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MATERIAL SAFETY DATA SHEET

Revision No: 0

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PRODUCT NAME: MULTIFLOC N1900

CHEMICAL NAME: Nonionic flocculating agent

Multifloc N1900 is a proprietary product. Consequently this MSDS has been written to comply with Section 8, clauses 8.30 – 8.54 of Worksafe Australia's 'National Code Of Practice For The Preparation Of Material Safety Data Sheets' – NOHSC:2011(1994), with respect to the disclosure of commercially confidential information.

Classified as Hazardous according to the criteria of Worksafe Australia.

UN No.: None	HAZCHEM: None	DG CLASS: None Allocated
Poison Schedule: None	Packaging Group: None	EPG: None

Product Uses: Used as a very effective flocculating agent of potable water after coagulation has previously been carried out by Hardman's MULTIFLOC 5083 or other inorganic coagulant. Aids in the settling or flotation of coagulated contaminants.

Ingredients:

Name:	CAS Number:	Proportion:
Alkaline Salt		> 60%
Nonionic Polyacrylamide		< 10%

PHYSICAL DATA

Appearance & odour:	White granular solid. Odourless.
Molecular weight:	Not available
Boiling point (°C) :	Not applicable
Melting point (°C) :	Decomposes at above 400
Density (kg/m ³) :	~2.5 @ 25oC
Bulk density (kg/m ³) :	850 - 1050 @ 25oC
pH (7 = neutral) :	10.0 - 11.0 @ 25oC of a 1% w/w aqueous solution
Vapour pressure (kPa) :	Not applicable
Relative vapour density (air = 1) :	Not applicable
Volatile by weight (%) :	Not applicable
Solubility in water:	Soluble
Evaporation rate:	Not applicable (n-butyl acetate = 100)

FIRE AND EXPLOSION HAZARD DATA

Flash point (°C):	Material is non-flammable and non-combustible.
Auto ignition point (°C)	: Not applicable.

Explosion Limits In Air (% by volume)

Lower: Not applicable.
Upper: Not applicable.

Extinguishing media: Compatible with water, foam, CO₂, and dry chemical powder.

Special Procedures: None known.

Unusual hazards: Slippery when spilt and in contact with moisture.

Conditions to avoid: High moisture environment as material is hygroscopic; extreme temperatures.

Materials to avoid: Reacts exothermically with acids. Can react violently with halogens, phosphorous pentoxide and 2,4,6 trinitro-toluene. Material forms a strong base when dissolved in water, and can have corrosive effects towards aluminium, zinc, lead, iron and magnesium.

Decomposition products: When heated to decomposition, will emit toxic oxide fumes.

Hazardous polymerisation: Will not occur.

Label safety and risk phrases: R36; Irritating to eyes, S2; Keep out of reach of children, S8; Keep container dry, S22; Do not breathe dust, S26; In case of contact with eyes, rinse immediately with plenty of water and seek medical advise.

HEALTH HAZARD DATA

Threshold limit value: No value assigned by Worksafe Australia [NOHSC:1003 (1995)]. However, the recommended exposure limit for dusts not otherwise classified is;
TWA 10 mg/m³ as respirable dust.

TWA: the Time-Weighted Average airborne concentrations over an eight-hour, for a five-day working week over an entire working life.

EFFECTS OF EXPOSURE

Eyes (Contact) : Will cause some irritation resulting in redness.

Skin (Contact & absorption): May result in irritation and some redness.

Inhalation (breathing): Inhalation of dust may cause irritation to the respiratory tract. Coughing and some shortness of breath may result.

Ingestion (swallowing): Swallowing can result in burning of mouth, throat and stomach, resulting in abdominal pain, vomiting and diarrhea. Ingestion of large quantities (>25g) could possibly result in circulatory effects and even death.

FIRST AID

Eyes (contact): While keeping eyes open, irrigate with copious amounts of water for at least 15 minutes. Seek immediate medical attention.

Skin (contact):	Remove contaminated clothing. Wash contaminated areas with plenty of water. If any irritation persists, seek medical attention.
Inhalation (breathing):	Move immediately to fresh air and clear any blocked airways. Keep casualty warm, at rest and in a comfortable position until fully recovered. Seek medical attention if effects persist.
Ingestion (swallowing):	DO NOT induce vomiting. Wash mouth with copious quantities of water. Give fresh water to drink. Seek medical attention immediately. Note: DO NOT give water to unconscious patient.
Toxicity data:	(ex "Sax's, Dangerous Properties of Industrial Materials" Ed. 8) - eye-rbt 100 mg/24H MOD [eye-rbt 100 mg rns MLD] skn-rbt 500 mg/24H MLD ihl-rat LC50: 2300 mg/m ³ /2H – dyspnea; gastrointestinal changes orl-rat LD50: 4090 mg/kg iut-mus TDLo: 8400 ng/kg (4D preg):REP ihl-mus LC50: 1200 mg/m ³ /2H ipr-mus LD50: 117 mg/kg scu-mus LD50: 2210 mg/kg ihl-gpg LC50: 800 mg/m ³ /2H orl-hmn LD50: ~32g
Safety Profile:	Mildly toxic by ingestion. Moderately toxic by inhalation and subcutaneous routes. Poison by intraperitoneal route. An eye irritant and a mild skin irritant.

SPILL OR LEAK PROCEDURE

Steps to be taken in case material is released or spilled: Prevent spillage from entering drains, sewers or water courses. Spillage should be contained with absorbent material as material creates a slip hazard if it becomes wet. Vacuum or sweep/shovel up, avoiding generation of dust while doing so. Wear appropriate personal protective equipment. Collect spilled material in clean, dry sealable and labeled containers for disposal. Hose final trace residues to drain with large amounts of water.

Waste disposal method: Refer to local waste disposal authority.

SAFE HANDLING INFORMATION

SPECIAL PROTECTION INFORMATION

Respiratory protection:	Wear a dust mask or respirator suitable for fine dust.
Ventilation:	Adequate local exhaust recommended. If not available or where dust will be generated in an enclosed work environment, use local mechanical ventilation or extraction.
Protective gloves:	PVC or rubber.

Eye protection: Chemical goggles.
Other protective equipment: Overalls or full-length lightweight protective clothing.

SPECIAL PRECAUTIONS

Handling & storage: Handling procedures should consider minimising dust generation. Store in a well ventilated area. Store in cool and dry place away from direct sunlight if possible. Avoid damp and humid conditions. Ensure the minimisation of ingress of moisture by keeping containers securely sealed. Check for spills regularly.

Environmental impact: Environmental fate and distribution: Not a persistent pollutant. Will cause flocculation of suspended solids in an aqueous system. If solids are flocculated and settle out, they can be expected to become a part of the natural soil profile if not collected. An initial increasing of local pH can be expected in a small waterway. This will be transient though.

Toxicity: Very low level toxicity. Ecological effects (by analogy to similar products);

Freshwater fish – *Brachydanio rerio*, LC50: 4220 mg/l (96hr)
Arthropods – *Daphnia magna*, EC50: 1733 mg/l (48hr)
Freshwater unicellular algae – *Chlorella vulgaris*, EC50: 5914 mg/l (72hr)
Bacteria – *Psuedomonas putida*, EC50: 5235 mg/l (24hr)

Effect on effluent treatment: This product can be and is used as a flocculating agent in potable water treatment. It will cause finely divided solids to settle out depending on other factors such as pH, from aqueous streams. May influence pH control as this material has a basic pH in aqueous solution. It also may add to solids loading in filter cakes and present as a compressible cake.

EMERGENCY CONTACTS:

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[This MSDS consists of 4 pages, please advise if your document does not contain the same number of pages as it will not be complete]

This MSDS summarises our best knowledge of health and safety hazard information of the product and how to safely handle and use the product in the workplace. Each user should read this MSDS and consider the information in the context of how the product will be handled and used in the workplace including in conjunction with other products.

Please contact the company if any further information is required.