Safety Data Sheet

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name: **AQUCAR DB20**

Recommended Use of the Chemical and Restrictions on Use Water treatment microbiocide for industrial use.

Supplier: Ixom Operations Pty Ltd
ABN: 51 600 546 512
Street Address: Level 8, 1 Nicholson Street
East Melbourne Victoria 3002
Australia

Telephone Number: +61 3 9906 3000
Emergency Telephone: **1 800 033 111 (ALL HOURS)**

Please ensure you refer to the limitations of this Safety Data Sheet as set out in the "Other Information" section at the end of this Data Sheet.

2. HAZARDS IDENTIFICATION

Classified as Dangerous Goods by the criteria of the Australian Dangerous Goods Code (ADG Code) for Transport by Road and Rail; DANGEROUS GOODS.

This material is hazardous according to Safe Work Australia; HAZARDOUS CHEMICAL.

Classification of the chemical:
Acute Oral Toxicity - Category 4
Acute Inhalation Toxicity - Category 4
Skin Corrosion - Sub-category 1C
Skin Sensitisation - Category 1
Eye Damage - Category 1
Carcinogenicity - Category 2
Toxic to Reproduction - Category 1B

SIGNAL WORD: DANGER

Hazard Statement(s):
H302+H332 Harmful if swallowed or if inhaled.
H314 Causes severe skin burns and eye damage.
H317 May cause an allergic skin reaction.
H351 Suspected of causing cancer.
H360 May damage fertility or the unborn child.

Precautionary Statement(s):

Prevention:
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P260 Do not breathe mist, vapours, spray.
P264 Wash hands thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P272 Contaminated work clothing should not be allowed out of the workplace.
P280 Wear protective gloves / protective clothing / eye protection / face protection.
P281 Use personal protective equipment as required.

Response:
P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P302+P352 IF ON SKIN: Wash with plenty of soap and water.
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
P363 Wash contaminated clothing before re-use.
P321 Specific treatment (see First Aid Measures on Safety Data Sheet).
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P312 Call a POISON CENTER or doctor/physician if you feel unwell.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 Immediately call a POISON CENTER or doctor/physician.
P308+P313 IF exposed or concerned: Get medical advice/attention.

Storage:
P405 Store locked up.

Disposal:
P501 Dispose of contents and container in accordance with local, regional, national, international regulations.

Poisons Schedule (SUSMP): None allocated.

3. COMPOSITION AND INFORMATION ON INGREDIENTS

Components	CAS Number	Proportion	Hazard Codes
2,2-Dibromo-3-nitrilopropionamide	10222-01-2	10-<30%	H331 H301 H315 H318 H317 H400
Sodium bromide	7647-15-6	<=4.0%	H303 H313 H320 H360
Dibromoacetonitrile	3252-43-5	<=3.0%	H301 H312 H332 H315 H319 H335 H351 H410
Non hazardous component(s)	-	to 100%	-

4. FIRST AID MEASURES

For advice, contact a Poisons Information Centre (e.g. phone Australia 131 126; New Zealand 0800 764 766) or a doctor.

Inhalation:
Remove victim from area of exposure - avoid becoming a casualty. Remove contaminated clothing and loosen remaining clothing. Allow patient to assume most comfortable position and keep warm. Keep at rest until fully recovered. Seek medical advice if effects persist.

Skin Contact:
If skin or hair contact occurs, immediately remove any contaminated clothing and wash skin and hair thoroughly with running water and soap. If swelling, redness, blistering or irritation occurs seek medical assistance.

Eye Contact:
Immediately wash in and around the eye area with large amounts of water for at least 15 minutes. Eyelids to be held apart. Remove clothing if contaminated and wash skin. Urgently seek medical assistance. Transport promptly to hospital or medical centre.

Ingestion:
Immediately rinse mouth with water. If swallowed, do NOT induce vomiting. Give a glass of water. Never give anything by the mouth to an unconscious patient. Seek immediate medical assistance.

Indication of immediate medical attention and special treatment needed:
Treat symptomatically. Can cause corneal burns. No known specific antidote. Probable mucosal damage may contraindicate the use of gastric lavage. Aspiration of vomitus may cause lung injury.

5. FIRE FIGHTING MEASURES

Suitable Extinguishing Media:
Fine water spray, normal foam, dry agent (carbon dioxide, dry chemical powder).

Unsuitable Extinguishing Media:
Solid water jet/stream may scatter and spread the fire.

Hazchem or Emergency Action Code: 2X

Specific hazards arising from the chemical:
On burning will emit toxic fumes, including those of oxides of carbon , oxides of nitrogen , hydrogen bromide , cyanogen bromide, dibromoacetonitrile and bromine. Containers may rupture or explode in heat of fire.

Special protective equipment and precautions for fire-fighters:
If safe to do so, remove containers from path of fire. Fire fighters to wear self-contained breathing apparatus and suitable protective clothing if risk of exposure to vapour or products of combustion. Keep containers cool with water spray.

6. ACCIDENTAL RELEASE MEASURES

Emergency procedures/Environmental precautions:
Clear area of all unprotected personnel. Avoid skin and eye contact. Avoid breathing in vapours. Work up wind or increase ventilation. Wear protective equipment to prevent skin and eye contact and inhalation of vapours/dusts. If contamination of sewers or waterways has occurred advise local emergency services.

Personal precautions/Protective equipment/Methods and materials for containment and cleaning up:
Contain - prevent run off into drains and waterways. Neutralize with approximately 17.2 grams sodium bisulfite or 15.7 grams sodium metabisulfite for every 100 grams of product. Use absorbent (soil, sand or other inert material). Collect and seal in properly labelled containers or drums for disposal.

7. HANDLING AND STORAGE

Classified as a C2 (COMBUSTIBLE LIQUID) for the purpose of storage and handling, in accordance with the requirements of AS 1940. Refer to State Regulations for storage and transport requirements.

Precautions for safe handling:
Avoid skin and eye contact and breathing in vapour, mists and aerosols. Wash hands thoroughly after handling.

Conditions for safe storage, including any incompatibilities:
Store in a cool, dry, well ventilated place. Store in original container. Store below 35°C. Store away from incompatible materials described in Section 10. Do not store in aluminium, brass, copper, copper alloys, mild steel, stainless steel. Keep containers closed when not in use - check regularly for leaks.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters: No value assigned for this specific material by Safe Work Australia. However, supplier recommended Workplace Exposure Standard(s):

2,2-Dibromo-3-nitrilopropionamide: Ceiling 2 mg/m^3

Dibromoacetonitrile: Ceiling 0.1 ppm, Sk

Sodium bromide TWA = 6 mg/m^3

WES - Ceiling (Workplace Exposure Standard - Ceiling). A concentration that should not be exceeded for any time during any part of the working day.

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.

`Sk' (skin) Notice - absorption through the skin may be a significant source of exposure. The exposure standard is invalidated if such contact should occur.

These Workplace Exposure Standards are guides to be used in the control of occupational health hazards. All atmospheric contamination should be kept to as low a level as is workable. These workplace exposure standards should not be used as fine dividing lines between safe and dangerous concentrations of chemicals. They are not a measure of relative toxicity.

Appropriate engineering controls:
Ensure ventilation is adequate and that air concentrations of components are controlled below quoted Workplace Exposure Standards. Keep containers closed when not in use.

If in the handling and application of this material, safe exposure levels could be exceeded, the use of engineering controls such as local exhaust ventilation must be considered and the results documented. If achieving safe exposure levels does not require engineering controls, then a detailed and documented risk assessment using the relevant Personal Protective Equipment (PPE) (refer to PPE section below) as a basis must be carried out to determine the minimum PPE requirements.

Individual protection measures, such as Personal Protective Equipment (PPE):
The selection of PPE is dependent on a detailed risk assessment. The risk assessment should consider the work situation, the physical form of the chemical, the handling methods, and environmental factors.

OVERALLS, CHEMICAL GOGGLES, FACE SHIELD, GLOVES (Long), APRON, RUBBER BOOTS.

Wear overalls, chemical goggles, face shield, elbow-length impervious gloves, splash apron or equivalent chemical impervious outer garment, and rubber boots. If determined by a risk assessment an inhalation risk exists, wear an organic vapour/particulate respirator meeting the requirements of AS/NZS 1715 and AS/NZS 1716.
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:	Liquid
Colour:	Colourless to Brown
Odour:	Odourless to Mild
Odour Threshold:	No test data available
Solubility:	Miscible with water.
Specific Gravity:	1.20-1.30 @23°C (Literature)
Relative Vapour Density (air=1):	Not available
Vapour Pressure (20 °C):	18.9 mmHg @25°C (Estimated)
Flash Point (°C):	>=182 (COC)
Flammability Limits (%):	Not available
Autoignition Temperature (°C):	Not available
Boiling Point/Range (°C):	>70 (Literature)
pH:	1.5-5.0 (Literature)
Viscosity:	16 cSt @25°C (Calculated)
Freezing Point/Range (°C):	< -50 (Literature)

10. STABILITY AND REACTIVITY

Reactivity:	No information available.
Chemical stability:	Stable under normal conditions of use.
Possibility of hazardous reactions:	Hazardous polymerisation will not occur.
Conditions to avoid:	Avoid temperatures above 70 °C. Exposure to elevated temperatures can cause product to decompose. Generation of gas during decomposition can cause pressure in closed systems.
Incompatible materials:	Incompatible with oxidising agents , strong bases , some metals and alloys .
Hazardous decomposition products:	Oxides of nitrogen. Oxides of carbon. Hydrogen bromide. Bromine. Cyanogen bromide. Dibromoacetonitrile.

11. TOXICOLOGICAL INFORMATION

No adverse health effects expected if the product is handled in accordance with this Safety Data Sheet and the product label. Symptoms or effects that may arise if the product is mishandled and overexposure occurs are:

Ingestion:	Swallowing can result in nausea, vomiting, diarrhoea, abdominal pain and chemical burns to the gastrointestinal tract.
Eye contact:	A severe eye irritant. Corrosive to eyes; contact can cause corneal burns. Contamination of eyes can result in permanent injury. May cause blindness.

Skin contact: Contact with skin will result in severe irritation. Corrosive to skin - may cause skin burns. A skin sensitiser. Repeated or prolonged skin contact may lead to allergic contact dermatitis.

Inhalation: Material may be irritant to the mucous membranes of the respiratory tract (airways).

Acute toxicity:
Oral LD50 (rat): 510 mg/kg
Dermal LD50 (rabbit): >2000 mg/kg
Inhalation LC50 (rat): 1.25-1.40 mg/L (4 hrs)

Respiratory or skin sensitisation: No information available.

Chronic effects: Available evidence suggests that repeated or prolonged exposure may result in kidney injury. May damage fertility or the unborn child.

Dibromoacetonitrile has been classified by the International Agency for Research on Cancer (IARC) as a Group 2B carcinogen. Group 2B - The agent is possibly carcinogenic to humans.

Aspiration hazard: No aspiration hazard expected.

12. ECOLOGICAL INFORMATION

Ecotoxicity Avoid contaminating waterways.

Persistence/degradability: The material is biodegradable.

Bioaccumulative potential: No information available.

Mobility in soil: No information available.

Aquatic toxicity: Toxic to aquatic organisms.

48hr EC50 (Daphnia magna): 2.5 mg/L
96hr LC50 (rainbow trout): 3.6 mg/L

13. DISPOSAL CONSIDERATIONS

Disposal methods:
Refer to Waste Management Authority. Dispose of contents and container in accordance with local, regional, national, international regulations.

14. TRANSPORT INFORMATION

Road and Rail Transport
Classified as Dangerous Goods by the criteria of the Australian Dangerous Goods Code (ADG Code) for Transport by Road and Rail; DANGEROUS GOODS.

UN No: 3265

Transport Hazard Class:	8 Corrosive
Packing Group:	III
Proper Shipping Name or Technical Name:	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (CONTAINS 2,2-DIBROMO-3-NITRILOPROPIONAMIDE)
Hazchem or Emergency Action Code:	2X

Marine Transport
Classified as Dangerous Goods by the criteria of the International Maritime Dangerous Goods Code (IMDG Code) for transport by sea; DANGEROUS GOODS.

UN No:	3265
Transport Hazard Class:	8 Corrosive
Packing Group:	III
Proper Shipping Name or Technical Name:	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (CONTAINS 2,2-DIBROMO-3-NITRILOPROPIONAMIDE)
IMDG EMS Fire:	F-A
IMDG EMS Spill:	S-B

Air Transport
Classified as Dangerous Goods by the criteria of the International Air Transport Association (IATA) Dangerous Goods Regulations for transport by air; DANGEROUS GOODS.

UN No:	3265
Transport Hazard Class:	8 Corrosive
Packing Group:	III
Proper Shipping Name or Technical Name:	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (CONTAINS 2,2-DIBROMO-3-NITRILOPROPIONAMIDE)

15. REGULATORY INFORMATION

Classification:
This material is hazardous according to Safe Work Australia; HAZARDOUS CHEMICAL.

Classification of the chemical:
Acute Oral Toxicity - Category 4
Acute Inhalation Toxicity - Category 4
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Poisons Schedule (SUSMP): None allocated.

16. OTHER INFORMATION

Supplier Safety Data Sheet; 08/ 2015.
AQUCAR is a trademark of the Dow Chemical Company or an affiliated company of Dow.

This safety data sheet has been prepared by Ixom Operations Pty Ltd Toxicology & SDS Services.

Reason(s) for Issue:
5 Yearly Revised Primary SDS

This SDS summarises to our best knowledge at the date of issue, the chemical health and safety hazards of the material and general guidance on how to safely handle the material in the workplace. Since Ixom Operations Pty Ltd cannot anticipate or control the conditions under which the product may be used, each user must, prior to usage, assess and control the risks arising from its use of the material.

If clarification or further information is needed, the user should contact their Ixom representative or Ixom Operations Pty Ltd at the contact details on page 1.

Ixom Operations Pty Ltd's responsibility for the material as sold is subject to the terms and conditions of sale, a copy of which is available upon request.