SECTION 1 - IDENTIFICATION: PRODUCT IDENTIFIER AND COMPANY INFORMATION

Product name	HydraPrime® HP-1120
Product code	HP-1120
Product use	Clarification aid for water treatment
Company name	Hydroflux Utilities Pty Ltd Level 26, 44 Market Street SYDNEY NSW 2000 www.hydrofluxutilities.com.au e: info@hydrofluxutilities.com.au t: 61 2 9089 8833 f: 61 2 9089 8830
Emergency number	13 11 26 (Poison Information Hotline)

SECTION 2 - HAZARD IDENTIFICATION

HAZARDS

Hazard Class	Category*	Hazard Statement	Signal Word
Serious eye damage/eye irritation	2	Causes serious eye irritation	Warning

* Hazard categories can range from 1–5, with 1 being the highest rated hazard.

LABEL ELEMENTS

Pictogram

Signal word Warning

PRECAUTIONARY STATEMENTS - to accompany each hazard statement.

Hazard Statement	Prevention	Response	Storage	Disposal
Causes serious eye irritation	Wash hands thoroughly after handling. Wear eye protection and protective gloves.	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice.	-	-

SECTION 3 - COMPOSITION AND INFORMATION ON INGREDIENTS

DESCRIPTION Polynuclear (polymerised) aluminium salts in water.

INGREDIENTS

Chemical name	CAS No.	Proportion, %
Aluminium hydroxide chloride	12042-91-0	10–30

SECTION 4 - FIRST AID MEASURES

GENERAL ADVICE

- Take appropriate precautions to ensure your own health and safety before providing first aid.
- If a doctor or paramedic is consulted, provide them with this Safety Data Sheet.

SKIN

- Remove all contaminated clothing and footwear.
- With a clean cloth or paper towel, blot or wipe away any excess product before flushing with water.
- Flush affected skin area with large volumes of running water until it no longer feels greasy or slippery.
- If redness, irritation, swelling or blistering occurs, seek medical attention without delay.

EYE

- Immediately wash out affected eye and surrounding area with fresh running water.
- Ensure complete irrigation of the eye - keep eyelids apart and away from eye, move eyes up, down and to either side while irrigating.
- Continue irrigating for at least 15 minutes. If the eye feels as though it still contains grit/dust or a foreign object, continue to irrigate.
- If irritation or discomfort occurs after complete irrigation, seek medical attention without delay.

SWALLOWED

- If swallowed do NOT induce vomiting.
- If conscious, washout mouth and give water to drink.
- If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.
- If reflexive vomiting occurs, rinse mouth and repeat administration of water.
- If swallowed and patient begins to feel unwell, seek medical attention without delay.

INHALED

- Immediately remove patient to fresh air, lay patient down, keep warm and rested.
- If symptoms develop, seek medical advice.

NOTES TO DOCTOR OR PARAMEDIC

- This product is mildly acidic (corrosive) by nature, treat symptomatically.

SECTION 5 - FIREFIGHTING MEASURES

FIRE HAZARD

- This product is not combustible.
- This product may decompose under fire conditions to produce hydrogen chloride gas and other toxic fumes.

HAZCHEM CODE

- None assigned.

EXTINGUISHING MEDIA

- This product does not create any restrictions for extinguishing media to be used on a surrounding fire.
- Use extinguishing media suitable for burning materials in the surrounding fire.
- NOTE: water in contact with this product may become mildly acidic. The pH is expected to be >4 under any dilution and is more likely to be >6 due to a high rate of dilution by fire water.

PRECAUTIONS FOR FIREFIGHTERS AND SPECIAL PROTECTIVE EQUIPMENT

- In case of fire, wear a liquid-tight chemical protective suit with breathing apparatus.
- Wear chemical resistant gloves and chemical resistant boots.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS

- Restrict access to area until clean-up operations are complete.
- Ventilate spill area if possible.
- Avoid contact with skin and eyes.
- Use personal protective equipment recommended in Section 8 of this Safety Data Sheet.

MINOR SPILLS

- Prevent further leakage or spillage if safe to do so.
- Contain spill with sand, soil or inert material.
- Do not let product enter drains or waterways.
- Clean up all spills immediately.
- Clean spill using a moist cloth or paper towel if the spill is dropwise; if the spill is larger then cover and absorb with sand, soil or inert material and shovel away.

MAJOR SPILLS

- Alert Fire Brigade and tell them the location and nature of hazard.
- Show this Safety Data Sheet to the Fire Crew in attendance.
- Contain and absorb spill with sand, soil or inert material.
- Prevent spillage from entering drains or water ways. Spilled product may pose a risk to the aquatic ecosystem if released. If contamination of drains or waterways occurs, advise Emergency Services.
- Use retention basins for storage and pH adjustment before discharge or disposal.

SECTION 7 - HANDLING AND STORAGE

HANDLING

- Eliminate personal contact. Do not get in eyes, on skin, or on clothing.
- Wear protective clothing recommended in Section 8 of this Safety Data Sheet when risk of exposure may occur.
- Use with adequate ventilation.
- Avoid generating splashes.
- Keep the containers tightly closed when not in use.
- Ensure all containers are labelled.
- Have emergency equipment (for fires, spills, etc.) readily available.
- Do not use incompatible material for product transfer or dosing equipment (see Section 10 - “Materials To Avoid” on this Safety Data Sheet).

STORAGE CONDITIONS

- Store in original container.
- Store the containers tightly closed.
- Store in a cool, dry, well-ventilated area. Avoid storage in direct sunlight.
- Store away from incompatible materials (see Section 10 - “Materials To Avoid” on this Safety Data Sheet).
- Do not use incompatible material for bunding and containment (see Section 10 - “Materials To Avoid” on this Safety Data Sheet).

SECTION 8 - EXPOSURE CONTROLS AND PERSONAL PROTECTION

OCCUPATIONAL EXPOSURE STANDARDS

The following table shows the workplace exposure standards for airborne contaminants (exposure standards).

The exposure standard for aluminium shown below is for 100% elemental aluminium (CAS No. 7429-90-5). This product (HP-1120) contains < 7% as elemental aluminium.

		mg/m³	
Component	CAS No.	TWA	STEL
Aluminium, soluble salts (as Al)	7429-90-5	2	-

ENGINEERING MEASURES

- General ventilation is recommended.

EXPOSURE CONTROL MEASURES

- Wear standard protective clothing and protective gloves.

PERSONAL PROTECTION

We recommend as a minimum precaution the use of safety glasses with side-shields and work clothes protecting arms, legs and body, fully enclosed safety boots/gumboots and gloves.

Respiratory Protection

- Respiratory protection is not normally needed.

Hand Protection

- Gloves made from Viton, polyvinyl chloride (PVC), natural rubber, neoprene.

Skin Protection

- Wear standard protective clothing and protective gloves.

Eye Protection

- At a minimum wear safety glasses with side-shields.
- Tight-fitting safety goggles are recommended.

Hygiene Recommendations

- Use good work and personal hygiene practices to avoid exposure.
- Always wash and clean yourself thoroughly after handling this and other chemicals.
- If clothing is contaminated, remove clothing and discard or launder. Launder contaminated clothing separately and before reuse.
- When handling this product never eat, drink or smoke.

ENVIRONMENTAL EXPOSURE CONTROL PRECAUTIONS

- Consider the provision of containment around storage vessels.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Form	Liquid
Appearance	Colourless
Odour	Nil
pH	2.5–4
Freezing point	< 0°C
Boiling point	> 100°C
Flash point	Not flammable
Explosive limits	Not flammable
Specific gravity	1.16–1.20
Solubility in water	Miscible (complete)
Viscosity	10–20 cP @ 20°C

SECTION 10 - STABILITY AND REACTIVITY

STABILITY

- Stable under normal conditions.
- Hazardous polymerization will not occur.

CONDITIONS TO AVOID

- Extremes of temperature.

MATERIALS TO AVOID

- Alkaline material.
  - » Contact with alkaline material may generate heat, localised boiling and/or toxic vapours.
- Oxidising material.
  - » Contact with strong oxidizers (e.g. chlorine, hypochlorites, peroxides, chromates, nitric acid, perchlorates, permanganates etc.) may generate heat, fires, explosions, and toxic vapours.
- Metals.
  - » Not compatible with some metals including iron, cast iron, galvanised metals, steel, carbon steel, mild steel, stainless steel, aluminium, copper, tin, zinc, bronze, brass.
- Nylon.
  - » Not compatible with nylon. Do not use fittings, O-rings, gaskets, dosing lines or chemical bunding material made from or containing nylon.

HAZARDOUS DECOMPOSITION PRODUCTS

- Under fire conditions: hydrogen chloride gas.

SECTION 11 - TOXICOLOGICAL INFORMATION

Acute toxicity	LD_{50} Oral	rat	> 6,000 mg/kg
	LD_{50} Dermal		no information available
	LC_{50} Inhalation		no information available
Skin corrosion/irritation	No information available		
Serious eye damage/irritation	Causes serious eye irritation		
Respiratory sensitisation	No information available		
Skin sensitisation	No information available		
Germ cell mutagenicity	No information available		
Carcinogenicity	Not listed as a human carcinogen (IARC)		
Reproductive toxicity	No information available		
STOT - single exposure	No information available		
STOT - repeated exposure	No information available		
Aspiration hazard	No information available		

SECTION 12 - ECOLOGICAL INFORMATION

ECOLOGICAL INFORMATION

Acute Toxicity - Fish

Species	Exposure	LC_{50}
Fathead minnow	96 hour	> 900 mg/L

Acute Toxicity - Invertebrate Species

Species	Exposure	EC_{50}
Daphnia magna	48 hour	> 450 mg/L

Chronic Toxicity - Fish

Species	ACR*	LC_{50}
Fathead minnow	10.64	> 80 mg/L

Chronic Toxicity - Invertebrate Species

Species	ACR	EC_{50}
Daphnia magna	51.27	> 8 mg/L

*ACR = Acute-Chronic Ratio

The ecological toxicity data for HP-1120 has been derived by extrapolating the LC_{50} or EC_{50} values provided by the U.S. EPA document EPA 440/5-86-008 for the aluminium ion based on the test material of aluminium chloride. The aluminium chloride test material produces mononuclear aluminium hydroxide species.

The toxic effect of inorganic aluminium salts on fish and invertebrates is considered to be due (mainly) to soluble mononuclear aluminium hydroxide species such as $AlOH^{2+}$ and $Al(OH)_2^+$. The toxic effects of these species are maximised at pH 5.0–5.2 (ANZECC 2000).

For the aluminium ion to be bioavailable, it must be in a soluble (dissolved) form. As the pH increases above pH 6.0, aluminium ions tend to precipitate as an aluminium hydroxide solid, thus rendering the aluminium in a solid form. This in turn means that at pH's > 6.0, the aluminium ion is less bioavailable and hence its toxic effect is mitigated.

At the nominal pH of 6.5–8.0 for natural freshwaters, aluminium is predominantly insoluble, hence the bioavailable aluminium species responsible for acute toxicity are not present in any significant quantities.

The bioavailability of dissolved aluminium species in natural waters is reduced by interaction of the aluminium ions with complexing agents often present in these natural water bodies; these agents include natural organic matter (humic substances for instance), fluoride, citrates and phosphates. This interaction is rapid (milliseconds), and results in lower toxicity because less dissolved aluminium species are bioavailable.

This product (HP-1120) contains mostly polynuclear (polymerised) aluminium species at values expected to be greater than 90% of the total aluminium content. Regardless of pH, polynuclear aluminium species tend not to produce the dissolved mononuclear aluminium hydroxide species considered responsible for the toxic effect of aluminium ions on aquatic life. This means that HP-1120 is most likely less toxic to aquatic life than the above LC_{50} and EC_{50} values indicate.

PERSISTENCE AND DEGRADABILITY

- No information available.
- This product consists of inorganic compounds only and will degrade via hydrolysis.

BIOACCUMULATION POTENTIAL

- No information available.

MOBILITY IN SOIL

- No information available.

SECTION 13 - DISPOSAL CONSIDERATIONS

- Dispose of this product and its container in accordance with local, state and federal regulations.
- Dispose of any wastes in an approved waste treatment plant in accordance with applicable regulations.
- Do not dispose of this product or wastes in drains, waterways, sewers or with normal garbage.
- Do not reuse empty container for any purpose except to store this chemical.
- Empty containers should be taken to an approved waste handling site for recycling or disposal.

SECTION 14 - TRANSPORT INFORMATION

Not classified as a dangerous good - Australian Code for the Transport of Dangerous Goods by Road & Rail.

UN number	-
Proper shipping name	-
Transport hazard class	-
Subsidiary hazard	-
Packing group number	-
Hazchem code	-
EPG	-

SECTION 15 - REGULATORY INFORMATION

Safe Work Australia	»	This Safety Data Sheet (SDS) has been prepared in accordance with the Model Work Health and Safety Regulations 2021 (Safe Work Australia).
GHS	»	The hazards of this product (Section 2 of this SDS) are classified in accordance with the Globally Harmonised System of Classification and Labelling of Chemicals (GHS).
AICIS	»	All ingredients in this product comply as per the Australian Industrial Chemicals Introduction Scheme (AICIS).
AIIC	»	All ingredients in this product are either listed or are exempt from listing in the Australian Inventory of Industrial Chemicals (AIIC).
POISON Schedule	»	Not scheduled as part of the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).

SECTION 16 - OTHER RELEVANT INFORMATION

Revision date	8 September 2022
Revision number	1.4 (Minor update to Sections 13 and 16)
Information sources	» Preparation of Safety Data Sheets for Hazardous Chemicals Code of Practice, July 2020 (Safe Work Australia). » Australian Code for the Transport of Dangerous Goods by Road & Rail, Edition 7.7. 2020. » Safety Data Sheets from our suppliers of raw material. » Poisons Standard June 2022 - Australian Government *Therapeutic Goods Act 1989.* » Model Work Health and Safety Regulations, January 2021 (Safe Work Australia). » Hazardous Substance Information System (Safe Work Australia). » Globally Harmonised System of Classification and Labelling of Chemicals (GHS) 7th Edition, United Nations 2017. » EPA 440/5-86-008. Ambient Water Quality Criteria for Aluminium - 1988. United States Environmental Protection Agency, Washington, D.C. » ANZECC 2000. National Water Quality Management Strategy. Document 4 - Australian and New Zealand Guidelines for Fresh and Marine Water Quality 2000. » National Institutes of Health (NIH), U.S. Department of Health and Human Services (HHS). TOXNET (Toxicology Data Network) Hazardous Substance Data Bank (HSDB), U.S. National Library of Medicine (NLM). » User Guide for Thresholds and Classifications - January 2012. Thresholds and Classifications Under the Hazardous Substances and New Organisms Act 1996. Environmental Protection Authority, New Zealand Government. » Agents Classified by the *IARC Monographs*, Volumes 1–120. World Health Organisation (WHO) International Agency for Research on Cancer (IARC).

Acronyms and abbreviations

ACR	Acute-Chronic Ratio - used to relate acute and chronic ecotoxicity values for aquatic species.
AICIS	Australian Industrial Chemicals Introduction Scheme.
AIIC	Australian Inventory of Industrial Chemicals.
Al	Chemical symbol for aluminium.
ANZECC	Australian and New Zealand Environment and Conservation Council.
CAS No.	Chemical Abstracts Service registration number (sometimes referred to as CASRN).
cP	Centipoise (dynamic viscosity).
°C	Degrees Celsius.
EC_{50}	Effective concentration, 50%. The concentration of substance that will cause 50% of the test population to experience the given effect being monitored. For daphnids (daphnia magna) this effect is either immobilisation or death.
EPA	Environmental Protection Agency.

Acronyms and abbreviations

EPG	Emergency Procedure Guide - Transport: Australian Standards AS 1678 (series).
GHS	Global Harmonised System (of Classification and Labelling of Chemicals - United Nations).
Hazchem code	Hazchem Emergency Action Code (also known as an Emergency Action Code or EAC). A British Fire Service code system to provide immediate action advice to emergency services when attending an incident involving dangerous goods.
IARC	International Agency for Research on Cancer. A specialised cancer agency of the World Health Organisation (WHO) that provides a global reference for cancer information.
LC_{50}	Lethal concentration, 50%. The concentration of material (in air or water) that will cause 50% of the test population to perish.
LD_{50}	Lethal dose, 50%. The quantity of material when administered all at once that will cause 50% of the test population to perish.
mg/kg	Milligrams per kilogram.
mg/L	Milligrams per litre.
mg/m^3	Milligrams per cubic metre.
pH	A scale used to express the acidity or basicity of dilute water solutions. pH is defined as the negative logarithm of the hydronium ion (H_3O^+) activity in water-based solutions. Practical application of pH best suited to aqueous solutions with an ionic strength < 0.1 moles/kilogram and a pH between 1–13.
PVC	Polyvinyl chloride.
Rev	Revision.
SDS	Safety Data Sheet.
STEL	Short term exposure limit. The 15-minute time-weighted average airborne concentration of the substance under consideration.
STOT	Specific target organ toxicity.
SUSMP	Standard for the Uniform Scheduling of Medicines and Poisons (Poisons Standard - Australia).
TWA	Time-weighted average. The 8-hour time-weighted average airborne concentration of the substance under consideration.
UN	United Nations (number). United Nations Committee of Experts on the Transport of Dangerous Goods.
U.S. EPA	United States Environmental Protection Agency, Washington, D.C.
>	Greater than.
<	Less than.

The information contained in this Safety Data Sheet is based on our best present knowledge and experience. It is intended to convey information about the chemical health and safety hazards of our product for health and safety reasons only. The data is not a guarantee of specific properties of this product.

This product is to be used in applications consistent with our product literature.

Individuals handling this product should be informed of the recommended safety precautions and should have access to this information.

For any other uses, exposures should be evaluated so that appropriate handling practices and training programs can be established to ensure safe workplace operations.