

Safety Data Sheet

AQUARIAN B110



1. Identification

Product identifier	AQUARIAN B110
Product code	B110
Other means of identification	None.
Recommended use of the chemical and restrictions on use	Steam boiler water treatment.
Manufacturer	AQUARIAN CHEMICALS INC. 768 Westgate Road Oakville, Ontario Canada L6L 5N2 Tel. 905-825-3711 Fax 905-825-0177 www.aquarianchemicals.com info@aquarianchemicals.com
Emergency phone number	Canutec: 613-996-6666

2. Hazard identification

Summary	CORROSIVE! Use only in well ventilated area. Avoid all contact with skin, eyes and clothing. Do not breathe vapors, mists or aerosols. Do not ingest. If ingested consult physician immediately and show this Safety Data Sheet. Wear eye protection, gloves, respiratory protection and other protective clothing that are adapted to the task being performed and the risks involved.
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WHMIS 2015/OSHA HCS 2012/GHS



Acute toxicity, oral (Category 4)
 Skin corrosion (Category 1)
 Serious eye damage (Category 1)
 Skin sensitizer (Category 1)
 Specific target organ toxicity, repeated exposure (Category 2)

Other hazards which do not result in classification :
 Acute hazard to the aquatic environment (Category 3).

DANGER

H314: Causes severe skin burns and eye damage
 H302: Harmful if swallowed
 H317: May cause an allergic skin reaction
 H373: May cause damage to organs through prolonged or repeated exposure
 H402: Harmful to aquatic life
 P260: Do not breathe mist, vapors and spray.
 P264: Wash face, hands and any exposed skin 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.
 P273: Avoid release to the environment.

P280: Wear protective gloves, protective clothing and eye protection.
P301+330+331+P310: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER or doctor/physician.
P303+361+353: IF ON SKIN (or hair): Remove immediately all contaminated clothing. Rinse skin with water and soap or take a shower if necessary.
P333+313: If skin irritation or a rash occurs: Get medical advice/attention.
P304+340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305+351+338: IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
P310: Immediately call a doctor/physician.
P362+ P364: Take off contaminated clothing and wash before reuse.
P405: Store locked up.
P501: Dispose of contents and container to a licensed chemical disposal agency in accordance with local, regional and national regulations.

3. Composition/information on ingredients

Common name	CAS	Weight % content
Water	7732-18-5	84 – 85 %
Sodium Hexametaphosphate	68915-31-1	1.0 – 1.2 %
Sodium hydroxide	1310-73-2	0.2 – 0.3 %
Morpholine	110-91-8	2.5 - 3 %
Sodium sulfite	7757-83-7	9 – 10 %
CARBOSPERSE K-732POLYMER	MIXTURE	0.5-0.6 %
Sodium Lingnosulfonate	8061-51-6	0.2 %

4. First-aid measures

Inhalation	Move person to fresh air. If breathing is difficult, give oxygen by trained personnel. If not breathing, give artificial respiration. Do not use mouth-to-mouth resuscitation unless you use a buccal protective device. If a problem develops or persists, seek medical attention.
Skin contact	Flush with water for at least 15 minutes. Remove contaminated clothing and wash before reuse. If a problem develops or persists, seek medical attention.
Eye contact	IMMEDIATELY flush with plenty of water. Remove contact lenses after the first 5 minutes. Flush with water for at least 30 minutes. Hold eyelids apart to rinse properly. Do not rub your eyes. Consult a physician, preferably an ophthalmologist. Do not transport the victim until the recommended flushing period is completed, unless a portable emergency eye wash bottle is immediately available.
Ingestion	DO NOT induce vomiting, unless recommended by medical personnel. If victim is conscious wash out mouth with water and give 1-2 glasses of water to drink. Never give anything by mouth if victim is unconscious or convulsing. If spontaneous vomiting occurs, keep head below hips level to prevent aspiration into the lungs. Seek medical attention or contact a Poison Centre immediately.
Other	No information available.
Symptoms	Causes skin burns and eye damage. May cause an allergic reaction of the skin. Overexposure may cause burns of to nose, throat and respiratory tract.
Notes to the physician	Treat according to person's condition and specifics of exposure. If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Probable mucosal damage may contraindicate the use of gastric lavage.

5. Fire-fighting measures

Suitable extinguishing media	Dried powder, water spray, carbon dioxide (CO ₂), chemical foam.
Specific hazards arising from the chemical	In a fire or if heated, a pressure increase will occur and the container may burst. During a fire, smoke may contain the original materials in addition to combustion products of varying composition which may be toxic and/or irritating.
Special protective equipment	Firefighting suit may not be efficient against chemicals. Firefighters must wear self contained breathing apparatus with full face mask.
Special protective actions for fire-fighters	Water spray can be used to cool equipment exposed to heat and flame. Prevent run-off from fire control or dilution from entering streams, sewers or drinking water supply.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Do not touch spilled material. Make sure to wear personal protective equipment mentioned in this Safety Data Sheet.
Environmental precautions	Prevent entry in sewer and other enclosed area. For a large spillage, consult the Department of Environment or the relevant authorities.
Methods and materials for containment and cleaning up	Ventilate well the area. Stop leak, if it's possible to do so without risk. Move containers from spill area. Absorb with inert material (soil, sand, vermiculite) or wipe up with a damp mop and place in an appropriate waste disposal clearly identified. Finish cleaning by rinsing with soapy water the contaminated surface. Dispose via a licensed waste disposal contractor.

7. Handling and storage

Precautions for safe handling	Use only in well ventilated area. Do not breathe vapors and mists. Avoid all contact with skin, eyes and clothing. Make sure to wear personal protective equipment mentioned in this Safety Data Sheet. Keep containers tightly closed when not used. Do not eat, do not drink and do not smoke during use. Wash hands, forearms and face thoroughly after handling this compound. Remove contaminated clothing and wash before reuse.
Conditions for safe storage, including any incompatibilities	Store tightly closed and in properly labelled container in a dry, cool and well ventilated place. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Store away from acids and from incompatible materials (see section 10). Keep away from direct sunlight and heat. Keep off freezing.
Storage temperature	10 to 40°C (50 to 104°F)

8. Exposure controls/personal protection

Immediately Dangerous to Life or Health	Sodium hydroxide: 10 mg/m ³ . Morpholine : 1400 ppm.		
Sodium hydroxide	Ceiling	2 mg/m ³ 2 mg/m ³	ACGIH , BC, ON, RSST TWA (8h) OSHA
Morpholine	TWA (8h)	20 ppm	ACGIH , BC
20 ppm	70 mg/m ³	ON , OSHA	
20 ppm	71 mg/m ³	RSST (Pc)	
Appropriate engineering controls	Provide sufficient mechanical ventilation (general and/or local exhaust) to keep the airborne concentrations of vapors, mists, aerosols or dust below their respective occupational exposure limits. Ensure that eyewash stations and safety showers are close to the workstation.		

Individual protection measures	
Eye	Wear chemical splash goggles. Depending on conditions of use, a face shield may be necessary.
Hands	Chemical-resistant, impervious gloves should be worn at all times when handling this chemical product. Wear nitrile or neoprene gloves. Before using, user should confirm impermeability. Discard gloves that show tears, pinholes, or signs of wear. Gloves must only be worn on clean hands. Wash gloves with water before removing them. After using gloves, hands should be washed and dried thoroughly.
Skin	Personal protective equipment for the body should be selected based on the task being performed and the risks involved. Wear an apron or long-sleeve protective coverall suit. To clean up a spill, if necessary, wear a synthetic polyethylene coveralls such as the Tychem (DuPont) or equivalent coveralls manufactured to provide protection against liquid chemical.
Respiratory	Respiratory protection equipment (PPE) must be selected, fitted, maintained and inspected in accordance with regulations and CSA Standard Z 94.4 and approved by NIOSH / MSHA. In case of insufficient ventilation or in confined or enclosed space and for an assigned protection factor (APF) up to 10 times the exposure limit: wear a half mask respirator with appropriate cartridges fitted with P100 filters. For an APF until maximum 100 times of exposure limit, wear a full face respirator mask with appropriate cartridges and P100 filters.
Feet	Wear rubber boots to clean up a spill.
 Apron  Goggles  Nitrile gloves	

9. Physical and chemical properties

Physical state	Liquid	Flammability	Non-flammable.
Colour	Brown	Flammability limits	N/Ap.
Odour	Slight amine	Flash point	N/Ap.
Odour threshold	N/Av.	Auto-ignition temperature	N/Ap.
pH	9.7 to 11.7	Sensibility to electrostatic charges	No
Melting point	5°C (41°F)	Sensibility aux sparks and/or friction	No
Freezing point	5°C (41°F)	Vapour density	N/Av. (Air = 1)
Boiling point	110°C (230°F)	Relative density	1.11 kg/L (Water = 1)
Solubility	Fully soluble in water.	Partition coefficient n-octanol/water	N/Av.
Evaporation rate	N/Av.	Decomposition temperature	N/Av.
Vapour pressure	N/Av.	Viscosity	N/Av.
Percent Volatile	78%	Molecular mass	N/Ap.
N/Av.: Not Available N/Ap.: Not Applicable Und.: Undetermined N/E: Not Established			

10. Stability and reactivity

Reactivity	No information available for this product.
Chemical stability	Stable under recommended storage conditions.
Possibility of hazardous reactions (including polymerizations)	Hazardous polymerization will not occur.
Conditions to avoid	Avoid contact with incompatible materials. Avoid high temperatures and intense heat.
Incompatible materials	Acids, strong oxidizing agents (such as nitric acid, perchloric acid, peroxides, chlorates and perchlorates).
Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11. Toxicological information

Numerical measures of toxicity	Sodium hydroxide		Ingestion >140 mg/kg Rat LD50 Skin 1350 mg/kg Rabbit LD50
	Morpholine		Ingestion 1050 mg/kg Rat LD50 Inhalation >24 mg/l/4h Rat LC50 Skin 504 mg/kg Rabbit LD50 9.4 mg/l/4h Mouse LC50
	Sodium Lignosulfonate		Ingestion >7000 mg/kg Rat LD50
Likely routes of exposure	Skin, eyes, inhalation, ingestion.		
Delayed, immediate and chronic effects	Eye contact	May cause severe eye irritation or eye damage. Undiluted morpholine is corrosive to the eyes of rabbits (OECD TG 405) Eye Irritation/Corrosion, Rabbit: tests performed with each ingredient of this mixture gave from irritating to corrosive results.	
	Skin contact	May cause skin irritation and burns. Severity is generally determined by concentration of solution and duration of contact. Contact with skin may aggravate an existing skin condition. Skin Irritation/Corrosion, Rabbit : tests performed with each ingredient of this mixture gave from mild irritating to corrosive results.	
	Inhalation	Inhalation of vapors or mists can cause severe irritation to nose, throat and respiratory tract. Overexposure may cause cause burns and lungs damages.	
	Ingestion	Harmful if swallowed. May cause burns to mouth, throat and stomach. Swallowing will causes digestive tract disturbances resulting in nausea, vomiting, cramps and diarrhea.	
	Respiratory or skin sensitization	Ingredients present at levels greater or equal to 0.1% of this product are skin or respiratory sensitizers.	
	IRAC/NTP Classification	No ingredients listed.	
	Carcinogenicity	Ingredients present at levels greater than or equal to 0.1% of this product are not listed as a carcinogen by IARC, ACGIH, NIOSH, NTP or OSHA.	
	Mutagenicity	Ingredients in this product present at levels greater than or equal to 0.1% are not known to cause mutagenic effect.	
	Reproductive toxicity	Ingredients in this product present at levels greater than or equal to 0.1% are not known to cause effects on reproduction.	
	Specific target organ toxicity - single exposure	No target organ is listed.	
	Specific target organ toxicity - repeated exposure	Systemic toxicity, digestive system, respiratory system.	

Interactive effects	No information available for this product.
Other information	The oral acute toxicity estimate (ATE) of the mixture was calculated to be greater than 300 mg/Kg but lower than 2000 mg/kg. This value is classified according to GHS: Acute toxicity, oral (Category 4). The skin acute toxicity estimate (ATE) of the mixture was calculated to be greater than 2000 mg/kg. This value is not classified according to WHMIS and OSHA HCS 2012.

12. Ecological information

Ecological toxicity	Aquatic Invertebrate - Crustaceans - Ceriodaphnia quadrangular EC50 40 mg/L; 48h (Sodium hydroxide) Fish - Gambusia affinis - fresh water LC50 125 ppm; 96h (Sodium hydroxide) Fish - Oryzias latipes LC50 >100 mg/L; 96h (morpholine) Aquatic Invertebrate - Daphnia Magna, Water flea, fresh water EC50 45 mg/L; 48h (morpholine) Algae, Pseudokirchnerella subcapitata EC50 51 mg/L; 72h (morpholine) Fish - Leuciscus idus LC50 170-370 mg/L (pH 8) 96 h (sodium sulfite) Aquatic Invertebrate - Daphnia Magna, Water flea, fresh water EC50 118 mg/L; 48 h (sodium sulfite) Aquatic Plant - Chlamydomonas reinhardtii EC50 63-126 mg/L; 96 h (sodium sulfite)
Persistence	No information available for this product.
Degradability	No information available for this product.
Bioaccumulative potential	No information available for this product. Log Kow value of -4 (Sodium sulfite). The inorganic salts of this kind are not expected to accumulate in biota.
Mobility in soil	The Koc of morpholine is estimated as 7.4 using suggests a very high mobility in soil.
Other adverse effects	The observed ecological toxicity presented by this product for the environment was considered a result of pH effects. This chemical does not deplete the ozone layer.

13. Disposal considerations

Container 	Important! Prevent waste generation. Use in full. DO NOT throw residual to sewer, streams, sewers or drinking water supply. Residues and empty containers must be considered as hazardous waste. Dispose via a licensed waste disposal contractor. Observe all federal, state/provincial and municipal regulations. If necessary consult the Department of Environment or the relevant authorities.
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14. Transport information

UN Number	UN 1760
UN Proper Shipping Name	CORROSIVE LIQUID, N.O.S.
Environmental hazards	This material does not contain marine pollutant.

Special precautions for user	Permit required for transportation with proper placards displayed on vehicle.
TDG - Transportation of Dangerous Goods (Canada)	
Transport hazard class(es)	 Class 8
Packing group	III
Emergency response guidebook 2012	<u>154</u>
IMO/IMDG - International Maritime Transport	
Classification	UN 1760. CORROSIVE LIQUID, N.O.S.(Sodium Hydroxide, Morpholine) Class 8, PG III. Emergency
IATA - International Air Transport Association	
Classification	UN 1760. CORROSIVE LIQUID, N.O.S. Sodium Hydroxide, Morpholine)Class 8, PG III.
These transportation classifications are provided as a customer service. As the shipper YOU remain responsible for complying with all applicable laws and regulations, including proper transportation classification and packaging. In addition, if a domestic exemption exists, it is the responsibility of the shipper to define the application of it.	

CANADA

Common name	CAS	CEPA	DSL	NDSL	NPRI
Sodium hydroxide	1310-73-2		X		
Morpholine	110-91-8		x		

- CEPA: List of Toxic Substances Managed Under Canadian Environmental Protection Act
- DSL: Domestic Substances List Inventory
- NDSL: Non-Domestic Substances List Inventory
- NPRI: National Pollutant Release Inventory Substances

UNITED STATE OF AMERICA

UNITED STATE OF AMERICA:

- Toxic Substance Control Act (TSCA) :
All ingredients are listed in the TSCA Inventory or otherwise comply with TSCA requirements.
- EPCRA Section 313 Toxic Chemicals: No material is listed.
- CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act): No material is listed.
- Clean Water Act (CWA) 311 Hazardous Substances: No material is listed.
- Clean Water Act (CWA) Priority Pollutants: No material is listed.
- Clean Air Act (CAA) 111: Morpholine (CAS no 110-91-8).
- Clean Air Act (CAA 112b) HAP - Hazardous Air Pollutants: No material is listed.
- California Proposition 65: No material is listed.
- CAA 112(r): Clean Air Act - Regulated Chemicals for Accidental Release Prevention
- CWA 311: Clean Water Act - List of Hazardous Substances
- CWA Priority: Clean Water Act - Priority Pollutant list

Other regulations	WHMIS 1988  D2B E Class D2B : Toxic material causing other toxic effects Class E : Corrosive material HMIS <table border="1"> <tr><td>3</td><td>Health</td></tr> <tr><td>0</td><td>Flamability</td></tr> <tr><td>0</td><td>Reactivity</td></tr> <tr><td>X</td><td>Protective Equipment</td></tr> </table> NFPA 	3	Health	0	Flamability	0	Reactivity	X	Protective Equipment
3	Health								
0	Flamability								
0	Reactivity								
X	Protective Equipment								

16. Other information

Date (YYYY-MM-DD)	AQUARIAN CHEMICALS INC. 2015-10-01
Version	01
Other information	REFERENCES: - Haz-Map, Information on Hazardous Chemicals and Occupational Diseases, http://hazmap.nlm.nih.gov/index.php - Service du répertoire toxicologique de la Commission de la santé et de la sécurité du travail (CSST), http://www.reptox.csst.qc.ca - TOXNET Databases, Toxicology Data Network, NIH U.S. National Library of Medicine, http://toxnet.nlm.nih.gov/ - OECD Existing Chemicals Database, Chemicals Screening Information DataSet (SIDS) for High Volume Chemicals, UNEP publications, http://webnet.oecd.org/HPV/UI/Search.aspx - Database, Institut National de Recherche et de Sécurité, http://www.inrs.fr/accueil/produits/bdd.html - NIOSH Pocket Guide to Chemical Hazards, Centers for Disease Control and Prevention, NIOSH Publications, 2007, http://www.cdc.gov/niosh/npg/npg.html ACGIH: American Conference of Governmental Industrial Hygienists AIHA: American Industrial Hygiene Association HMIS: Hazardous Materials Identification System NFPA: National Fire Protection Association OSHA: Occupational Safety and Health Administration (USA) NIOSH: National Institute for Occupational Safety and Health NTP: National Toxicology Program RSST: Règlement sur la santé et la sécurité du travail (Québec) GHS: Globally Harmonized System IARC: International Agency for Research on Cancer IDLH: Immediately Dangerous to Life or Health STEL: Short Term Exposure Limit (15 min) TWA: Time Weighted Averages

WHMIS: Workplace Hazardous Materials Information System

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