ALBEMARLE®

SAFETY DATA SHEET

STABROM® 909 Biocide

Preparation Date : 14-Feb-2012 **Revision Date:** 24-Apr-2015 **Revision Number:** 1.01

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product Identifier

Product Name STABROM® 909 Biocide

Other means of identification

Chemical Family Stabilized bromine biocide, aqueous solution

CAS-No Mixture

Recommended use of the chemical and restrictions on use

General function Water treatment chemical.

Uses advised against No information available

Details of the supplier of the safety data sheet

Company Albemarle Corporation
451 Florida Street
Baton Rouge, LA 70801

For Non-Emergency 800-535-3030

'Competent Body for SDS' HSE@Albemarle.com

Emergency telephone number

Emergency Telephone Numbers +1-225-344-7147

2. HAZARDS IDENTIFICATION

Classification

Acute toxicity - Inhalation (Dusts/Mists)	Category 4
Skin Corrosion/irritation	Category 1
Serious eye damage/eye irritation	Category 1
Acute aquatic toxicity	Category 2
Chronic aquatic toxicity	Category 2

Label elements

Emergency Overview

Danger

Hazard Statements
Harmful if inhaled
Causes severe skin burns and eye damage
Toxic to aquatic life with long lasting effects

Appearance Liquid **Color** Yellow. Orange. **Odor** Mild.

Prevention
Use only outdoors or in a well-ventilated area
Do not breathe dust/fume/gas/mist/vapors/spray
Wash face, hands and any exposed skin thoroughly after handling
Wear protective gloves/protective clothing/eye protection/face protection
Avoid release to the environment

Response
Immediately call a POISON CENTER or doctor/physician
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
Immediately call a POISON CENTER or doctor/physician
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
Wash contaminated clothing before reuse
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing Call a POISON CENTER or doctor/physician if you feel unwell Immediately call a POISON CENTER or doctor/physician
IF SWALLOWED: Rinse mouth. Do NOT induce vomiting
Collect spillage

Storage
Store locked up

Disposal
Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)
Not applicable
Other Information

3. COMPOSITION/INFORMATION ON INGREDIENTS

Pure substance/mixture Mixture

Component	CAS-No	Weight %
Water	7732-18-5	60
Halogenated complex	Proprietary	18
Sodium hydroxide	1310-73-2	<20
Sulfamic acid	5329-14-6	<20

Note: The exact concentrations of the above listed chemicals are being withheld as a trade secret.

4. FIRST AID MEASURES

First aid measures
Eye contact If in eyes, hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

Skin Contact If on skin or clothing, take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

Inhalation Move to fresh air.

Ingestion If swallowed,. Call a physician or Poison Control Center immediately. Have person sip a glass of water if able to swallow. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Probable mucosal damage may contraindicate the use of gastric lavage.

Most important symptoms and effects, both acute and delayed

Symptoms Causes burns.

Indication of any immediate medical attention and special treatment needed

Notes to Physician Probable mucosal damage may contraindicate the use of gastric lavage.

5. FIRE-FIGHTING MEASURES

Extinguishing media

Suitable extinguishing media Not required.

Unsuitable Extinguishing Media No information available.

Specific Hazards Arising from the Chemical

Combustion/explosion hazards No information available.

Hazardous Combustion Products Bromine. Chlorine.

Explosion Data

Sensitivity to mechanical impact None.

Sensitivity to static discharge None.

Protective Equipment and Precautions for Firefighters

In the event of fire and/or explosion do not breathe fumes.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions Ensure adequate ventilation.

Environmental Precautions

Environmental precautions Contain any spill with dikes or absorbents to prevent migration and entry into sewers or streams. Large spills should be collected mechanically (remove by pumping) for disposal. May require excavation of contaminated soil. Take up small spills by first diluting with water and then using a dehalogenating agent such as sodium thiosulfate solution.

Methods and material for containment and cleaning up

Methods for Containment Prevent further leakage or spillage if safe to do so.

Methods for Cleaning up Soak up with inert absorbent material (e.g. sand, silica gel, universal binder, sawdust)

7. HANDLING AND STORAGE

Precautions for safe handling

Handling Avoid contact with skin, eyes and clothing.

Conditions for safe storage, including any incompatibilities

Storage Avoid freezing, excessive heat or exposure to light, especially direct sunlight. If heating is necessary to prevent freezing, care must be taken to prevent overheating. Precautions should be taken to ensure that the average product temperature is maintained below 43 °C. Temperature monitoring is recommended. At elevated temperatures, self-heating can lead to vigorous gas generation and over-pressurization of storage containers if appropriate controls are not in place. Avoid exposure of this product to incompatible materials/chemicals (see Stability and Reactivity section). Use of incompatible materials can promote the exothermic decomposition of the product. In extreme cases, this could result in vigorous gas formation and over-pressurization of the storage container. STORAGE CONTAINER: Vented and opaque containers: As the product ages, activity is gradually lost and pressure can build-up in the headspace (nitrogen); therefore, the product should be stored in vented containers. Product should also be stored in opaque containers to prevent exposure to light. To maximize product shelf life, store the product in an opaque container, in a cool, dry, well-ventilated area.

Incompatible Materials This product is strongly basic and an oxidizing agent. Avoid contact with alcohols, aldehydes, strong reducing agents, strong oxidizers, acids, ammonia-containing products, and common metals such as steel, aluminum, iron and copper. Use of incompatible materials can promote the exothermic decomposition of the product.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines .

Component	ACGIH TLV (TWA)	OSHA PEL (TWA)	NIOSH IDLH
Sodium hydroxide 1310-73-2	Ceiling: 2 mg/m³	2MGM3	IDLH: 10 mg/m³ Ceiling: 2 mg/m³

Other information Wear suitable protective clothing.

Appropriate engineering controls

Engineering Controls Use only in well-ventilated areas.

Individual protection measures, such as personal protective equipment

Eye/face Protection Chemical goggles or face shield with safety glasses.

Skin Protection Wear protective gloves/clothing.

Respiratory protection None under normal conditions.

General Hygiene Considerations Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance Liquid
Color Yellow. Orange.
Odor Mild.
Odor Threshold No information available

Molecular Weight No information available
pH 12.4 - 14.0
Melting point/freezing point ca 0 °C / 32 °F
Boiling Point/Range ca 106 °C / 223 °F
Flash Point No data available.
Evaporation Rate No information available
Flammability (solid, gas) No information available
Flammability Limit in Air
Upper flammability limit: No information available
Lower flammability limit: No information available
Vapor Pressure 19 mm Hg (25°C)

Vapor Density	No information available
Relative density	1.29 - 1.37 (25°C)
Solubility(ies)	
Water Solubility	Miscible.
Solubility in other solvents	No information available
Partition coefficient	No data available
Autoignition temperature	No information available
Decomposition temperature	No information available
Viscosity, kinematic	2 cSt (25°C)
Dynamic viscosity	No information available
Explosive Properties	None
Oxidizing Properties	None

10. STABILITY AND REACTIVITY

Reactivity Hazard No data available

Stability No information available

Hazardous Reactions No hazardous reaction expected under normal handling.

Hazardous Polymerization None under normal processing.

Conditions to Avoid Protect from light. Extremes of temperature and direct sunlight. Keep away from heat. Freezing.

Materials to avoid This product is strongly basic and an oxidizing agent. Avoid contact with alcohols, aldehydes, strong reducing agents, strong oxidizers, acids, ammonia-containing products, and common metals such as steel, aluminum, iron and copper. Use of incompatible materials can promote the exothermic decomposition of the product.

Hazardous decomposition products Bromine. Chlorine.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Inhalation Not an expected route of exposure.

Eye contact Causes severe burns.

Skin Contact Causes severe burns.

Ingestion Not expected to be acutely toxic.

Potential Health Effects

Acute Effects

Skin Corrosion/irritation Data obtained from tests on used product: Skin irritation. (rabbit). (4 hr): Corrosive to skin. Causes burns.

Serious eye damage/eye irritation Corrosive. Risk of serious damage to eyes.

Respiratory irritation : Not irritating.

Sensitization Data obtained from tests on used product: Buehler Test. (guinea pig): Not sensitizing.

Chronic Effects

Mutagenic Effects No information available.

Carcinogenicity There are no known carcinogenic chemicals in this product.

Component	CAS-No	ACGIH Carcinogens	IARC	NTP	OSHA Carcinogens
Water	7732-18-5	-	-	-	-
Halogenated complex	Proprietary	-	-	-	-
Sodium hydroxide	1310-73-2	-	-	-	-
Sulfamic acid	5329-14-6	-	-	-	-

Reproductive Effects No information available.

STOT - single exposure No information available.

STOT - repeated exposure No information available.

Chronic Effects None known

Aspiration hazard No information available.

Numerical measures of toxicity

Product Information No information available

The following values are calculated based on chapter 3.1 of the GHS document .

ATEmix (oral) 9667 mg/kg
ATEmix (dermal) 14362 mg/kg
ATEmix (inhalation-dust/mist) 4.5 mg/L
LD50 Oral: Rat Oral LD50: 2491 mg/kg
LD50 Dermal: Rat Dermal LD50: > 2000 mg/kg
Inhalation LC50: LC50/inhalation/4h/rat : > 2.09 mg/L (aerosol) Highest achievable concentration.

Component Information No information available

Component	Rat Oral LD50 :	Rabbit Dermal LD50 :	Rat Inhalation LC50:
Sodium hydroxide 1310-73-2	-	1350 mg/kg	-
Sulfamic acid 5329-14-6	1450 mg/kg	-	-

12. ECOLOGICAL INFORMATION

Ecotoxicity

Toxic to aquatic life with long lasting effects

LC50/96h/fish: 3.8 mg whole material/L (Bluegill sunfish)
EC50/48h/Daphnia : 4.8 mg whole material/L (Waterflea Daphnia magna)
IC50/96-hour: 2.6 mg whole material/L (Unicellular Green Alga, Selenastrum capricornutum)

Component	Freshwater Algae EC50/72h :	Freshwater Fish LC50/96h :	Water Flea EC50/48h :
Sodium hydroxide (CAS #: 1310-73-2)	-	189 mg/L	-
Sulfamic acid (CAS #: 5329-14-6)	-	14.2 mg/l	-

Persistence/Degradability No information available.

Bioaccumulation/ Accumulation No information available.

Mobility in Environmental Media No information available.

Other adverse effects No information available

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Waste Disposal Method Dispose in a safe manner in accordance with local/national regulations.

Contaminated Packaging Do not reuse container.

14. TRANSPORT INFORMATION

DOT

Proper Shipping Name	Corrosive Liquids, Basic, Inorganic, N.O.S. (Halogenated Complex, Sodium Hydroxide)
Hazard Class	8
UN No.	3266
Packing Group	III
Description	UN 3266 Corrosive liquid, Basic, Inorganic, N.O.S. (Halogenated complex, Sodium hydroxide), 8, III

IMDG/IMO

IMO Class	8
Packing Group	III
UN-No	3266
IMO Labelling and Marking	8
Proper Shipping Name	Corrosive liquid, Basic, Inorganic, N.O.S. (Halogenated complex, Sodium hydroxide)
EmS	F-A, S-B
Marpol - Annex II	Not determined
Marpol - Annex III	Unregulated
Transport Description	UN 3266 Corrosive liquid, Basic, Inorganic, N.O.S. (Halogenated complex, Sodium hydroxide), 8, III

IATA/ICAO

IATA/ICAO Class	8
Packing Group	III
UN-No	3266
IATA/ICAO Labelling/Marking	8
Passenger Aircraft	Forbidden (Product is shipped in containers with vented caps)
Cargo aircraft only	Forbidden (Product is shipped in containers with vented caps)
Proper shipping name	Corrosive liquid, Basic, Inorganic, N.O.S. (Halogenated complex, Sodium hydroxide)
Transport Description	UN 3266 Corrosive liquid, Basic, Inorganic, N.O.S. (Halogenated complex, Sodium hydroxide), 8, III

15. REGULATORY INFORMATION

International Inventories	TSCA	DSL	NDSL	AICS	EINECS	ELINCS	ENCS	KECL	PICCS	IECSC	NZIoC
STABROM® 909 Biocide	-	-	-	X	-	-	-	X	X	-	X

TSCA Statement THIS MATERIAL IS EXEMPT FROM THE TOXIC SUBSTANCES CONTROL ACT (15 USC 2601-2629)

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazardous Categorization

Acute Health Hazard	Yes
Chronic Health Hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Reportable and Threshold Planning Quantities

The following components have RQs and/or TPQs under SARA and/or CERCLA

Component	CERCLA RQ, lbs	SARA 302 RQ, lbs	SARA 302 TPQ, lbs

Sodium hydroxide (CAS #: 1310-73-2)	1000	-	-

State Right-to-Know

This product contains the following chemicals regulated in the states listed below.

Component	California Prop. 65	New Jersey	Massachusetts	Pennsylvania
Sodium hydroxide (CAS #: 1310-73-2)	-	Listed.	Listed.	Listed.
Sulfamic acid (CAS #: 5329-14-6)	-	Listed.	-	-

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Hazards

E Corrosive material
D2B Toxic materials

16. OTHER INFORMATION

NFPA	Health 3	Flammability 0	Instability 0	Physical Hazards -
HMIS	Health 3	Flammability 0	Physical Hazards 0	

Prepared By

Health & Environment Department
Albemarle Corporation

FOR ADDITIONAL NONEMERGENCY PRODUCT INFORMATION, CONTACT:

HEALTH AND ENVIRONMENT DEPARTMENT
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BATON ROUGE, LA. 70801
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Preparation Date : 14-Feb-2012
Revision Date: 24-Apr-2015

Disclaimer:

The information contained herein is accurate to the best of our knowledge. The Company makes no warranty of any kind, express or implied, concerning the safe use of this material in your process or in combination with other substances.

End of Safety Data Sheet