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ORGANICS**

MSDS

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OR TO RECEIVE A FREE SUBSCRIPTION TO THE ACROS ORGANICS ACTA.**

**** MATERIAL SAFETY DATA SHEET ****

Iodine Solutions 1N and Lugol
 40101

**** SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION ****

MSDS Name: Iodine Solutions 1N and Lugol
 Catalog # 41311, S71312, S75056, S75056-1, S750561, S1102 500, S1102500, S178 500,
 S178500

Synonyms:
 None

Company Identification:
 Fisher Scientific
 1 Reagent Lane
 Fairlawn, NJ 07410

For information, call: 201-756-7100
 Emergency assistance: 201-756-7100
 For CHEMTREC assistance, call: 800-424-9300
 For International CHEMTREC assistance, call: 703-527-3887

**** SECTION 2 - COMPOSITION, INFORMATION ON INGREDIENTS ****

CAS#	Chemical Name	%	EINECS#
7553-56-2	Iodine	4.9-9.0	231-442-4
7681-11-0	Potassium iodide	9.8-19.0	231-659-4
7732-18-5	Water	72.0-85	231-791-2

Hazard Symbols: XN
 Risk Phrases: 22

**** SECTION 3 - HAZARDS IDENTIFICATION ****

EMERGENCY OVERVIEW

Appearance: dark amber.
 Caution! May cause eye and skin irritation. May cause respiratory
 and digestive tract irritation.
 Target Organs: Central nervous system, respiratory system,
 cardiovascular system.

Potential Health Effects

Eyes:
 Skin:
 May cause eye irritation.
 May cause skin irritation. May cause skin sensitization, an allergic
 reaction, which becomes evident upon re-exposure to this material.

Ingestion:
 May cause gastrointestinal irritation with nausea, vomiting and
 diarrhea. May cause gastric disturbances and electrolytic imbalance.

Inhalation:
 May cause respiratory tract irritation.

Chronic:
 Chronic exposure can lead to iodism characterized by salivation,
 nasal discharge, sneezing, conjunctivitis, fever, laryngitis,
 bronchitis, stomatitis, and skin rashes.

**** SECTION 4 - FIRST AID MEASURES ****

Eyes:
 Immediately flush eyes with plenty of water for at least 15 minutes,
 occasionally lifting the upper and lower eyelids. Get medical aid.
 Skin:
 Flush skin with plenty of soap and water for at least 15 minutes.
 Wash thoroughly with soap and water. Remove contaminated clothing and shoes. If
 irritation develops or persists.
 Ingestion:
 If victim is conscious and alert, give 2-4 cupsful of milk or water.
 Never give anything by mouth to an unconscious person. Get medical
 aid.
 Inhalation:
 Remove from exposure to fresh air immediately. If not breathing,
 give artificial respiration. Get medical aid if cough or other
 symptoms appear.
 Notes to physicians:
 Treat symptomatically and

**** SECTION 5 - FIRE FIGHTING MEASURES ****

General Information:
 An emulsion of iodine in alcohol.
 Avoid breathing dusts, fumes, and vapors.
 Extinguishing Media:
 Use extinguishing media most appropriate for the surrounding fire.

**** SECTION 6 - ACCIDENTAL RELEASE MEASURES ****

General Information: Use proper personal protective equipment as indicated
 in Section 8.

Spills/Leaks:

Clean up spills immediately, observing precautions in the Protective
 Equipment section. Cover with sand, dry lime or soda ash and place in
 a closed container for disposal.

**** SECTION 7 - HANDLING AND STORAGE ****

Handling:
 Wash thoroughly after handling. Remove contaminated clothing and
 wash before reuse. Use with adequate ventilation.

Storage:
 Store in a cool, dry place.

**** SECTION 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION ****

Engineering Controls:
 Use adequate ventilation to keep airborne concentrations low.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Iodine	C 0.1 ppm	2 ppm IDLH	C 0.1 ppm; C 1 mg/m3
Potassium iodide	none listed	none listed	none listed
Water	none listed	none listed	none listed

OSHA Vacated PELs:

Iodine:
 No OSHA Vacated PELs are listed for this chemical.

Potassium iodide:
 No OSHA Vacated PELs are listed for this chemical.

Water:
 No OSHA Vacated PELs are listed for this chemical.

Personal Protective Equipment

Eyes:

Wear appropriate protective eyeglasses or chemical
 safety goggles as described by OSHA's eye and face
 protection regulations in 29 CFR 1910.133 or European
 Standard EN166.

Skin:
 Wear appropriate protective gloves to prevent skin
 exposure.

Clothing:
 Wear appropriate protective clothing to prevent skin
 exposure.

Respirators:

A respiratory protection program that meets OSHA's 29
 CFR 1910.134 and ANSI Z88.2 requirements or European
 Standard EN 149 must be followed whenever workplace
 conditions warrant a respirator's use.

**** SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES ****

Physical State: Liquid
 Appearance: dark amber
 Odor: iodine-like
 pH: Not available.
 Vapor Pressure: 1 mm Hg
 Vapor Density: 0.7
 Evaporation Rate: >1
 Viscosity: Not available.
 Boiling Point: 100 deg C
 Freezing/Melting Point: 0 deg C
 Autoignition Temperature: Not applicable.
 Flash Point: Not applicable.
 Ignition Temperature: Not applicable.
 Explosive Limits, Lower: Not applicable.
 Explosive Limits, Upper: Not applicable.
 Decomposition Temperature: Not available.
 Solubility: Soluble in water.
 Specific Gravity/Density: 1.0
 Molecular Formula: Not applicable.
 Molecular Weight: 0

**** SECTION 10 - STABILITY AND REACTIVITY ****

Chemical Stability:
 Stable under normal temperatures and pressures.
 Conditions to Avoid:

Incompatible materials:
Powdered aluminum, active metals, strong reducing agents. Acetylene
with acetaldehyde causes explosive reactions with iodine. Mixtures
with acetaldehyde product shock sensitive compounds.
Hazardous decomposition product: shock sensitive compounds.
Hydrogen iodide, iodine, iodide ions (I-).
Hazardous Polymerization: Will not occur.

*** SECTION 11 - TOXICOLOGICAL INFORMATION ***

RTECS#:
CAS# 7553-56-2: NNI1575000
CAS# 7681-11-0: T22975000
CAS# 7732-18-5: ZC0110000
LD50/LC50:
CAS# 7553-56-2: Oral, mouse: LD50 = 22 gm/kg; Oral, rabbit: LD50 =
10 gm/kg; Oral, rat: LD50 = 14 gm/kg.
CAS# 7681-11-0:
CAS# 7732-18-5: Oral, rat: LD50 = >90 mL/kg.
Cardiac Toxicity:
Iodine:
Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
Potassium iodide:
Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
Water:
Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
Teratogenicity: Iodine has been observed to cause developmental
abnormalities of the endocrine system in human fetuses.

*** SECTION 12 - ECOLOGICAL INFORMATION ***

*** SECTION 13 - DISPOSAL CONSIDERATIONS ***

Chemical waste generators must determine whether a discarded chemical
is classified as a hazardous waste. The classification determination is listed in
US EPA guidelines for the classification determination are listed in
40 CFR Parts 261.3. Additionally, waste generators must consult state
and local hazardous waste regulations to ensure complete and accurate
classification.
RCRA P-Series: None listed.
RCRA U-Series: None listed.

*** SECTION 14 - TRANSPORT INFORMATION ***

US DOT
Shipping Name: CORROSIVE LIQUID, N.O.S.
Hazard Class: 8 (IODINE)
UN Number: UN1760
Packaging Group: II
Canadian TDG
Shipping Name: CORROSIVE LIQUID NOS (IODINE SOLUTION)
Hazard Class: 8(9.2)
UN Number: UN1760

*** SECTION 15 - REGULATORY INFORMATION ***

US FEDERAL
TSCA
CAS# 7553-56-2 is listed on the TSCA inventory.
CAS# 7681-11-0 is listed on the TSCA inventory.
CAS# 7732-18-5 is listed on the TSCA inventory.
Health & Safety Reporting List
None of the chemicals are on the Health & Safety Reporting List.
Chemical Test Rules
Section 12b
None of the chemicals in this product are under a Chemical Test Rule.
TSCA Significant New Use Rule
None of the chemicals are listed under TSCA Section 12b.
None of the chemicals in this material have a SNUR under TSCA.
SARA
Section 302 (RQ)
None of the chemicals in this material have an RQ.
Section 303 (HP)
None of the chemicals in this product have a TPQ.
SARA Codes
CAS # 7553-56-2: acute, chronic, flammable.
CAS # 7681-11-0: acute, chronic.
Section 313
No chemicals are reportable under Section 313.
Clean Air Act: This material does not contain any hazardous air pollutants.
This material does not contain any Class 1 or Class 2 Ozone depleters.
Clean Water Act:

None of the chemicals in this product are listed as Hazardous
Substances under the CWA.
None of the chemicals in this product are listed as Priority
Pollutants under the CWA.
None of the chemicals in this product are listed as Toxic Pollutants
under the CWA.

OSHA: None of the chemicals in this product are considered highly hazardous
by OSHA.

STATE

Iodine can be found on the following state right to know lists:
California, New Jersey, Florida, Pennsylvania, Minnesota,
Massachusetts,
Florida: Iodine is not present on state lists from CA, PA, MN, MA,
FL.
Water is not present on state lists from CA, PA, MN, MA, FL, or NJ.
California No Significant Risk Level:
None of the chemicals in this product are listed.
European/International Regulations
European Labeling in Accordance with EC Directives
Hazard Symbols: XN
Risk Phrases: R 22 Harmful if swallowed.

Safety Phrases: R 22 Harmful if swallowed.

WGK (Water Danger/Protection) 24/25 Avoid contact with skin and eyes.

CAS# 7553-56-2: 1

CAS# 7681-11-0: 1

CAS# 7732-18-5: No information available.

United Kingdom Occupational Exposure Limits

CAS# 7553-56-2: OES-United Kingdom, STEL 0.1 ppm STEL; 1.1 mg/m3

STEL

Canada

CAS# 7553-56-2 is listed on Canada's DSL/NDSL List.
CAS# 7681-11-0 is listed on Canada's DSL/NDSL List.
CAS# 7732-18-5 is listed on Canada's DSL/NDSL List.
This product has a WHMIS classification of D2A, E.
CAS# 7553-56-2 is not listed on Canada's Ingredient Disclosure List.
CAS# 7681-11-0 is not listed on Canada's Ingredient Disclosure List.
CAS# 7732-18-5 is not listed on Canada's Ingredient Disclosure List.
Exposure Limit: CAS# 7553-56-2: OEL-ARAB Republic of Egypt: TWA 0.1 ppm (0.1 mg/m3)

OEL-AUSTRALIA: TWA 0.1 ppm (1 mg/m3)
OEL-BELGIUM: STEL 0.1 ppm (1 mg/m3)
OEL-DENMARK: STEL 1 ppm (1 mg/m3)
OEL-FINLAND: STEL 0.1 ppm (1 mg/m3); SKIN
OEL-FRANCE: STEL 0.1 ppm (1 mg/m3)
OEL-GERMANY: TWA 0.1 ppm (1 mg/m3)
OEL-ITALY: TWA 0.1 mg/m3; STEL 2 mg/m3
OEL-JAPAN: TWA 0.1 mg/m3; STEL 1 mg/m3; JAN9
OEL-THE NETHERLANDS: TWA 0.1 ppm (1 mg/m3)
OEL-THE PHILIPPINES: TWA 0.1 ppm (1 mg/m3)
OEL-POLAND: TWA 1 mg/m3
OEL-RUSSIA: TWA 0.1 ppm; STEL 1 mg/m3; SKIN
OEL-SWITZERLAND: STEL 0.1 ppm (1 mg/m3)
OEL-SWITZERLAND: TWA 0.1 ppm (1 mg/m3); STEL 0.2 ppm (2 mg/m3)
OEL-TURKEY: TWA 0.1 ppm (1 mg/m3)
OEL-UNITED KINGDOM: STEL 0.1 ppm (1 mg/m3)
OEL IN BULGARIA, COLOMBIA, JORDAN, KOREA check ACGIH TLV
OEL IN NEW ZEALAND, SINGAPORE, VIETNAM check ACGI TLV

**** SECTION 16 - ADDITIONAL INFORMATION ****

MSDS Creation Date: 12/12/1997 Revision #2 Date: 8/02/2000

The information above is believed to be accurate and represents the best
information currently available to us. However, we make no warranty of
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the possibility of such damages.