

1. Identification

Product identifier: HYDREX 4109

Other means of identification: None.

Recommended use of the chemical and restrictions on use

Recommended use: Reverse Osmosis Antiscalant. PROFESSIONAL USE ONLY

Recommended restrictions: No other uses are advised.

Manufacturer/Importer/Supplier/Distributor information

SupplierAddress: Veolia Water Technologies (SEA) PTE LTD
6 Serangoon North Avenue 5, #05-05 Singapore 554910

Contact Person: Hydrex Product Manager

Telephone / Fax: + 65 67155200 / + 65 67155205

E-mail: hydrex.asia@veolia.com

Local Emergency PhoneNumber: +65 3158 6734 (Code: 333239)

Global EmergencyContact: +1-760-476-3960 (Code: 333239)

2. Hazards identification

GHS classification

Physical hazards:	Corrosive to metal	Category 1
Health hazards:	Serious eye damage/eye irritation	Category 2
Environmental hazards:	Not classified.	

GHS label elements, including precautionary statements

Pictograms:



Signal word: DANGER

Hazard statements: H290 - May be corrosive to metals.
H319 - Causes serious eye irritation.

Precautionary statement

Prevention: P234 - Keep only in original container.
P264 - Wash thoroughly after handling.
P280 - Wear eye protection/face protection.

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.
P390 - Absorb spillage to prevent material damage

Storage: P406 - Store in corrosive resistant/ container with a resistant inner liner.

Disposal: Dispose of waste and residues in accordance with local authority requirements.

Other hazards which do not result in classification:

None known.

Supplemental information

None.

3. Composition/information on ingredients

Substance or mixture	Mixture		
Chemical name	Common name and synonyms	CAS Number	Concentration (%)
Organic Phosphonic Acid		13598-36-2	10 - 20
Other components below reportable levels			> 80

4. First-aid measures

Inhalation:	Move to fresh air. Call a physician if symptoms develop or persist
Skin contact:	Wash off with soap and water. Get medical attention if irritation develops and persists
Eye contact:	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
Ingestion:	Rinse mouth. Get medical attention if symptoms occur.
Most important symptoms/effects, acute and delayed:	Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision.
Indication of immediate medical attention and special treatment needed:	Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed.
General information:	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media:	Water fog. Foam. Dry chemical powder. Carbon dioxide (CO ₂).
Unsuitable extinguishing media:	Not available.
Specific hazards arising from the chemical:	During fire, gases hazardous to health may be formed.
Fire fighting equipment/instructions:	Move containers from fire area if you can do so without risk.
Special protective equipment and precautions for firefighters:	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Specific methods:	Use standard firefighting procedures and consider the hazards of other involved materials.
General fire hazards:	No unusual fire or explosion hazards noted.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures:	Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.
Environmental precautions:	Avoid discharge into drains, water courses or onto the ground.
Methods and materials for containment and cleaning up:	<p>Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water.</p> <p>Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.</p>

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.

7. Handling and storage

Precautions for safe handling:	Avoid forming spray/aerosol mists. Avoid contact with eyes. Provide adequate ventilation. Wear appropriate personal protective equipment. Observe good industrial hygiene practices.
Conditions for safe storage, including any incompatibilities:	Store in a cool, dry place out of direct sunlight. Store in corrosive resistant container with a resistant inner liner. Store in original tightly closed container. Keep only in the original container. Store away from incompatible materials (see Section 10 of the SDS). Store in cool, dry place.

8. Exposure controls/personal protection

Occupational exposure limits	No exposure limits noted for ingredient(s)
Appropriate engineering control measures:	Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Provide eyewash station
Individual protection measures, such as personal protective equipment	
Eye/face protection:	Wear safety glasses with side shields (or goggles) and a face shield. Chemical goggles and face shield are recommended.
Skin protection:	
Hand protection	Wear appropriate chemical resistant gloves.
Other	Wear suitable protective clothing.
Respiratory protection:	In case of insufficient ventilation, wear suitable respiratory equipment. Avoid forming spray/aerosol mists.
Thermal hazards:	Wear appropriate thermal protective clothing, when necessary.
General hygiene considerations:	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance	Clear
Physical state:	Liquid
Form:	Liquid
Color:	Amber
Odor:	Characteristic
Odor threshold:	Not available.
pH (as is) @ 25 °C:	1.5 – 3.5
Melting point/freezing point:	32 °F (0 °C)
Initial boiling point:	Not available.
Flash point:	Not available.
Evaporation rate:	Not available.
Flammability:	Not available.
Flammability limit - lower(%):	Not available.
Flammability limit - upper(%):	Not available.

Explosive limit - lower (%):	Not available.
Explosive limit - upper (%):	Not available.
Vapor pressure:	Not available.
Vapor density:	Not available.
Relative density:	Not available.
Solubility (Water):	Miscible (100%, soluble in all proportion)
Explosive property:	Not explosive
Kinematic viscosity:	Not available.
Oxidizing property:	Not oxidizing
Specific gravity (@20 °C):	1.20 – 1.25

10. Stability and reactivity

Reactivity:	The product is stable and non-reactive under normal conditions of use, storage and transport
Chemical stability:	Material is stable under normal conditions
Possibility of hazardous reactions:	No dangerous reaction known under conditions of normal use
Conditions to avoid:	Contact with incompatible materials
Incompatible materials:	Avoid contact with oxidizers or reducing agents. Metals. Alkalies
Hazardous decomposition products:	No dangerous reaction known under conditions of normal use

11. Toxicological information

Information on likely routes of exposure

Inhalation:	No adverse effects due to inhalation are expected.
Skin contact:	No adverse effects due to skin contact are expected
Eye contact:	Causes serious eye irritation
Ingestion:	Expected to be a low ingestion hazard

Acute toxicity

Product	Species		Test Results
Hydrex 4109	Acute Oral	LD50	Rat
	Chronic Oral	NOAEL	Rat

* Estimates for product may be based on additional component data not shown.

Symptoms:	Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision.
Skin corrosion/irritation:	Prolonged skin contact may cause temporary irritation
Serious eye damage/eye irritation:	Causes serious eye irritation. Corneal opacity value: 90.0000

Respiratory or skin sensitization

Respiratory sensitization:	Not a respiratory sensitizer
Skin sensitization:	This product is not expected to cause skin sensitization
Germ cell mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic
Reproductive toxicity:	This product is not expected to cause reproductive or developmental effects

Specific target organ toxicity single exposure:	Not classified.
Specific target organ toxicity repeated exposure:	Not classified.
Aspiration hazard:	Not an aspiration hazard.
Chronic effects:	Not available.

12. Ecological information

Ecotoxicity: The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Product	Species		Test Results
Hydrex 4109	Acute		
	Other	EC50	Selenastrum capricornutum (new name Pseudokirchnerella subca 1 mg/l, 96 hours
	Aquatic Acute		
	Crustacea	LC50	Daphnia magna > 100 mg/l, 48 hours calculated
	Fish	LC50	Rainbow trout,donaldson trout (Oncorhynchus mykiss) > 100 mg/l, 96 hours calculated
	* Estimates for product may be based on additional component data not shown.		
Persistence and degradability:	No data is available on the degradability of any ingredients in the mixture		
Bioaccumulative potential:	Bioconcentration factor Result: 1		
Mobility in soil:	No data available.		
Other adverse effects:	No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creationpotential, endocrine disruption, global warming potential) are expected from this component.		

13. Disposal considerations

Disposal methods/information:	Collect and reclaim or dispose in sealed containers at licensed waste disposal site
Special precautions:	Dispose in accordance with all applicable regulations

14. Transport information

ADN; ADR; IATA; IMDG; RID



ADR:

UN Nuber:	UN 3265
UN proper shipping name:	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (Phosphonic Acid)
Transport hazard class(es):	
Class	8
Subsidiary risk	-
Label(s)	8
Hazard No. (ADR)	80
Tunnel restriction code	E
Packing group	III

Material name: Hydrex 4109

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SDS Singapore

Environmental hazards	No
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling
RID:	
UN Nuber:	UN 3265
UN proper shipping name:	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (Phosphonic Acid)
Transport hazard class(es):	
Class	8
Subsidiary risk	-
Label(s)	8
Packing group	III
Environmental hazards	No
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling
ADN:	
UN Nuber:	UN 3265
UN proper shipping name:	CORROSIVE LIQUID, ORGANIC, N.O.S. (Phosphonic Acid)
Transport hazard class(es):	
Class	8
Subsidiary risk	-
Label(s)	8
Packing group	III
Environmental hazards	No
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling
IATA:	
UN Nuber:	UN 3265
UN proper shipping name:	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (Phosphonic Acid)
Transport hazard class(es):	
Class	8
Subsidiary risk	-
Packing group	III
Environmental hazards	No
ERG Code	8L
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling
Other information:	
Passenger and cargo aircraft	Allowed with restrictions.
Cargo aircraft only	Allowed with restrictions.
IMDG:	
UN Nuber:	UN 3265
UN proper shipping name:	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (Phosphonic Acid)
Transport hazard class(es):	
Class	8
Subsidiary risk	-
Packing group	III
Environmental hazards	Marine pollutant : No
EmS:	F-A, S-B
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code:	Not established.

15. Regulatory information

Safety, health and environmental regulations specific for the product in question

Prior Informed Consent (PIC) Substances (Environment Protection and Management Act, 2nd Schedule, Part 1, Jul. 1, 2013):	Not regulated.
Chemical Weapons Prohibition (Act):	Not applicable.
Environmental Protection and Management (Hazardous Substances) Regulations:	Not applicable.
Environmental Public Health Act:	Not applicable
Misuse of Drugs Act:	

Controlled Narcotic Drugs (Misuse of Drugs Act, First Schedule, Part I, II & III, as amended)	Not regulated.
Controlled Specified Drugs (Misuse of Drugs Act, Fourth Schedule, as amended)	Not regulated.

International regulations

Montreal Protocol; Stockholm Convention; Rotterdam Convention; Kyoto protocol; Basel Convention:	Not applicable.
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International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Industrial Chemicals (AICIS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	Yes
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances(EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances(PICCS)	Yes
Taiwan	Taiwan Chemical Substance Inventory (TCSI)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information

References:	Not available
Issued by:	VEOLIA WATER Technologies (SEA) Pte Ltd
Prepared by:	Veolia Hydrex Team
Disclaimer:	<p>Veolia Water Technologies is not able to anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used.</p> <p>It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use and or nonrespect of Veolia Water Technologies' requirement.</p>
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