SAFETY DATA SHEET
Lugols Iodine

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier
Product name Lugols Iodine
Product number PL.7052, PL.7053, PL.7053-2

1.2. Relevant identified uses of the substance or mixture and uses advised against
Identified uses Laboratory reagent.
Uses advised against No specific uses advised against are identified.

1.3. Details of the supplier of the safety data sheet
Supplier Pro-Lab Diagnostics
3 Bassendale Road
Wirral
Merseyside
CH62 3QL
Tel: 0151 353 1613
Fax: 0151 353 1614
mowen@pro-lab.com

1.4. Emergency telephone number
Emergency telephone +44 (0)151 353 1613 Monday to Friday 9.00 to 17.00
+44 (0)7714 429 646 outside the above hours

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture
Classification
Physical hazards Not Classified
Health hazards Not Classified
Environmental hazards Not Classified

Classification (67/548/EEC or 1999/45/EC) ---

2.2. Label elements
Hazard statements NC Not Classified
Supplemental label information EUH210 Safety data sheet available on request.

2.3. Other hazards
This product does not contain any substances classified as PBT or vPvB.

SECTION 3: Composition/information on ingredients

3.2. Mixtures
Lugols Iodine

<table>
<thead>
<tr>
<th>Substance</th>
<th>Concentration</th>
<th>CAS number</th>
<th>EC number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol</td>
<td>2.5 - &lt;5%</td>
<td>64-17-5</td>
<td>200-578-6</td>
</tr>
<tr>
<td>Potassium iodide</td>
<td>1 - &lt;2.5%</td>
<td>7681-11-0</td>
<td>231-659-4</td>
</tr>
<tr>
<td>Iodine</td>
<td>0.5 - &lt;1%</td>
<td>7553-56-2</td>
<td>231-442-4</td>
</tr>
<tr>
<td>Methanol</td>
<td>0.25 - &lt;0.5%</td>
<td>67-56-1</td>
<td>200-659-6</td>
</tr>
</tbody>
</table>

**Classification**

**Flam. Liq. 2 - H225**

**Classification (67/548/EEC or 1999/45/EC)**

**F; R11**

**Acute Tox. 4 - H302**

**Skin Irrit. 2 - H315**

**Eye Irrit. 2 - H319**

**Acute Tox. 4 - H312**

**Acute Tox. 4 - H332**

**Aquatic Acute 1 - H400**

**Classification (67/548/EEC or 1999/45/EC)**

**Xn; R22. Xi; R36/38**

**Classification (67/548/EEC or 1999/45/EC)**

**Xn; R20/21. N; R50**

**Classification (67/548/EEC or 1999/45/EC)**

**F; R11. T; R23/24/25, R39/23/24/25**

**STOT SE 1 - H370**

The Full Text for all R-Phrases and Hazard Statements are Displayed in Section 16.

**SECTION 4: First aid measures**

4.1. Description of first aid measures

**Inhalation**

Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing.

**Ingestion**

Rinse mouth thoroughly with water. Give plenty of water to drink. Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing.

**Skin contact**

Wash skin thoroughly with soap and water.

**Eye contact**

Remove any contact lenses and open eyelids wide apart. Continue to rinse.

4.2. Most important symptoms and effects, both acute and delayed

**Inhalation**

Irritation of nose, throat and airway.
Lugols Iodine

Ingestion May cause discomfort if swallowed.
Skin contact Prolonged skin contact may cause redness and irritation.
Eye contact May cause temporary eye irritation.

4.3. Indication of any immediate medical attention and special treatment needed

Notes for the doctor The severity of the symptoms described will vary dependent on the concentration and the length of exposure.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media Extinguish with alcohol-resistant foam, carbon dioxide, dry powder or water fog. Use fire-extinguishing media suitable for the surrounding fire.

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

5.2. Special hazards arising from the substance or mixture

Hazardous combustion products Thermal decomposition or combustion products may include the following substances: Oxides of carbon. Toxic gases or vapours.

5.3. Advice for firefighters

Special protective equipment for firefighters Use protective equipment appropriate for surrounding materials.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions Wear protective clothing as described in Section 8 of this safety data sheet.

6.2. Environmental precautions

Environmental precautions Avoid discharge into drains or watercourses or onto the ground.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up Absorb in vermiculite, dry sand or earth and place into containers. Containers with collected spillage must be properly labelled with correct contents and hazard symbol.

6.4. Reference to other sections

Reference to other sections See Section 11 for additional information on health hazards. For waste disposal, see Section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Usage precautions Read and follow manufacturer's recommendations.
Advice on general occupational hygiene Avoid contact with eyes and prolonged skin contact.

7.2. Conditions for safe storage, including any incompatibilities

Storage precautions Store in a cool and well-ventilated place.

7.3. Specific end use(s)

Specific end use(s) The identified uses for this product are detailed in Section 1.2.

SECTION 8: Exposure Controls/personal protection
Lugols Iodine

8.1. Control parameters

Occupational exposure limits

Ethanol

Long-term exposure limit (8-hour TWA): WEL 1000 ppm  1920 mg/m³

Iodine

Short-term exposure limit (15-minute): WEL 0.1 ppm  1.1 mg/m³

Methanol

Long-term exposure limit (8-hour TWA): WEL 200 ppm  266 mg/m³
Short-term exposure limit (15-minute): WEL 250 ppm  333 mg/m³

Sk

WEL = Workplace Exposure Limit
Sk = Can be absorbed through the skin.

8.2. Exposure controls

Eye/face protection No specific eye protection required during normal use.

Hand protection The most suitable glove should be chosen in consultation with the glove supplier/manufacturer, who can provide information about the breakthrough time of the glove material.

Hygiene measures No specific hygiene procedures recommended but good personal hygiene practices should always be observed when working with chemical products.

SECTION 9: Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Appearance Liquid.

Colour Dark brown.

Odour Alcoholic. Almost odourless.

Odour threshold Not determined.

pH Not determined.

Melting point Not relevant.

Initial boiling point and range Not determined.

Flash point Not determined.

Evaporation rate Not determined.

Evaporation factor Not determined.

Flammability (solid, gas) Not relevant.

Upper/lower flammability or explosive limits Not relevant.

Vapour pressure Not determined.

Vapour density Not determined.

Relative density Not determined.

Bulk density Not determined.
Lugols Iodine

Solubility(ies) Soluble in water.
Partition coefficient Not determined.
Auto-ignition temperature Not relevant.
Decomposition Temperature Not relevant.
Viscosity Not determined.
Explosive properties Not considered to be explosive.
Oxidising properties The mixture itself has not been tested but none of the ingredient substances meet the criteria for classification as oxidising.

9.2. Other information
Other information No information required.

SECTION 10: Stability and reactivity

10.1. Reactivity
Reactivity There are no known reactivity hazards associated with this product.

10.2. Chemical stability
Stability Stable at normal ambient temperatures and when used as recommended.

10.3. Possibility of hazardous reactions
Possibility of hazardous reactions Will not polymerise.

10.4. Conditions to avoid
Conditions to avoid Avoid excessive heat for prolonged periods of time.

10.5. Incompatible materials
Materials to avoid No specific material or group of materials is likely to react with the product to produce a hazardous situation.

10.6. Hazardous decomposition products
Hazardous decomposition products None at ambient temperatures. Thermal decomposition or combustion products may include the following substances: Oxides of carbon. Oxides of nitrogen.

SECTION 11: Toxicological information

11.1. Information on toxicological effects
Acute toxicity - oral
Notes (oral LD₅₀) Based on available data the classification criteria are not met.
ATE oral (mg/kg) 32,100.15247572

Acute toxicity - dermal
Notes (dermal LD₅₀) Based on available data the classification criteria are not met.
ATE dermal (mg/kg) 70,658.89418831

Acute toxicity - inhalation
Notes (inhalation LC₅₀) Based on available data the classification criteria are not met.
ATE inhalation (gases ppm) 164,870.75310605
ATE inhalation (vapours mg/l) 706.58894188
Lugols Iodine

**Skin corrosion/irritation**
Based on available data the classification criteria are not met.

**Animal data**

**Serious eye damage/irritation**
Based on available data the classification criteria are not met.

**Respiratory sensitisation**
Based on available data the classification criteria are not met.

**Skin sensitisation**
Based on available data the classification criteria are not met.

**Germ cell mutagenicity**
Based on available data the classification criteria are not met.

**Genotoxicity - in vitro**
Based on available data the classification criteria are not met.

**Genotoxicity - in vivo**
Based on available data the classification criteria are not met.

**Carcinogenicity**
Based on available data the classification criteria are not met.

**Reproductive toxicity**
Based on available data the classification criteria are not met.

**Specific target organ toxicity - single exposure**
Based on available data the classification criteria are not met.

**Specific target organ toxicity - repeated exposure**
Based on available data the classification criteria are not met.

**Aspiration hazard**
Not anticipated to present an aspiration hazard, based on chemical structure.

**Toxicological information on ingredients.**

**Ethanol**

**Acute toxicity - oral**

**Acute toxicity oral (LD₅₀ mg/kg)**
10,470.0

**Species**
Rat

**Notes (oral LD₅₀)**
REACH dossier information. Based on available data the classification criteria are not met.

**ATE oral (mg/kg)**
10,470.0

**Acute toxicity - inhalation**

**Acute toxicity inhalation (LC₅₀ vapours mg/l)**
124.7

**Species**
Rat

**Notes (inhalation LC₅₀)**
REACH dossier information. Based on available data the classification criteria are not met.

**ATE inhalation (vapours mg/l)**
124.7

**Skin corrosion/irritation**
Lugols Iodine

Animal data
Dose: 0.2 ml, 24 hours, Rabbit Primary dermal irritation index: 0 / 8 REACH dossier information. Not irritating.

Skin sensitisation
Guinea pig maximization test (GPMT) - Mouse: Not sensitising. REACH dossier information. Read across data. Based on available data the classification criteria are not met.

Germ cell mutagenicity
Gene mutation: Negative. REACH dossier information. Based on available data the classification criteria are not met.

Genotoxicity - in vivo
Chromosome aberration: Negative. REACH dossier information. Based on available data the classification criteria are not met.

Carcinogenicity
IARC carcinogenicity
IARC Group 1 Carcinogenic to humans.

Reproductive toxicity
Reproductive toxicity - fertility
Two-generation study - NOAEL 15 %, Oral, Mouse P REACH dossier information.

Reproductive toxicity - development
Maternal toxicity: - NOAEL: 16000 ppm, Inhalation, Rat REACH dossier information.

Specific target organ toxicity - repeated exposure
LOAEL 4 mL/Kg, Oral, Rat REACH dossier information. Based on available data the classification criteria are not met.

Potassium iodide

Acute toxicity - oral
Acute toxicity oral (LD₅₀ mg/kg)
1,000.0

Species
Mouse

Notes (oral LD₅₀)
Raw material suppliers' information.

ATE oral (mg/kg)
1,000.0

Skin corrosion/irritation
Animal data
Dose: 0.5 g, 24 hours, Rabbit REACH dossier information. Moderately irritating. Skin Irrit. 2 - H315 Causes skin irritation.

Serious eye damage/irritation
REACH dossier information. Eye Irrit. 2 - H319 Causes serious eye irritation.

Skin sensitisation
Patch test - Human: Not sensitising. REACH dossier information.

Germ cell mutagenicity
Gene mutation: Negative. REACH dossier information.
# Lugols Iodine

## Iodine

### Acute toxicity - dermal

- **Acute toxicity dermal (LD₅₀ mg/kg)**: 1,425.0
- **Species**: Rabbit
- **Notes (dermal LD₅₀)**: REACH dossier information.
- **ATE dermal (mg/kg)**: 1,425.0

### Acute toxicity - inhalation

- **Acute toxicity inhalation (LC₅₀ dust/mist mg/l)**: 4.588
- **Species**: Rat
- **Notes (inhalation LC₅₀)**: REACH dossier information.
- **ATE inhalation (dusts/mists mg/l)**: 4.588

### Skin corrosion/irritation

- **Human skin model test**: Cell Viability (11%) 15 minutes REACH dossier information.

### Skin sensitisation

- **Local Lymph Node Assay (LLNA) - Mouse**: Not sensitising. REACH dossier information.

### Reproductive toxicity

- **Reproductive toxicity - fertility**: Screening - NOAEL 10 mg/kg/day, Oral, Rat F1 REACH dossier information.
- **Reproductive toxicity - development**: Developmental toxicity: - NOAEL: 10 mg/kg/day, Oral, Rat REACH dossier information. No evidence of reproductive toxicity in animal studies.

### Specific target organ toxicity - repeated exposure

- **STOT - repeated exposure**: NOAEL 3 mg/l, Oral, Rat REACH dossier information.

## Methanol

### Acute toxicity - oral

- **ATE oral (mg/kg)**: 300.0

### Acute toxicity - dermal

- **Notes (dermal LD₅₀)**: Converted acute toxicity point estimate (cATpE) Toxic in contact with skin.
- **ATE dermal (mg/kg)**: 300

### Acute toxicity - inhalation

- **Notes (inhalation LC₅₀)**: Converted acute toxicity point estimate (cATpE) Toxic if inhaled.
Lugols Iodine

ATE inhalation (gases ppm) 700.0
ATE inhalation (vapours mg/l) 3.0

Skin corrosion/irritation
Animal data
Dose: 2.5cm x 2.5cm, 20 hours, Rabbit Erythema/eschar score: No erythema (0). Oedema score: No oedema (0). REACH dossier information. Based on available data the classification criteria are not met.

Serious eye damage/irritation
Serious eye damage/irritation
Dose: 0.05 ml, 24 hours, Rabbit REACH dossier information. Based on available data the classification criteria are not met.

Skin sensitisation

Skin sensitisation
Guinea pig maximization test (GPMT) - Guinea pig: Not sensitising. REACH dossier information. Based on available data the classification criteria are not met.

Specific target organ toxicity - single exposure

STOT - single exposure STOT SE 1 - H370

Target organs Eyes Central nervous system

SECTION 12: Ecological Information

12.1. Toxicity
Toxicity Not considered toxic to fish.

Ecological information on ingredients.

Ethanol

Acute toxicity - fish LC₅₀, 96 hours: 14200 mg/l, Pimephales promelas (Fat-head Minnow) REACH dossier information.

Acute toxicity - aquatic invertebrates LC₅₀, 48 hours: 5012 mg/l, Ceriodaphnia dubia REACH dossier information.

Acute toxicity - aquatic plants EC₅₀, 72 hours: 11.5 mg/l, Chlorella vulgaris REACH dossier information.

Chronic toxicity - aquatic invertebrates NOEC, 9 days: 9.6 mg/l, Daphnia magna REACH dossier information.

Potassium iodide

Acute toxicity - fish LC₅₀, 96 hours: 100 mg/l, Brachydanio rerio (Zebra Fish) NOEC, 7 days: 100 mg/l, Brachydanio rerio (Zebra Fish) REACH dossier information.

Acute toxicity - aquatic invertebrates LC₅₀, 24 hours: 226 mg/l, dreissena polymorpha (zebra mussel) REACH dossier information.

Acute toxicity - aquatic plants MIC₁₀₀, 10 days: 356.8 mg/l, Dunaliella salina REACH dossier information.
Lugols Iodine

Acute toxicity - microorganisms
MIC$_{100}$, 24 hours: 358.3 mg/l, Staphylococcus auerus
REACH dossier information.

Chronic toxicity - fish early life stage
LC$_{100}$, 22 days: 166002.8 mg/l, Onchorhynchus mykiss (Rainbow trout)
REACH dossier information.

Iodine

Toxicity
Aquatic Acute 1 - H400 Very toxic to aquatic life.

Acute aquatic toxicity
LE(C)$_5$ 0.1 < L(E)C50 ≤ 1

M factor (Acute)
1

Acute toxicity - fish
LC$_{50}$, 96 hours: 1.67 mg/l, Onchorhynchus mykiss (Rainbow trout)
REACH dossier information.

Acute toxicity - aquatic invertebrates
LC$_{50}$, 48 hours: 0.55 - 0.59 mg/l, Daphnia magna
REACH dossier information.

Acute toxicity - aquatic plants
NOEC, 72 hours: 0.025 mg/l, Desmodesmus subspicatus
EC$_{50}$, 72 hours: 0.13 mg/l, Desmodesmus subspicatus
REACH dossier information.

Acute toxicity - microorganisms
EC$_{50}$, 3 hours: 280 mg/l, Activated sludge
EC$_{50}$, 3 hours: 110 mg/l, Activated sludge
REACH dossier information.

Methanol

Acute toxicity - fish
LC$_{50}$, 96 hours: 15400 mg/l, Lepomis macrochirus (Bluegill)
EC$_{50}$, 96 hours: 12700 mg/l, Lepomis macrochirus (Bluegill)
REACH dossier information.

Acute toxicity - aquatic invertebrates
EC$_{50}$, 96 hours: 18260 mg/l, Daphnia magna
REACH dossier information.

Acute toxicity - aquatic plants
EC$_{50}$, 96 hours: ~ 22000 mg/l, Pseudokirchneriella subcapitata
REACH dossier information.

Acute toxicity - microorganisms
IC$_{50}$, 3 hours: >1000 mg/l, Activated sludge
REACH dossier information.

12.2. Persistence and degradability

Persistence and degradability No data available.

Ecological information on ingredients.

Ethanol

Biodegradation
Water - Degradation (74%):  10 days
REACH dossier information.
The substance is readily biodegradable.

Chemical oxygen demand 1.99 g O$_2$/g substance REACH dossier information.
Lugols Iodine

**Potassium iodide**

Biodegradation
- Soil - Half-life : 720 hours
- Water and sediment - Half-life : 360 hours
- Water - Degradation (50%): 360 hours
  Calculation method.
  REACH dossier information.
  The substance is readily biodegradable.

**Iodine**

Phototransformation
- Air - DT₅₀ : 0.14 minutes
  REACH dossier information.

**Methanol**

Phototransformation
- Air - DT₅₀ : 17.2 days
  REACH dossier information.

Biodegradation
- Water - Degradation (95%): 20 days
- Water - Degradation (91%): 15 days
- Water - Degradation (88%): 10 days
- Water - Degradation (76%): 5 days
  REACH dossier information.
  The substance is readily biodegradable.

12.3. Bioaccumulative potential

Bioaccumulative potential
- No data available on bioaccumulation.

Partition coefficient
- Not determined.

Ecological information on ingredients.

**Ethanol**

Partition coefficient
- log Pow: -0.35 REACH dossier information.

**Potassium iodide**

Bioaccumulative potential
- BCF: 2.268, Fish Calculation method. REACH dossier information.

Partition coefficient
- Pow: 0.11 REACH dossier information.

**Iodine**

Partition coefficient
- log Pow: 2.49 REACH dossier information.

**Methanol**

Partition coefficient
- log Pow: -0.77 REACH dossier information.

12.4. Mobility in soil

Mobility
- The product is soluble in water.

Ecological information on ingredients.
Lugols Iodine

**Ethanol**

**Surface tension** 24.5 mN/m @ 20°C/68°F REACH dossier information.

**Potassium iodide**

**Adsorption/desorption coefficient** 13.22 @ 25°C Calculation method. REACH dossier information.

**Henry's law constant** 3.717E-18 Pa m³/mol @ 25°C Calculation method. REACH dossier information.

**Iodine**

**Adsorption/desorption coefficient** 0.13 - 7.7 @ 20°C REACH dossier information.

**Henry's law constant** 0.02961 - 0.03257 Pa m³/mol @ 20°C REACH dossier information.

**Methanol**

**Mobility** Mobile.

12.5. Results of PBT and vPvB assessment

**Results of PBT and vPvB assessment** This product does not contain any substances classified as PBT or vPvB.

12.6. Other adverse effects

**Other adverse effects** Not determined.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

**General information** Dispose of waste product or used containers in accordance with local regulations

SECTION 14: Transport information

**General** The product is not covered by international regulations on the transport of dangerous goods (IMDG, IATA, ADR/RID).

14.1. UN number

Not applicable.

14.2. UN proper shipping name

Not applicable.

14.3. Transport hazard class(es)

No transport warning sign required.

14.4. Packing group

Not applicable.

14.5. Environmental hazards

Environmentally hazardous substance/marine pollutant No.
Lugols Iodine

14.6. Special precautions for user
Not applicable.

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable.

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

National regulations

EU legislation

15.2. Chemical safety assessment
No chemical safety assessment has been carried out.

SECTION 16: Other information

Classification procedures according to Regulation (EC) 1272/2008
Not classified.: Calculation method.

Revision comments
Classification according to EC 1272/2008 (CLP).

Revision date
09/04/2015

Revision
6

Supersedes date
01/04/2014

SDS number
807

Risk phrases in full
R11 Highly flammable.
R20/21 Harmful by inhalation and in contact with skin.
R22 Harmful if swallowed.
R23/24/25 Toxic by inhalation, in contact with skin and if swallowed.
R36/38 Irritating to eyes and skin.
R39/23/24/25 Toxic: danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed.
R50 Very toxic to aquatic organisms.
Lugols Iodine

Hazard statements in full

H225 Highly flammable liquid and vapour.
H301 Toxic if swallowed.
H302 Harmful if swallowed.
H311 Toxic in contact with skin.
H312 Harmful in contact with skin.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H331 Toxic if inhaled.
H332 Harmful if inhaled.
H370 Causes damage to organs (Eyes, Central nervous system).
H400 Very toxic to aquatic life.

The information in this safety data sheet was obtained from current and reliable sources. However, the data is provided without warranty, expressed or implied, regarding its correctness or accuracy. Since the conditions for use, handling, storage and disposal of this product are beyond Pro-Lab Diagnostics control, it is the users responsibility to perform thorough testing of this product when used in combination with any other product. It is suggested that users familiarise themselves with this safety data sheet before handling the product.