

SAFETY DATA SHEET

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers: R512-25 Iodine Solution

1.2 Recommended Use: Forensic, Research

1.3 Company Info: Serological Research Institute (SERI), 3053 Research Drive, Richmond, CA 94806 USA

Phone: 1-510-223-7374 Fax: 1-510-222-8887

1.4 Emergency Phone: 911, American Association of Poison Control Centers: 1-800-222-1222

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Acute toxicity, Oral (Category 4), H302

Acute toxicity, Inhalation (Category 4), H332

Acute toxicity, Dermal (Category 4), H312

Skin irritation (Category 2), H315

Eye irritation (Category 2A), H319

Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335

Specific target organ toxicity - repeated exposure, Oral (Category 1), Thyroid, H372

Acute aquatic toxicity (Category 1), H400

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements



Pictogram

Signal word: Danger, Warning

Hazard statement(s)

H302 Harmful if swallowed.

H312 + H332 Harmful in contact with skin or if inhaled

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H335 May cause respiratory irritation.

H372 Causes damage to organs (Thyroid) through prolonged or repeated exposure if swallowed.

H400 Very toxic to aquatic life.

Precautionary statement(s)

P260 Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.

P264 Wash 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.

P273 Avoid release to the environment.

P280 Wear eye protection/ face protection.

P280 Wear protective gloves/ protective clothing.

P301 + P312 IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell.

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.

P302 + P352 + P312 IF ON SKIN: Wash with plenty of soap and water. Call a POISON CENTER or doctor/ physician if you feel unwell.

P304 + P340 + P312 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.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P314 Get medical advice/ attention if you feel unwell.

P321 Specific treatment (see supplemental first aid instructions on this label).

P330 Rinse mouth.

P332 + P313 If skin irritation occurs: Get medical advice/ attention.

P337 + P313 If eye irritation persists: Get medical advice/ attention.

P362 Take off contaminated clothing and wash before reuse.

P391 Collect spillage.

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.

P405 Store locked up.

P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Mixtures:

Iodine, Formula: I₂, Molecular weight : 253.81 g/mol, CAS-No. : 7553-56-2, EC-No. : 231-442-4, Index-No. : 053-001-00-3

Potassium iodide, Formula: KI, Molecular weight : 166.00 g/mol, CAS-No. : 7681-11-0, EC-No. : 231-659-4

3.2 Hazardous Components: Iodine, Acute Tox. 4; Skin Irrit. 2; Eye Irrit. 2A; STOT SE 3; STOT RE 1; Aquatic Acute 1; H312 + H332, H315, H319, H335, H372, H400, Potassium iodide, Acute Tox. 4; Skin Irrit. 2; Eye Irrit. 2A; H302, H315, H319

3.3 Component Percentage/Concentration has been withheld as a trade secret.

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

General advice: Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled: If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact: Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact: Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed: Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed: The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed: No data available

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture: Hydrogen iodide, Potassium oxides

5.3 Advice for firefighters: Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information: No data available

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures: Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.

6.2 Environmental precautions: Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up: Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections: For disposal see section 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling: Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs. Provide appropriate exhaust ventilation at places where dust is formed. For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities: Keep container tightly closed in a dry and well-ventilated place. Handle and store under inert gas. Hygroscopic. Air and light sensitive. Storage class (TRGS 510): Non-combustible, acute toxic Cat.3 / toxic hazardous materials or hazardous materials causing chronic effects

7.3 Specific end use(s): Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters: Components with workplace control parameters: Component: Iodine, CAS-No. 7553-56-2, CEIL 0.100000 ppm 1.000000 mg/m³ USA. ACGIH Threshold Limit Values (TLV), C 0.100000 ppm 1.000000 mg/m³ USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants, Remarks The value in mg/m³ is approximate. Ceiling limit is to be determined from breathing-zone air samples., C 0.1 ppm 1 mg/m³ USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants, The value in mg/m³ is approximate. Ceiling limit is to be determined from breathing-zone air samples. C 0.100000 ppm 1.000000 mg/m³ USA. NIOSH Recommended Exposure Limits, TWA 0.010000 ppm USA. ACGIH Threshold Limit Values (TLV), Upper Respiratory Tract irritation Hypothyroidism Not classifiable as a human carcinogen, TWA 0.010000 ppm USA. ACGIH Threshold Limit Values (TLV), Upper Respiratory Tract irritation Hypothyroidism Not classifiable as a human carcinogen, STEL 0.100000 ppm USA. ACGIH Threshold Limit Values (TLV), Upper Respiratory Tract irritation Hypothyroidism Not classifiable as a human carcinogen, STEL 0.100000 ppm USA. ACGIH Threshold Limit Values (TLV), Upper Respiratory Tract irritation Hypothyroidism Not classifiable as a human carcinogen. Component: Potassium iodide, CAS-No. 7681-11-0, TWA 0.010000 mg/m³ USA. ACGIH Threshold Limit Values (TLV), Remarks Upper Respiratory Tract irritation Hypothyroidism Not classifiable as a human carcinogen varies, TWA 0.010000 mg/m³ USA. ACGIH Threshold Limit Values (TLV), Upper Respiratory Tract irritation Hypothyroidism Not classifiable as a human carcinogen varies

8.2 Exposure controls

Appropriate engineering controls: Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment: Eye/face protection: Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection: Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact: Material: Nitrile rubber, Minimum layer thickness: 0.11 mm, Break through time: 480 min, Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact: Material: Nitrile rubber, Minimum layer thickness: 0.11 mm, Break through time: 480 min, Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection: Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection: For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle respirator. For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges. Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N99 (US) or type P2 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure: Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a) Appearance Form: Liquid, Color: Brown, b) Odor: pungent, c) Odor Threshold: No data available, d) pH: No data available, e) Melting point/freezing point: No data available, f) Initial boiling point and boiling range: No data available, g) Flash point: No data available, h) Evaporation rate: No data available, i) Flammability (solid, gas): No data available, j) Upper/lower flammability or explosive limits: No data available, k) Vapor pressure: No data available, l) Vapor density: No data available, m) Relative density: No data available, n) Water solubility: No data available, o) Partition coefficient: noctanol/water: No data available, p) Auto-ignition temperature: No data available, q) Decomposition temperature: No data available, r) Viscosity: No data available, s) Explosive properties: No data available, t) Oxidizing properties: No data available

9.2 Other safety information: No data available

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity: No data available, Chemical stability: May decompose on exposure to air. Stable under recommended storage conditions, Possibility of hazardous reactions: No data available, Conditions to avoid: Tin/tin oxides, Incompatible materials: Strong reducing agents, Nickel, Strong acids, and its alloys, Steel (all types and surface treatments), Aluminum, Alkali metals, Brass, Magnesium, Zinc, cadmium, Copper, Rubber, Plastics, Iron and iron salts., Sulphur compounds, Ammonia, Magnesium, Metals, Alkalis, Antimony salts, Arsenites, bromides, chlorides, iodides, thiocyanates, ferrous salts, hypophosphites, morphine salts, oils, creosote, phosphates, tannins, tartrates, Mixing iodine, antimony, and ammonia resulted in an explosion. A violent reaction occurs between iodine and acetaldehyde. Acetylene, Acetaldehyde, Strong oxidizing agents, Hazardous decomposition products: Other decomposition products - No data available, In the event of fire: see section 5

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects, Acute toxicity: LD50 Oral - Rat - 14,000 mg/kg Remarks: Diarrhoea LC50 Inhalation - Rat - 4 h - > 4.588 mg/l (OECD Test Guideline 403) Remarks: Cough Respiratory disorder LC50 Dermal - Rat - male - 1,425 mg/kg (OPPTS 870.1200) No data available, Skin corrosion/irritation: Skin - reconstructed human epidermis (RhE) Result: Moderate skin irritation, Serious eye damage/eye irritation: Moderate eye irritation, Respiratory or skin sensitization: Prolonged or repeated exposure may cause allergic reactions in certain sensitive individuals., Germ cell mutagenicity: Hamster Embryo Result: negative Mutagenicity (micronucleus test) Mouse - male and female Result: negative, Carcinogenicity, IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC., NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP., OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA., Reproductive toxicity: Exposure to excessive amounts of iodine during pregnancy is capable of producing fetal hypothyroidism. Iodine containing drugs have been associated with fetal goiter., Specific target organ toxicity - single exposure: Inhalation - May cause respiratory irritation. - Respiratory system, Specific target organ toxicity - repeated exposure: Oral - Causes damage to organs through prolonged or repeated exposure. - Thyroid, Aspiration hazard: No data available, Additional Information RTECS: NN1575000, TT2975000 Prolonged exposure to iodides may produce iodism in sensitive individuals. Symptoms of exposure include: skin rash, running nose, headache and irritation of the mucous membrane. For severe cases the skin may show pimples, boils, hives, blisters and black and blue spots. Iodides are readily diffused across the placenta. Neonatal deaths from respiratory distress secondary to goiter have been reported. Iodides have been known to cause drug-induced fevers, which are usually of short duration.

Stomach - Irregularities - Based on Human Evidence, Liver - Irregularities - Based on Human Evidence

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity: Toxicity to fish LC50 - *Oncorhynchus mykiss* (rainbow trout) - 1.7 mg/l - 96.0 h Toxicity to daphnia and other aquatic invertebrates EC50 - *Daphnia magna* (Water flea) - 0.2 mg/l - 48 h Toxicity to algae Growth inhibition EC50 - *Desmodesmus subspicatus* (green algae) - 0.13 mg/l (OECD Test Guideline 201) 12.2 Persistence and degradability: No data available 12.3 Bioaccumulative potential: No data available 12.4 Mobility in soil: No data available 12.5 Results of PBT and vPvB assessment: PBT/vPvB assessment not available as chemical safety assessment not required/not

conducted 12.6 Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Very toxic to aquatic life.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods, Product: Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging: Dispose of as unused product.

SECTION 14: TRANSPORT INFORMATION

DOT (US): UN number: 3495 Class: 8 (6.1) Packing group: III Proper shipping name: Iodine Reportable Quantity (RQ): Poison Inhalation Hazard: No

IMDG: UN number: 3495 Class: 8 (6.1) Packing group: III EMS-No: F-A, S-B Proper shipping name: IODINE Marine pollutant:yes

IATA: UN number: 3495 Class: 8 (6.1) Packing group: III Proper shipping name: Iodine

SECTION 15: REGULATORY INFORMATION

SARA 302 Components: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 311/312 Hazards: Acute Health Hazard, Chronic Health Hazard

SARA 313 Components: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Massachusetts Right To Know Components: Iodine CAS-No. 7553-56-2 Revision Date 2007-03-01

Pennsylvania Right To Know Components: Iodine CAS-No. 7553-56-2 Revision Date 2007-03-01, Potassium iodide CAS-No. 7681-11-0

New Jersey Right To Know Components: Iodine CAS-No. 7553-56-2 Revision Date 2007-03-01, Potassium iodide CAS-No. 7681-11-0

California Prop. 65 Components: This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

SECTION 16: OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox. Acute toxicity, Aquatic Acute Acute aquatic toxicity, Eye Irrit. Eye irritation, Skin Irrit. Skin irritation H302 Harmful if swallowed. H312 Harmful in contact with skin. H312 + H332 Harmful in contact with skin or if inhaled H315 Causes skin irritation. H319 Causes serious eye irritation. H332 Harmful if inhaled. H335 May cause respiratory irritation. H372 Causes damage to organs through prolonged or repeated exposure if swallowed. H400 Very toxic to aquatic life.

HMS Rating, Health hazard: 2, Chronic Health Hazard: *, Flammability: 0, Physical Hazard 0

NFPA Rating, Health hazard: 2, Fire Hazard: 0, Reactivity Hazard: 0

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