

1. Identification

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|---|--|-----------------------|
| Product identifier | IODINE, SOLUTION, 1 N | |
| Other means of identification | | |
| Product code | 1163 | |
| Recommended use | professional, scientific and technical activities: other professional, scientific and technical activities | |
| Recommended restrictions | None known. | |
| Manufacturer/Importer/Supplier/Distributor information | | |
| Company name | GFS Chemicals, Inc. | |
| Address | P.O. Box 245 Powell OH 43065 US | |
| Telephone | Phone | 740-881-5501 |
| | Toll Free | 800-858-9682 |
| | Fax | 740-881-5989 |
| Website | www.gfschemicals.com | |
| E-mail | service@gfschemicals.com | |
| Emergency phone number | Emergency Assistance | Chemtrec 800-424-9300 |

2. Hazard(s) identification

| | | |
|-------------------------|---|----------------------------|
| Physical hazards | Not classified. | |
| Health hazards | Skin corrosion/irritation | Category 1 |
| | Serious eye damage/eye irritation | Category 1 |
| | Sensitization, skin | Category 1 |
| | Specific target organ toxicity, repeated exposure | Category 1 (thyroid gland) |
| OSHA hazard(s) | Not classified. | |
| Label elements | | |



| | |
|--|---|
| Signal word | Danger |
| Hazard statement | Causes severe skin burns and eye damage. May cause an allergic skin reaction. Causes serious eye damage. Causes damage to organs (thyroid gland) through prolonged or repeated exposure. Very toxic to aquatic life. Toxic to aquatic life with long lasting effects. |
| Precautionary statement | |
| Prevention | Do not breathe mist or vapor. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Contaminated work clothing must not be allowed out of the workplace. 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. Call a POISON CENTER or doctor/physician if you feel unwell. |
| Storage | Store locked up. |
| Disposal | Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal. |
| Hazard(s) not otherwise classified (HNOC) | Not classified. |

| | | |
|------------------------------|--|------------|
| Environmental hazards | Hazardous to the aquatic environment, acute hazard | Category 1 |
| | Hazardous to the aquatic environment, long-term hazard | Category 2 |

Supplemental information

Precautionary statement

| | |
|-------------------|---|
| Prevention | Avoid release to the environment. |
| Response | Collect spillage. |
| Disposal | Dispose of contents/container in accordance with local/regional/national/international regulations. |

15.2% of the mixture consists of component(s) of unknown acute hazards to the aquatic environment. 15.2% of the mixture consists of component(s) of unknown long-term hazards to the aquatic environment.

3. Composition/information on ingredients

Mixtures

| Hazardous components | | |
|---------------------------------|-------------------|----------|
| Chemical name | CAS number | % |
| POTASSIUM IODIDE | 7681-11-0 | 15.2 |
| IODINE | 7553-56-2 | 9.6 |
| Non-hazardous components | | |
| Chemical name | CAS number | % |
| WATER | 7732-18-5 | 75.2 |

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

4. First-aid measures

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|---|---|
| Inhalation | Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a physician or poison control center immediately. |
| Skin contact | Take off immediately all contaminated clothing. Wash off with soap and plenty of water. Call a physician or poison control center immediately. For minor skin contact, avoid spreading material on unaffected skin. Get medical attention if irritation develops and persists. If skin irritation or rash occurs: Get medical advice/attention. |
| Eye contact | Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician or poison control center immediately. |
| Ingestion | Call a physician or poison control center immediately. Rinse mouth. If the material is swallowed, get immediate medical attention or advice -- Give several glasses of water or milk. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. |
| Most important symptoms/effects, acute and delayed | Corrosive effects. Irritation of eyes and mucous membranes. May cause temporary blindness and severe eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause allergic skin reaction. Prolonged exposure may cause chronic effects. |
| Indication of immediate medical attention and special treatment needed | In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Symptoms may be delayed. Provide general supportive measures and treat symptomatically. |
| General information | Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Wash contaminated clothing before reuse. |

5. Fire-fighting measures

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| Suitable extinguishing media | Water. Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2). |
| Unsuitable extinguishing media | None known. |
| Specific hazards arising from the chemical | None known. |
| Special protective equipment and precautions for firefighters | Wear suitable protective equipment. |
| Fire-fighting equipment/instructions | Water runoff can cause environmental damage. |

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Keep unnecessary personnel away. Local authorities should be advised if significant spillages cannot be contained. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Keep people away from and upwind of spill/leak. Keep upwind. Keep out of low areas. Ensure adequate ventilation. Avoid inhalation of vapors or mists. Wear appropriate personal protective equipment.

Methods and materials for containment and cleaning up

Should not be released into the environment. This product is miscible in water. Neutralize with a dilute solution of sodium bisulfite or sodium thiosulfate. Following product recovery, flush area with water. Clean up in accordance with all applicable regulations. This material is classified as a water pollutant under the Clean Water Act and should be prevented from contaminating soil or from entering sewage and drainage systems which lead to waterways.

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

Environmental precautions

Contact local authorities in case of spillage to drain/aquatic environment. Avoid discharge into drains, water courses or onto the ground. Avoid release to the environment. Prevent further leakage or spillage if safe to do so. Do not contaminate water.

7. Handling and storage

Precautions for safe handling

Do not breathe mist or vapor. Do not get this material in contact with eyes. Do not get this material in contact with skin. Do not get this material on clothing. Avoid prolonged exposure. Wash hands thoroughly after handling. Avoid release to the environment. Do not empty into drains.

Conditions for safe storage, including any incompatibilities

Store locked up. Keep container tightly closed. Keep out of the reach of children. Store in a cool, dry place out of direct sunlight.

8. Exposure controls/personal protection

Occupational exposure limits

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

| Components | Type | Value |
|------------------------|---------|--------------------------------|
| IODINE (CAS 7553-56-2) | Ceiling | 1 mg/m ³ 0.1 ppm |

US. ACGIH Threshold Limit Values

| Components | Type | Value | Form |
|----------------------------------|------|----------|-------------------------------|
| IODINE (CAS 7553-56-2) | STEL | 0.1 ppm | Vapor and aerosol. |
| | TWA | 0.01 ppm | Inhalable fraction and vapor. |
| POTASSIUM IODIDE (CAS 7681-11-0) | TWA | 0.01 ppm | Inhalable fraction and vapor. |

US. NIOSH: Pocket Guide to Chemical Hazards

| Components | Type | Value |
|------------------------|---------|--------------------------------|
| IODINE (CAS 7553-56-2) | Ceiling | 1 mg/m ³ 0.1 ppm |

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

Wear chemical goggles.

Skin protection

Hand protection

Wear protective gloves.

Other

Wear appropriate chemical resistant clothing. It may provide little or no thermal protection. Wear protective gloves.

Respiratory protection

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. Not normally needed.

Thermal hazards

Not available.

General hygiene considerations

When using, do not eat, drink or smoke. Do not get in eyes. Do not get this material in contact with skin. Do not get this material on clothing. Wash hands before breaks and immediately after handling the product. Contaminated work clothing should not be allowed out of the workplace. Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

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|---|----------------------|
| Appearance | Aqueous solution. |
| Physical state | Liquid. |
| Form | Liquid. |
| Color | Red brown. |
| Odor | Similar to iodine. |
| Odor threshold | Not available. |
| pH | Not available. |
| Melting point/freezing point | < 32 °F (< 0 °C) |
| Initial boiling point and boiling range | > 212 °F (> 100 °C) |
| Flash point | Not available. |
| Evaporation rate | Not available. |
| Flammability (solid, gas) | Not applicable. |
| 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 density | Not available. |
| Relative density | Not available. |
| Solubility(ies) | completely miscible. |
| Partition coefficient (n-octanol/water) | Not available. |
| Auto-ignition temperature | Not available. |
| Decomposition temperature | Not available. |
| Viscosity | Not available. |
| Other information | |
| Density | 1.32 g/cm3 |
| Percent volatile | > 75 % |
| Specific gravity | 1.32 |

10. Stability and reactivity

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| Reactivity | Not available. |
| Chemical stability | Material is stable under normal conditions. |
| Possibility of hazardous reactions | Hazardous polymerization does not occur. |
| Conditions to avoid | None known. |
| Incompatible materials | Ammonia. Reducing agents. Metals. |
| Hazardous decomposition products | No hazardous decomposition products are known. |

11. Toxicological information

Information on likely routes of exposure

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|---|---|
| Ingestion | Causes digestive tract burns. |
| Inhalation | May cause irritation to the respiratory system. |
| Skin contact | Causes severe skin burns. May cause an allergic skin reaction. |
| Eye contact | Causes severe eye burns. Causes serious eye damage. |
| Symptoms related to the physical, chemical and toxicological characteristics | Burning pain and severe corrosive skin damage. Permanent eye damage including blindness could result. |

Information on toxicological effects

Acute toxicity Causes severe skin burns and eye damage.

| Product | Species | Test Results |
|-------------------------------------|---------|--------------------------|
| IODINE, SOLUTION, 1 N (CAS Mixture) | | |
| Acute | | |
| <i>Oral</i> | | |
| LD50 | Mouse | 99999 mg/kg |
| | | 229.1667 g/kg, estimated |
| | Rabbit | 99999 mg/kg |
| | | 104.1667 g/kg, estimated |
| | Rat | 99999 mg/kg |
| | | 145.8333 g/kg, estimated |
| <i>Other</i> | | |
| LD50 | Rat | 1875 mg/kg, estimated |
| Components | Species | Test Results |
| IODINE (CAS 7553-56-2) | | |
| Acute | | |
| <i>Oral</i> | | |
| LD50 | Mouse | 22 g/kg |
| | Rabbit | 10 g/kg |
| | Rat | 14 g/kg |
| POTASSIUM IODIDE (CAS 7681-11-0) | | |
| Acute | | |
| <i>Other</i> | | |
| LD50 | Rat | 285 mg/kg |

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

| | |
|---|---|
| Skin corrosion/irritation | Causes severe skin burns and eye damage. |
| Serious eye damage/eye irritation | Causes severe eye burns. Causes serious eye damage. |
| Respiratory sensitization | Due to lack of data the classification is not possible. |
| Skin sensitization | May cause an allergic skin reaction. |
| Germ cell mutagenicity | Due to lack of data the classification is not possible. |
| Carcinogenicity | This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA. |
| Reproductive toxicity | May cause reproductive system disorder and/or damage. Due to lack of data the classification is not possible. |
| Specific target organ toxicity - single exposure | Due to lack of data the classification is not possible. |
| Specific target organ toxicity - repeated exposure | Causes damage to organs (thyroid gland) through prolonged or repeated exposure. |
| Aspiration hazard | Due to lack of data the classification is not possible. |
| Chronic effects | Prolonged inhalation may be harmful. Causes damage to organs through prolonged or repeated exposure. |

12. Ecological information

Ecotoxicity Very toxic to aquatic life. Toxic to aquatic life with long lasting effects. Accumulation in aquatic organisms is expected.

| Product | Species | Test Results |
|-------------------------------------|---------|-----------------------------------|
| IODINE, SOLUTION, 1 N (CAS Mixture) | | |
| Fish | LC50 | 17.3661 mg/l, 96 hours, estimated |
| Components | Species | Test Results |
| IODINE (CAS 7553-56-2) | | |
| Aquatic | | |
| Crustacea | LC50 | 0.55 - 1.32 mg/l, 96 hours |

| Components | | Species | Test Results |
|----------------------------------|------|---|----------------------------|
| Fish | LC50 | Guppy (Poecilia reticulata) Rainbow trout,donaldson trout (Oncorhynchus mykiss) | 0.03 - 1 mg/l, 48 hours |
| | | | 3 mg/l, 24 hours |
| | | | 0.48 - 0.58 mg/l, 96 hours |
| | | | > 0.01 mg/l, 96 hours |
| POTASSIUM IODIDE (CAS 7681-11-0) | | | |
| Aquatic | | | |
| Crustacea | LC50 | Zebra mussel (Dreissena polymorpha) | 220 - 313 mg/l, 24 hours |
| Fish | LC50 | Rainbow trout,donaldson trout (Oncorhynchus mykiss) | 2190 mg/l, 96 hours |
| | | | 896 mg/l, 96 hours |

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

Persistence and degradability None known.

Bioaccumulative potential Not available.

Partition coefficient n-octanol / water (log Kow)

IODINE 2.49

Mobility in soil Not available.

Other adverse effects Not available.

13. Disposal considerations

Disposal instructions Collect and reclaim or dispose in sealed containers at licensed waste disposal site. This material and its container must be disposed of as hazardous waste. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.

Local disposal regulations Not available.

Hazardous waste code D002: Waste Corrosive material [pH ≤2 or ≥12.5, or corrosive to steel]

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).

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 a hazardous material by DOT.

IATA

Not regulated as a dangerous good.

IMDG

Not regulated as a dangerous good.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code No information available.

General information DOT Regulated Marine Pollutant. IMDG Regulated Marine Pollutant.

15. Regulatory information

US federal regulations CERCLA/SARA Hazardous Substances - Not applicable.

All components are on the U.S. EPA TSCA Inventory List.

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

Not regulated.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not on regulatory list.

CERCLA Hazardous Substance List (40 CFR 302.4)

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 No

SARA 311/312 Hazardous chemical No

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.

Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2) and Chemical Code Number

Not listed.

Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))

IODINE (CAS 7553-56-2) 2.2 % weight/volumn

DEA Exempt Chemical Mixtures Code Number

IODINE (CAS 7553-56-2) 6699

Food and Drug Administration (FDA) Not regulated.

US state regulations

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

US. Massachusetts RTK - Substance List

IODINE (CAS 7553-56-2)

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

Not regulated.

US. Pennsylvania RTK - Hazardous Substances

IODINE (CAS 7553-56-2)

US. Rhode Island RTK

Not regulated.

US. California Proposition 65**US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance**

Not listed.

International Inventories

| Country(s) or region | Inventory name | On inventory (yes/no)* |
|-----------------------------|--|------------------------|
| Australia | Australian Inventory of Chemical Substances (AICS) | Yes |
| Canada | Domestic Substances List (DSL) | Yes |
| Canada | Non-Domestic Substances List (NDSL) | No |
| 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 |
| Japan | Inventory of Existing and New Chemical Substances (ENCS) | No |
| Korea | Existing Chemicals List (ECL) | Yes |
| New Zealand | New Zealand Inventory | Yes |
| Philippines | Philippine Inventory of Chemicals and Chemical Substances (PICCS) | Yes |
| United States & Puerto Rico | Toxic Substances Control Act (TSCA) Inventory | Yes |

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s)

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

Issue date November-14-2013

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|-----------------------------|--|
| Version # | 01 |
| Further information | Not available. |
| Disclaimer | The information in the sheet was written based on the best knowledge and experience currently available. 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 | Product and Company Identification: Product Codes Composition / Information on Ingredients: Ingredients Physical & Chemical Properties: Multiple Properties Regulatory Information: United States |