GE Power & Water
Water & Process Technologies

# SAFETY DATA SHEET

# CORRSHIELD* OR4407

## 1. Identification

**Product identifier** **CORRSHIELD OR4407**

**Other means of identification** None.

**Recommended use** Closed system corrosion inhibitor

**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** Not classified.

**Health hazards**

| | |
|---|---|
| Serious eye damage/eye irritation | Category 2 |
| Specific target organ toxicity, single exposure | Category 3 respiratory tract irritation |
| Specific target organ toxicity, repeated exposure (dermal, oral) | Category 2 (liver) |

**OSHA defined hazards** Not classified.

**Label elements**

**Signal word** Warning

**Hazard statement** Causes serious eye irritation. May cause respiratory irritation. May cause damage to organs (liver) through prolonged or repeated exposure by skin contact. May cause damage to organs (liver) through prolonged or repeated exposure by ingestion.

**Precautionary statement**

**Prevention** Do not breathe mist or vapor. Wash thoroughly after handling. Use only outdoors or in a well-ventilated area. Wear eye/face protection.

**Response** 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. Call a poison center/doctor// if you feel unwell. If eye irritation persists: Get medical advice/attention.

**Storage** Store in a well-ventilated place. Keep container tightly closed. Store locked up.

**Disposal** Dispose of contents/container in accordance with local/regional/national/international regulations. Dispose of contents/container to approved local facility.

**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 | % |
|---|---|---|---|
| Triethanolamine | | 102-71-6 | 2.5 - 10 |

*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

## 4. First-aid measures

**Inhalation**
Remove victim to fresh air and keep at rest in a position comfortable for breathing. For breathing difficulties, oxygen may be necessary. If breathing stops, provide artificial respiration. If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.

**Skin contact**
Remove contaminated clothing immediately and wash skin with soap and water. Wash contaminated clothing before reuse. Get medical attention if symptoms occur.

**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. Get medical attention if irritation develops and persists.

**Ingestion**
Never give anything by mouth to a victim who is unconscious or is having convulsions. Dilute contents of stomach using 2-8 fluid ounces (60-240ml) of milk or water. Immediately contact a physician.

**Most important symptoms/effects, acute and delayed**
Jaundice. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause respiratory irritation. Prolonged exposure may cause chronic effects.

**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**
Carbon dioxide, dry chemicals, foam.

**Unsuitable extinguishing media**
Do not use water jet as an extinguisher, as this will spread the fire.

**Specific hazards arising from the chemical**
During fire, gases hazardous to health may be formed.

**Special protective equipment and precautions for firefighters**
Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask.

**Fire fighting equipment/instructions**
Use standard firefighting procedures and consider the hazards of other involved materials. Move containers from fire area if you can do so without risk.

**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. Keep out of low areas. Wear appropriate protective equipment and clothing during clean-up. Do not breathe mist or vapor. 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. See Section 8 of the SDS for Personal Protective Equipment. For personal protection, see section 8 of the SDS.

**Methods and materials for containment and cleaning up**
Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Absorb in vermiculite, dry sand or earth and place into containers. Prevent entry into waterways, sewer, basements or confined areas.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

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

**Environmental precautions**
Avoid discharge into drains, water courses or onto the ground.

## 7. Handling and storage

**Precautions for safe handling**
Do not breathe mist or vapor. Do not get this material in contact with skin. Avoid contact with eyes. Avoid prolonged exposure. Provide adequate ventilation. Wear appropriate personal protective equipment. Observe good industrial hygiene practices. Use care in handling/storage.

**Conditions for safe storage, including any incompatibilities** Store locked up. Store in original tightly closed container. Store away from incompatible materials (see Section 10 of the SDS). Store away from oxidizers. Shelf life 360 days.

## 8. Exposure controls/personal protection

**Occupational exposure limits**

**US. ACGIH Threshold Limit Values**

| Components | Type | Value |
|---|---|---|
| Triethanolamine (CAS 102-71-6) | TWA | 5 mg/m3 |

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

**Appropriate engineering controls** 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** Splash proof chemical goggles.

**Skin protection**

**Hand protection** Chemical resistant gloves.

**Other** Wear suitable protective clothing. Use of an impervious apron is recommended.

**Respiratory protection** Chemical respirator with organic vapor cartridge and full facepiece.

**Thermal hazards** Not applicable. 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**

**Color** Yellow to amber

**Physical state** Liquid

**Odor** Mild

**Odor threshold** Not available.

**pH (concentrated product)** 8.6

**pH in aqueous solution** 8.1 (5% SOL.)

**Melting point/freezing point** 14 °F (-10 °C)

**Initial boiling point and boiling range** 220 °F (104 °C)

**Flash point** > 213 °F (> 101 °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** 18 mm Hg

**Vapor pressure temp.** 70 °F (21 °C)

**Vapor density** < 1 (Air = 1)

**Relative density** 1.11

**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** | 19 cps |
| **Viscosity temperature** | 70 °F (21 °C) |
| **Other information** | |
| **Percent volatile** | 0 (Estimated) |
| **Pour point** | 19 °F (-7 °C) |
| **Specific gravity** | 1.11 |

## 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** | Hazardous polymerization does not occur. |
| **Conditions to avoid** | Protect from freezing. |
| **Incompatible materials** | Avoid contact with strong oxidizers. |
| **Hazardous decomposition products** | Oxides of carbon, nitrogen, phosphorus, and sulphur evolved in fire. Volatile amines. Ammonia. |

## 11. Toxicological information

**Information on likely routes of exposure**

| | |
|---|---|
| **Inhalation** | Prolonged inhalation may be harmful. May cause damage to organs by inhalation. May cause irritation to the respiratory system. |
| **Skin contact** | Causes skin irritation.<br><br>Prolonged or repeated exposure may cause liver and kidney damage. These effects have not been observed in humans. |
| **Eye contact** | Causes serious eye irritation. |
| **Ingestion** | May cause gastrointestinal irritation with possible nausea, vomiting, abdominal discomfort and diarrhea. |
| **Symptoms related to the physical, chemical and toxicological characteristics** | Jaundice. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. |

**Information on toxicological effects**

**Acute toxicity** May cause respiratory irritation.

| **Product** | **Species** | **Test Results** |
|---|---|---|
| CORRSHIELD OR4407 (CAS Mixture) | | |
| **Acute** | | |
| *Dermal* | | |
| LD50 | Rabbit | > 5000 mg/kg, (Calculated according to GHS additivity formula) |
| *Oral* | | |
| LD50 | Rat | > 5000 mg/kg, (Calculated according to GHS additivity formula) |

| **Components** | **Species** | **Test Results** |
|---|---|---|
| Triethanolamine (CAS 102-71-6) | | |
| **Acute** | | |
| *Dermal* | | |
| LD50 | Rabbit | > 2000 mg/kg |
| *Oral* | | |
| LD50 | Rat | 8000 mg/kg |

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

**Skin corrosion/irritation** Causes skin irritation.

**Serious eye damage/eye irritation** Causes serious eye irritation.

**Respiratory or skin sensitization**

**Respiratory sensitization** Not available.

**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.

**Carcinogenicity** This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

**IARC Monographs. Overall Evaluation of Carcinogenicity**

Triethanolamine (CAS 102-71-6) 3 Not classifiable as to carcinogenicity to humans.

**OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)**

Not listed.

**Reproductive toxicity** This product is not expected to cause reproductive or developmental effects.

**Specific target organ toxicity - single exposure** May cause respiratory irritation.

**Specific target organ toxicity - repeated exposure** May cause damage to organs (liver) through prolonged or repeated exposure by skin contact.

**Aspiration hazard** Based on available data, the classification criteria are not met. Aspiration of this product may cause the same corrosiveness/irritation impacts as if it were ingested.

**Chronic effects** Prolonged inhalation may be harmful. May be harmful if absorbed through skin.

Prolonged or repeated exposure may cause liver and kidney damage. These effects have not been observed in humans.

May cause damage to organs through prolonged or repeated exposure.

## 12. Ecological information

**Ecotoxicity**

| Product | | Species | Test Results |
|---|---|---|---|
| CORRSHIELD OR4407 (CAS Mixture) | | | |
| | LC50 | Fathead Minnow | 3250 mg/L, Static Renewal Bioassay, 96 hour |
| | NOEL | Fathead Minnow | 2500 mg/L, Static Renewal Bioassay, 96 hour |
| **Aquatic** | | | |
| Crustacea | LC50 | Daphnia magna | 6320 mg/L, Static Renewal Bioassay, 48 hour |
| | NOEL | Daphnia magna | 5000 mg/L, Static Renewal Bioassay, 48 hour |

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

**Bioaccumulative potential** No data available.

**Partition coefficient n-octanol / water (log Kow)**

Triethanolamine -1

**Mobility in soil** No data available.

**Other adverse effects** No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

**Environmental fate** 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.

**Persistence and degradability**

No data is available on the degradability of this product.

**- COD (mgO2/g)** 587

**- BOD 5 (mgO2/g)** 210

**- BOD 28 (mgO2/g)** 380

**- Closed Bottle Test (% Degradation in 28 days)** 65

## 13. Disposal considerations

| | |
|---|---|
| **Disposal instructions** | Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/container in accordance with local/regional/national/international regulations. |
| **Local disposal regulations** | Dispose in accordance with all applicable regulations. |
| **Hazardous waste code** | The waste code should be assigned in discussion between the user, the producer and the waste disposal company. |
| **Waste from residues / unused products** | Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions). Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner. |
| **Contaminated packaging** | Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied. |

## 14. Transport information

**DOT**

Not regulated as dangerous goods.

Some containers may be DOT exempt, please check BOL for exact container classification.

**IATA**

Not regulated as dangerous goods.

**IMDG**

Not regulated as dangerous goods.

## 15. Regulatory information

**US federal regulations**

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
All components are on the U.S. EPA TSCA Inventory List.

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

Not regulated.

**CERCLA Hazardous Substance List (40 CFR 302.4)**

Not 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 - Yes
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 |

| Country(s) or region | Inventory name | On inventory (yes/no)* |
|---|---|---|
| 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).

**NSF Registered and/or meets USDA (according to 1998 guidelines):**
Registration No. – 141003
Category Code(s):
G5 Cooling and retort water treatment products
G7 Boiler, steam line treatment products – nonfood contact

**US state regulations**
WARNING: This product contains a chemical known to the State of California to cause cancer.

**US - Massachusetts RTK - Substance List**
Triethanolamine (CAS 102-71-6)

**US - Pennsylvania RTK - Hazardous Substances**
Triethanolamine (CAS 102-71-6)

**US - Rhode Island RTK**
Not regulated.

**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**
Triethanolamine (CAS 102-71-6)

**US. Pennsylvania Worker and Community Right-to-Know Law**
Triethanolamine (CAS 102-71-6)

**US. California Proposition 65**
WARNING: This product contains a chemical known to the State of California to cause cancer.

**US - California Proposition 65 - CRT: Listed date/Carcinogenic substance**
Diethanolamine (CAS 111-42-2) Listed: June 22, 2012

**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** Nov-16-2014

**Revision date** Apr-03-2015

**Version #** 2.0

**List of abbreviations**

CAS: Chemical Abstract Service Registration Number
TWA: Time Weighted Average
STEL: Short Term Exposure Limit
LD50: Lethal Dose, 50%
LC50: Lethal Concentration, 50%
NOEL: No Observed Effect Level
COD: Chemical Oxygen Demand
BOD: Biochemical Oxygen Demand
TOC: Total Organic Carbon
TLV: Threshold Limit Value
IATA: International Air Transport Association
IMDG: International Maritime Dangerous Goods Code
NFPA: National Fire Protection Association
ACGIH: American Conference of Governmental Industrial Hygienists
TSRN indicates a Trade Secret Registry Number is used in place of the CAS number.

**References:** No data available

**Disclaimer** The information in the sheet was written based on the best knowledge and experience currently available.

| | |
|---|---|
| **Revision Information** | Product and Company Identification: Commercial Names<br>Composition / Information on Ingredients: Disclosure Overrides<br>First-aid measures: Ingestion<br>First-aid measures: Inhalation<br>First-aid measures: Skin contact<br>Physical & Chemical Properties: Multiple Properties<br>GHS: Classification |
| **Prepared by** | This SDS has been prepared by GE Water & Process Technologies Regulatory Department (1-215-355-3300). |

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