2566 Australia	+61-2-97333000
Redox Pty Ltd	11 Mayo Road Wiri Auckland 2104 New Zealand	+64-9-2506222
Redox Inc.	3960 Paramount Boulevard Suite 107 Lakewood CA 90712 USA	+1-424-675-3200
Redox Chemicals Sdn Bhd	Level 2, No. 8, Jalan Sapir 33/7 Seksyen 33, Shah Alam Premier Industrial Park 40400 Shah Alam Sengalor, Malaysia	+60-3-5614-2111

Emergency Contact Details

For emergencies only; DO NOT contact these companies for general product advice.

Organisation	Location	Telephone
Poisons Information Centre	Westmead NSW	1800-251525 131126
Chemcall	Australia	1800-127406 +64-4-9179888
Chemcall	Malaysia	+64-4-9179888
Chemcall	New Zealand	0800-243622 +64-4-9179888
National Poisons Centre	New Zealand	0800-764766
CHEMTREC	USA & Canada	1-800-424-9300 CN723420 +1-703-527-3887

2. HAZARD IDENTIFICATION

Poisons Schedule (Aust) Not scheduled

Globally Harmonised System

Hazard Classification		Hazardous according to the criteria of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS)	
Hazard Categories		Serious Eye Damage/Irritation - Category 2B	
Pictograms			
Signal Word		Warning	
Hazard Statements		**H320**	Causes eye irritation.
Precautionary Statements	Prevention	**P264**	Wash skin thoroughly after handling.
	Response	**P305 + P351 + P338**	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
		P337 + P313	If eye irritation persists: Get medical advice/attention.

National Transport Commission (Australia)
Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

Dangerous Goods Classification	NOT Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

Environmental Protection Authority (New Zealand)
Hazardous Substances and New Organisms Amendment Act 2015

HSNO Classifications	Health Hazards	**6.4A**	Substances that are irritating to the eye

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients

Chemical Entity	Formula	CAS Number	Proportion
Chondroitin Sulfate Sodium	No Data Available	9082-07-9	100.0 %

4. FIRST AID MEASURES

Description of necessary measures according to routes of exposure

Swallowed

Rinse mouth with water. Give plenty of water to drink provided victim is conscious. Do NOT induce vomiting. Seek medical attention immediately.

*Persons developing serious hypersensitivity (anaphylactic) reactions must receive immediate medical attention. If person is not breathing give artificial respiration. If breathing is difficult give oxygen. Obtain medical attention.

Eye

Immediately flush eyes with plenty of water for 15 minutes, holding eyelids open. In all cases of eye contamination, it is a sensible precaution to seek medical advice.

Skin

Remove contaminated clothing. Wash affected area with copious quantities of water for at least 15 minutes. If irritation persists, seek medical attention. Wash contaminated clothing before reuse.

Inhaled

Remove victim from exposure to fresh air - avoid becoming a casualty. Remove contaminated clothing and loosen remaining clothing. Allow patient to assume most comfortable position and keep warm and at rest. Seek immediate medical advice.

Treat symptomatically based on judgement of doctor and individual reactions of patient.

Advice to Doctor	
Medical Conditions Aggravated by Exposure	Hypersensitivity to material

5. FIRE FIGHTING MEASURES

General Measures	As with all fires, evacuate personnel to a safe area. Stay upwind. Keep out of low areas. Eliminate ignition sources. Move fire exposed containers from fire area if it can be done without risk.
Flammability Conditions	May be combustible at high temperature.
Extinguishing Media	Water spray, dry chemical, carbon dioxide or foam as appropriate for surrounding fire and materials.
Fire and Explosion Hazard	This material is assumed to be combustible. As with all dry powders it is advisable to ground mechanical equipment in contact with dry material to dissipate the potential build up of static electricity.
Hazardous Products of Combustion	When heated to decomposition material emits toxic fumes of SOx. Emits toxic fumes under fire conditions.
Special Fire Fighting Instructions	Do NOT allow fire fighting water to reach waterways, drains or sewers. Store fire fighting water for treatment.
Personal Protective Equipment	Fire fighters should wear a positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots and gloves).
Flash Point	No Data Available
Lower Explosion Limit	No Data Available
Upper Explosion Limit	No Data Available
Auto Ignition Temperature	No Data Available
Hazchem Code	No Data Available

6. ACCIDENTAL RELEASE MEASURES

General Response Procedure	Avoid accidents, clean up immediately. Slippery when spilt. Eliminate all sources of ignition. Increase ventilation. Avoid generating dust. Use clean, non-sparking tools and equipment. Wear approved respiratory protection, chemically compatible gloves and protective clothing.
Clean Up Procedures	Contain and sweep/shovel up spills with dust binding material or use an industrial vacuum cleaner. Avoid generating dust. Transfer to a suitable, labelled container and dispose of promptly.
Containment	Stop leak if safe to do so. Isolate the danger area.
Decontamination	Wash spill site.
Environmental Precautionary Measures	Do NOT let product reach drains or waterways. If product does enter a waterway, advise the Environmental Protection Authority or your local Waste Management.
Evacuation Criteria	Evacuate all unnecessary personnel.
Personal Precautionary Measures	Personnel involved in the clean up should wear full protective clothing as listed in section 8.

7. HANDLING AND STORAGE

Handling	Ensure an eye bath and safety shower are available and ready for use. Observe good personal hygiene practices and recommended procedures. Avoid all contact and inhalation of dust associated with material. Clean equipment and work surfaces. Avoid handling which leads to dust formation. May form flammable dust clouds in air. Take precautionary measures against static discharges.
Storage	Keep container tightly closed when not in use - check regularly for spills. Store at room temperature. Store in a cool, dry, well ventilated place and out of direct sunlight. Store away from sources of heat or ignition. Store away from incompatible materials.
Container	Store in original packaging as approved by manufacturer.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

General	No value assigned for this specific material by Safe Work Australia. However, Workplace Exposure Standard(s) for particulates: Dusts not otherwise classified: 8hr TWA = 10 mg/m3 As published by Safe Work Australia Workplace Exposure Standards for Airborne Contaminants. TWA - The time-weighted average airborne concentration of a particular substance when calculated over an eight-hour working day, for a five-day working week.
Exposure Limits	No Data Available
Biological Limits	No information available on biological limit values for this product.
Engineering Measures	Ensure ventilation is adequate to maintain air concentrations below Workplace Exposure Standards. A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area.
Personal Protection Equipment	Wear overalls, safety glasses and impervious (rubber) gloves. If determined by a risk assessment an inhalation risk exists, wear a dust mask/respirator meeting the requirements of AS/NZS 1715 and AS/NZS 1716.
Work Hygienic Practices	After removing gloves, wash hands and other exposed skin thoroughly. Always wash hands before smoking, eating, drinking or using the toilet. Wash contaminated clothing and other protective equipment before storage or re-use.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Solid
Appearance	Amorphous powder
Odour	Slightly characteristic
Colour	White - yellowish
pH	5.5 - 7.5 1% aqueous solution
Vapour Pressure	No Data Available
Relative Vapour Density	No Data Available
Boiling Point	No Data Available
Melting Point	No Data Available
Freezing Point	No Data Available
Solubility	Readily soluble
Specific Gravity	No Data Available
Flash Point	No Data Available
Auto Ignition Temp	No Data Available
Evaporation Rate	No Data Available
Bulk Density	> 0.5 g/cc
Corrosion Rate	No Data Available
Decomposition Temperature	No Data Available
Density	No Data Available
Specific Heat	No Data Available
Molecular Weight	No Data Available
Net Propellant Weight	No Data Available
Octanol Water Coefficient	No Data Available
Particle Size	No Data Available
Partition Coefficient	No Data Available
Saturated Vapour Concentration	No Data Available
Vapour Temperature	No Data Available
Viscosity	No Data Available
Volatile Percent	No Data Available
VOC Volume	No Data Available

Additional Characteristics	No Data Available
Potential for Dust Explosion	No Data Available
Fast or Intensely Burning Characteristics	No information available.
Flame Propagation or Burning Rate of Solid Materials	No information available.
Non-Flammables That Could Contribute Unusual Hazards to a Fire	No information available.
Properties That May Initiate or Contribute to Fire Intensity	No information available.
Reactions That Release Gases or Vapours	No information available.
Release of Invisible Flammable Vapours and Gases	No information available.

10. STABILITY AND REACTIVITY

Chemical Stability	Stable under normal conditions.
Conditions to Avoid	Avoid exposure to moisture. Avoid exposure to heat, sources of ignition, and open flame. Avoid dust generation.
Materials to Avoid	Avoid strong oxidising agents.
Hazardous Decomposition Products	When heated to decomposition material emits toxic fumes of SOx. Emits toxic fumes under fire conditions.
Hazardous Polymerisation	No dangerous reaction known under conditions of normal use.

11. TOXICOLOGICAL INFORMATION

General Information	Causes eye irritation.
Acute	
Ingestion	Oral Rat: LD50 >10,000 mg/kg Oral Mouse: LD50 >10,000 mg/kg
Carcinogen Category	None

12. ECOLOGICAL INFORMATION

Ecotoxicity	No information available.
Persistence/Degradability	No information available.
Mobility	No information available.
Environmental Fate	Avoid release to the environment.
Bioaccumulation Potential	No information available.
Environmental Impact	No Data Available

13. DISPOSAL CONSIDERATIONS

General Information	Dispose of contents/container in accordance with all local, state and federal regulations.
Special Precautions for Land Fill	Contact a specialist disposal company or the local waste regulator for advice.

14. TRANSPORT INFORMATION

Land Transport (Australia)
ADG Code

Proper Shipping Name	CHONDROITIN SULFATE SODIUM
Class	No Data Available
Subsidiary Risk(s)	No Data Available
	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available

Land Transport (Malaysia)
ADR

Proper Shipping Name	CHONDROITIN SULPHATE SODIUM
Class	No Data Available
Subsidiary Risk(s)	No Data Available
	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available

Land Transport (New Zealand)
NZS5433

Proper Shipping Name	CHONDROITIN SULFATE SODIUM
Class	No Data Available
Subsidiary Risk(s)	No Data Available
	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available

Land Transport (United States of America)
US DOT

Proper Shipping Name	CHONDROITIN SULFATE SODIUM
Class	No Data Available
Subsidiary Risk(s)	No Data Available
	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available

Sea Transport
IMDG Code

Proper Shipping Name	CHONDROITIN SULFATE SODIUM
Class	No Data Available
Subsidiary Risk(s)	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available
EMS	No Data Available
Marine Pollutant	No

Air Transport
IATA DGR

Proper Shipping Name	CHONDROITIN SULFATE SODIUM
Class	No Data Available
Subsidiary Risk(s)	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available

National Transport Commission (Australia)
Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

Dangerous Goods Classification	NOT Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

15. REGULATORY INFORMATION

General Information	No Data Available
Poisons Schedule (Aust)	Not scheduled

Environmental Protection Authority (New Zealand)
Hazardous Substances and New Organisms Amendment Act 2015

Approval Code	HSR002521 HSR002552 HSR002578

National/Regional Inventories

Australia (AICS)	Exempt
Canada (DSL)	Listed
Canada (NDSL)	Not Listed
China (IECSC)	Listed

Europe (EINECS)	618-658-8
Europe (REACh)	Not Listed
Japan (ENCS/METI)	Not Listed
Korea (KECI)	Not Listed
Malaysia (EHS Register)	Not Listed
New Zealand (NZIoC)	Listed
Philippines (PICCS)	Not Listed
Switzerland (Giftliste 1)	Not Determined
Switzerland (Inventory of Notified Substances)	Not Determined
Taiwan (NCSR)	Listed
USA (TSCA)	Not Listed

16. OTHER INFORMATION

Related Product Codes	CHOSUL1000, CHOSUL1001, CHOSUL1002, CHOSUL1003, CHOSUL1004, CHOSUL1200, CHOSUL1210, CHOSUL1300, CHOSUL1400, CHOSUL1500, CHOSUL1600, CHOSUL1700, CHOSUL1705, CHOSUL1800, CHOSUL1900, CHOSUL2000, CHOSUL2100, CHOSUL2500, CHOSUL2505, CHOSUL2600, CHOSUL3000, CHOSUL3001, CHOSUL3500, CHOSUL3900, CHOSUL3910, CHOSUL4000, CHOSUL4100, CHOSUL4200, CHOSUL4300, CHOSUL4400, CHOSUL4500, CHOSUL4600, CHOSUL4800, CHOSUL4900, CHOSUL5000, CHOSUL6000, CHOSUL6100, CHOSUL6200
Revision	3
Revision Date	01 Dec 2014
Key/Legend	**<** Less Than **>** Greater Than **AICS** Australian Inventory of Chemical Substances **atm** Atmosphere **CAS** Chemical Abstracts Service (Registry Number) **cm²** Square Centimetres **CO2** Carbon Dioxide **COD** Chemical Oxygen Demand **deg C (°C)** Degrees Celcius **EPA (New Zealand)** Environmental Protection Authority of New Zealand **deg F (°F)** Degrees Farenheit **g** Grams **g/cm³** Grams per Cubic Centimetre **g/l** Grams per Litre **HSNO** Hazardous Substance and New Organism **IDLH** Immediately Dangerous to Life and Health **immiscible** Liquids are insoluable in each other. **inHg** Inch of Mercury **inH2O** Inch of Water **K** Kelvin **kg** Kilogram **kg/m³** Kilograms per Cubic Metre **lb** Pound **LC50** LC stands for lethal concentration. LC50 is the concentration of a material in air which causes the death of 50% (one half) of a group of test animals. The material is inhaled over a set period of time, usually 1 or 4 hours. **LD50** LD stands for Lethal Dose. LD50 is the amount of a material, given all at once, which causes the death of 50% (one half) of a group of test animals. **ltr** or **L** Litre **m³** Cubic Metre **mbar** Millibar **mg** Milligram **mg/24H** Milligrams per 24 Hours **mg/kg** Milligrams per Kilogram

mg/m³ Milligrams per Cubic Metre
Misc or **Miscible** Liquids form one homogeneous liquid phase regardless of the amount of either component present.
mm Millimetre
mmH2O Millimetres of Water
mPa.s Millipascals per Second
N/A Not Applicable
NIOSH National Institute for Occupational Safety and Health
NOHSC National Occupational Heath and Safety Commission
OECD Organisation for Economic Co-operation and Development
Oz Ounce
PEL Permissible Exposure Limit
Pa Pascal
ppb Parts per Billion
ppm Parts per Million
ppm/2h Parts per Million per 2 Hours
ppm/6h Parts per Million per 6 Hours
psi Pounds per Square Inch
R Rankine
RCP Reciprocal Calculation Procedure
STEL Short Term Exposure Limit
TLV Threshold Limit Value
tne Tonne
TWA Time Weighted Average
ug/24H Micrograms per 24 Hours
UN United Nations
wt Weight