GE Power & Water
Water & Process Technologies

SAFETY DATA SHEET

OPTISPERSE* ADJ560

1. Identification

Product identifier **OPTISPERSE ADJ560**

Other means of identification None.

Recommended use Internal boiler treatment

Recommended restrictions None known.

Company/undertaking identification

GE Betz, Inc.
4636 Somerton Road
Trevose, PA 19053
T 215 355 3300, F 215 953 5524

Emergency telephone

(800) 877 1940

2. Hazard(s) identification

Physical hazards	Corrosive to metals	Category 1
Health hazards	Acute toxicity, oral	Category 4
	Skin corrosion/irritation	Category 1A
	Serious eye damage/eye irritation	Category 1
	Specific target organ toxicity, single exposure	Category 3 respiratory tract irritation

OSHA defined hazards Not classified.

Label elements

Signal word Danger

Hazard statement May be corrosive to metals. Harmful if swallowed. Causes severe skin burns and eye damage. Causes serious eye damage.

Precautionary statement

Prevention Keep only in original container. Do not breathe mist or vapor. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Wear protective gloves/protective clothing/eye protection/face protection.

Response If swallowed: Rinse mouth. Do NOT induce vomiting. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Continue rinsing for at least 30 minutes. Immediately call a poison center/doctor/. Specific treatment (see on this label). Wash contaminated clothing before reuse. Absorb spillage to prevent material damage.

Storage Store locked up. Store in corrosive resistant/ container with a resistant inner liner.

Disposal Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazard(s) not otherwise classified (HNOC)	None known.
Supplemental information	None.

3. Composition/information on ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	%
Sodium hydroxide		1310-73-2	20 - 40
Potassium hydroxide		1310-58-3	10 - 20

Composition comments Information for specific product ingredients as required by the U.S. OSHA HAZARD COMMUNICATION STANDARD is listed. Refer to additional sections of this SDS for our assessment of the potential hazards of this formulation.

4. First-aid measures

Inhalation
Move to fresh air.
For breathing difficulties, oxygen may be necessary.
If breathing stops, provide artificial respiration.
Get medical attention immediately.

Skin contact
Wash off with soap and water.
Remove contaminated clothing.
Wash clothing separately before reuse.
Get medical attention immediately.

Eye contact
Immediately flush eyes with plenty of low-pressure water for at least 30 minutes while removing contact lenses.
Keep eyelids apart.
Get medical attention immediately. URGENT! Immediately flush eyes with plenty of low-pressure water for at least 20 minutes while removing contact lenses. Hold eyelids apart. Get immediate medical attention.

Ingestion
Do not feed anything by mouth to an unconscious or convulsive victim.
Do NOT induce vomiting!
Immediately contact a physician.
Dilute contents of stomach using 2-8 fluid ounces (60-240ml) of milk or water.

Most important symptoms/effects, acute and delayed
Corrosive effects.
Refer to item "symptoms" at section 11.

Indication of immediate medical attention and special treatment needed
Corrosive material It may not be advisable to induce vomiting.
Possible mucosal damage may contraindicate the use of gastric lavage. No specific antidotes are recommended.

General information
Appropriate protective clothing.

5. Fire-fighting measures

Suitable extinguishing media
Dry chemical, CO2, water spray or regular foam. Carbon dioxide, dry chemicals, foam.

Unsuitable extinguishing media
None.

Specific hazards arising from the chemical
None known.

Special protective equipment and precautions for firefighters
Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Fire fighting equipment/instructions
Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask. In case of fire and/or explosion do not breathe fumes. Use standard firefighting procedures and consider the hazards of other involved materials. Move containers from fire area if you can do so without risk. Cool containers / tanks with water spray.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures
Wear appropriate protective equipment and clothing during clean-up. Please refer also to section no. 8 'Exposure controls' for further information. Avoid contact with spilled material.

Methods and materials for containment and cleaning up
Ventilate the area. Soak up with inert absorbent material. Place in waste disposal container. Flush area with water. Wet area may be slippery. Spread sand/grit. Ventilate area, use specified protective equipment. Contain and absorb on absorbent material (e.g. sand). Wet area may be slippery.

Environmental precautions Avoid discharge into drains, water courses or onto the ground.
Prevent from entering sewers or the immediate environment. Water contaminated with this product may be sent to a sanitary sewer treatment facility, or a permitted waste treatment facility, in accordance with any local agreements.

7. Handling and storage

Precautions for safe handling Alkaline. Do not mix with acidic material.
corrosive to skin corrosive to the eyes Corrosive to skin or eyes.

Conditions for safe storage, including any incompatibilities Keep container tightly closed in a dry and well-ventilated place. Do not store near acids or reducing agents.

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
Sodium hydroxide (CAS 1310-73-2)	PEL	2 mg/m3

US. ACGIH Threshold Limit Values

Components	Type	Value
Potassium hydroxide (CAS 1310-58-3)	Ceiling	2 mg/m3
Sodium hydroxide (CAS 1310-73-2)	Ceiling	2 mg/m3

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
Potassium hydroxide (CAS 1310-58-3)	TWA	2 mg/m3
Sodium hydroxide (CAS 1310-73-2)	Ceiling	2 mg/m3

Biological limit values No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls Explosion-proof general and local exhaust ventilation. 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. Bulk tanks should be vented externally. Adequate ventilation to maintain air contaminants below exposure limits.

Individual protection measures, such as personal protective equipment

Eye/face protection Chemical goggles and face shield are recommended. Chemical goggles are recommended.

Skin protection

Hand protection Rubber, butyl, viton or neoprene glove. Chemical resistant gloves. The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other. Glove selection must take into account any solvents and other hazards present.

Other Wear suitable protective clothing. Chemical resistant apron. Wash off after each use. Replace as necessary. Gauntlet-type neoprene gloves.

Respiratory protection A RESPIRATORY PROTECTION PROGRAM THAT MEETS OSHA'S 29 CFR 1910.134 AND ANSI Z88.2 REQUIREMENTS MUST BE FOLLOWED WHENEVER WORKPLACE CONDITIONS WARRANT A RESPIRATOR'S USE. If air-purifying respirator use is appropriate, use organic vapor cartridges and any of the following particulate respirators: R95, R99, R100, P95, P99 or P100.

Thermal hazards Not applicable.

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

9. Physical and chemical properties

Appearance

Color Colorless

Physical state Liquid

Odor None

Odor threshold Not available.

pH (concentrated product) 13

pH in aqueous solution 13 (5% SOL.)

Melting point/freezing point	5 °F (-15 °C)
Initial boiling point and boiling range	220 °F (104 °C)
Flash point	> 200 °F (> 93 °C) P-M(CC)
Evaporation rate	< 1 (Ether = 1)
Flammability (solid, gas)	Not available.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	16 mm Hg
Vapor pressure temp.	70 °F (21 °C)
Vapor density	< 1 (Air = 1)
Relative density	1.52
Relative density temperature	70 °F (21 °C)
Solubility(ies)	
Solubility (water)	100 %
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	70 cps
Viscosity temperature	70 °F (21 °C)
Other information	
Percent volatile	0 (Calculated)
Pour point	10 °F (-12 °C)
Specific gravity	1.52

10. Stability and reactivity

Reactivity	May react violently with acidic materials.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	None known. Friction, heat or other sources of ignition may cause a violent reaction releasing heat and toxic fumes. Avoid contact with strong acids.
Incompatible materials	Contact with strong acids may cause a violent reaction releasing heat. Strong oxidizing substances. Strong acids.
Hazardous decomposition products	None known. Elemental oxides

11. Toxicological information

Information on likely routes of exposure

Inhalation	May cause irritation to the respiratory system.
Skin contact	Causes severe skin burns.
Eye contact	Causes serious eye damage.
Ingestion	Harmful if swallowed.
Symptoms related to the physical, chemical and toxicological characteristics	Burning pain and severe corrosive skin damage. Causes serious eye damage. Permanent eye damage including blindness could result. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause respiratory irritation.

Information on toxicological effects

Acute toxicity

Product	Species	Test Results
OPTISPERSE ADJ560 (CAS N/A)		
Acute		
Dermal		
LD50	Rabbit	4122 mg/kg, (Calculated according to GHS additivity formula)
Oral		
LD50	Rat	892 mg/kg, (Calculated according to GHS additivity formula)

Components	Species	Test Results
Potassium hydroxide (CAS 1310-58-3)		
Acute		
Oral		
LD50	Rat	333 mg/kg
Sodium hydroxide (CAS 1310-73-2)		
Acute		
Dermal		
LD50	Rabbit	1350 mg/kg
Oral		
LD50	Rabbit	> 500 mg/kg

Skin corrosion/irritation Causes severe skin burns and eye damage.

Serious eye damage/eye irritation Causes severe burns.

Respiratory or skin sensitization

Respiratory sensitization Not classified.

Skin sensitization Not classified.

Germ cell mutagenicity Not classified.

Carcinogenicity

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Reproductive toxicity Not classified.

Specific target organ toxicity - single exposure Not classified.

Specific target organ toxicity - repeated exposure Not classified.

Aspiration hazard Not classified.

12. Ecological information

Ecotoxicity

Product		Species	Test Results
OPTISPERSE ADJ560 (CAS N/A)			
	LC50	Fathead Minnow	3790 mg/L, Static Renewal Bioassay, 96 hour, (pH adjusted)
	NOEL	Fathead Minnow	2500 mg/L, Static Renewal Bioassay, 96 hour, (pH adjusted)
Aquatic			
Crustacea	65% Mortality	Daphnia magna	10000 mg/L, Static Renewal Bioassay, 48 hour, (pH adjusted)
	NOEL	Daphnia magna	5000 mg/L, Static Renewal Bioassay, 48 hour, (pH adjusted)

Bioaccumulative potential Not available.

Mobility in soil Not available.

Other adverse effects Not available.

13. Disposal considerations

Disposal instructions	Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazardous waste code	D002= Corrosive
Waste from residues / unused products	Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner.
Contaminated packaging	Via an authorized waste disposal contractor to an approved waste disposal site, observing all local and national regulations.

14. Transport information

DOT

UN number	UN1719
UN proper shipping name	CAUSTIC ALKALI LIQUIDS, N.O.S. (SODIUM HYDROXIDE (RQ), POTASSIUM HYDROXIDE)
Transport hazard class(es)	
Class	8
Subsidiary risk	-
Packing group	II
Special precautions for user	Not available.
ERG number	154

Some containers may be exempt from Dangerous Goods/Hazmat Transport Regulations, please check BOL for exact container classification.

IATA

UN number	UN1719
UN proper shipping name	CAUSTIC ALKALI LIQUIDS, N.O.S. (SODIUM HYDROXIDE, POTASSIUM HYDROXIDE)
Transport hazard class(es)	
Class	8
Subsidiary risk	-
Packing group	II
Environmental hazards	No.
Special precautions for user	Not available.

IMDG

UN number	UN1719
UN proper shipping name	CAUSTIC ALKALI LIQUIDS, N.O.S. (Sodium hydroxide (RQ), Potassium hydroxide)
Transport hazard class(es)	
Class	8
Subsidiary risk	-
Packing group	II
Environmental hazards	
Marine pollutant	No.
EmS	Not available.
Special precautions for user	Not available.

DOT

IATA; IMDG

15. Regulatory information

US federal regulations

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Potassium hydroxide (CAS 1310-58-3)	Listed.
Sodium hydroxide (CAS 1310-73-2)	Listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Immediate Hazard - Yes
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical No

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.

Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
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).

Food and drug administration ALL ingredients in this product are authorized in 21CFR173.310 for use as boiler water additives where the steam may contact food.

NSF Registered and/or meets USDA (according to 1998 guidelines):

Registration No. – 141033
Category Code(s):
G5 Cooling and retort water treatment products
G6 Boiler treatment products, steam line products – food contact

US state regulations

US - Massachusetts RTK - Substance List

Potassium hydroxide (CAS 1310-58-3)
Sodium hydroxide (CAS 1310-73-2)

US - Pennsylvania RTK - Hazardous Substances

Potassium hydroxide (CAS 1310-58-3)
Sodium hydroxide (CAS 1310-73-2)

US - Rhode Island RTK

Potassium hydroxide (CAS 1310-58-3)
Sodium hydroxide (CAS 1310-73-2)

US. California Controlled Substances. CA Department of Justice (California Health and Safety Code Section 11100)

Not listed.

US. New Jersey Worker and Community Right-to-Know Act

Potassium hydroxide (CAS 1310-58-3)
Sodium hydroxide (CAS 1310-73-2)

US. Pennsylvania Worker and Community Right-to-Know Law

Potassium hydroxide (CAS 1310-58-3)
Sodium hydroxide (CAS 1310-73-2)

US. California Proposition 65

US - California Proposition 65 - CRT: Listed date/Carcinogenic substance

No ingredient listed.

US - California Proposition 65 - CRT: Listed date/Developmental toxin

No ingredient listed.

US - California Proposition 65 - CRT: Listed date/Female reproductive toxin

No ingredient listed.

US - California Proposition 65 - CRT: Listed date/Male reproductive toxin

No ingredient listed.

16. Other information, including date of preparation or last revision

Issue date	Jul-07-2014
Revision date	May-07-2015
Version #	2.0
List of abbreviations	CAS: Chemical Abstract Service Registration Number TSRN indicates a Trade Secret Registry Number is used in place of the CAS number. ACGIH: American Conference of Governmental Industrial Hygienists NOEL: No Observed Effect Level STEL: Short Term Exposure Limit LC50: Lethal Concentration, 50% TWA: Time Weighted Average BOD: Biochemical Oxygen Demand COD: Chemical Oxygen Demand TOC: Total Organic Carbon IATA: International Air Transport Association IMDG: International Maritime Dangerous Goods Code TLV: Threshold Limit Value LD50: Lethal Dose, 50% NFPA: National Fire Protection Association
References:	No data available
Disclaimer	The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.
Revision Information	Transport Information: Material Transportation Information
Prepared by	This SDS has been prepared by GE Water & Process Technologies Regulatory Department (1-215-355-3300).