SAFETY DATA SHEET

1. Identification

Product Name  Gram Iodine (concentrate)
Cat No.  R40056, R40057, R40077, R40234, R40235
Synonyms  No information available
Recommended Use  Laboratory chemicals.
Uses advised against  No Information available

Details of the supplier of the safety data sheet

Company  Remel
12076 Santa Fe Drive
Lenexa, KS 66215 United States
Telephone: 1-800-255-6730
Fax:1-800-621-8251

Emergency Telephone Number  INFOTRAC - 24 Hour Number: 1-800-535-5053
Outside of the United States, call 24 Hour Number: 001-352-323-3500 (Call Collect)

2. Hazard(s) identification

Classification  This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Specific target organ toxicity (single exposure)  Category 3
Target Organs  Respiratory system, Central nervous system (CNS).

Label Elements

Signal Word  Warning

Hazard Statements  May cause respiratory irritation
May cause drowsiness or dizziness
Precautionary Statements

Prevention
Avoid breathing dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area

Inhalation
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

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

Disposal
Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)
None identified

3. Composition / information on ingredients

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium iodide</td>
<td>7681-11-0</td>
<td>20-25</td>
</tr>
<tr>
<td>Iodine</td>
<td>7553-56-2</td>
<td>3-5</td>
</tr>
</tbody>
</table>

4. First-aid measures

Eye Contact
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
Obtain medical attention.

Skin Contact
Wash off immediately with plenty of water for at least 15 minutes. Get medical attention immediately if symptoms occur.

Inhalation
Move to fresh air. Get medical attention immediately if symptoms occur.

Ingestion
Clean mouth with water and drink afterwards plenty of water. Get medical attention if symptoms occur.

Most important symptoms/effects
None reasonably foreseeable.

Notes to Physician
Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Unsuitable Extinguishing Media
No information available

Flash Point
No information available

Method -
No information available

Autoignition Temperature
No information available

Explosion Limits
Upper
No data available

Lower
No data available

Sensitivity to Mechanical Impact
No data available

Sensitivity to Static Discharge
No information available

Specific Hazards Arising from the Chemical
Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products
None known
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

<table>
<thead>
<tr>
<th>Health</th>
<th>Flammability</th>
<th>Instability</th>
<th>Physical hazards</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>0</td>
<td>0</td>
<td>N/A</td>
</tr>
</tbody>
</table>

6. Accidental release measures

Personal Precautions
Ensure adequate ventilation. Use personal protective equipment. Avoid dust formation. Should not be released into the environment.

Environmental Precautions
Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Sweep up or vacuum up spillage and collect in suitable container for disposal. Prevent product from entering drains.

7. Handling and storage

Handling
Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Avoid ingestion and inhalation. Ensure adequate ventilation. Avoid dust formation.

Storage
Keep containers tightly closed in a dry, cool and well-ventilated place.

8. Exposure controls / personal protection

Exposure Guidelines

<table>
<thead>
<tr>
<th>Component</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>NIOSH IDLH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium iodide</td>
<td>TWA: 0.01 ppm</td>
<td>Ceiling: 0.1 ppm</td>
<td>IDLH: 2 ppm</td>
</tr>
<tr>
<td>Iodine</td>
<td>TWA: 0.01 ppm</td>
<td>Ceiling: 1 mg/m³ (Vacated) Ceiling: 0.1 ppm</td>
<td>Ceiling: 1 mg/m³</td>
</tr>
<tr>
<td></td>
<td>STEL: 0.1 ppm</td>
<td>(Vacated) Ceiling: 1 mg/m³</td>
<td>(Vacated) Ceiling: 1 mg/m³</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Component</th>
<th>Quebec</th>
<th>Mexico OEL (TWA)</th>
<th>Ontario TWAEV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium iodide</td>
<td>Ceiling: 0.1 ppm</td>
<td>Ceiling: 0.1 ppm</td>
<td>TWA: 0.01 ppm</td>
</tr>
<tr>
<td>Iodine</td>
<td>Ceiling: 1.0 mg/m³</td>
<td>Ceiling: 1 mg/m³</td>
<td>TWA: 0.01 ppm</td>
</tr>
</tbody>
</table>

Legend
ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH IDLH: The National Institute for Occupational Safety and Health Immediately Dangerous to Life or Health

Engineering Measures
Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

Eye/face Protection
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 and body protection
Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection
Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.
9. Physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical State</td>
<td>Liquid</td>
</tr>
<tr>
<td>Appearance</td>
<td>Opaque</td>
</tr>
<tr>
<td>Odor</td>
<td>No information available</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>No information available</td>
</tr>
<tr>
<td>pH</td>
<td>No information available</td>
</tr>
<tr>
<td>Melting Point/Range</td>
<td>No data available</td>
</tr>
<tr>
<td>Boiling Point/Range</td>
<td>No information available</td>
</tr>
<tr>
<td>Flash Point</td>
<td>No information available</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>No information available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No information available</td>
</tr>
<tr>
<td>Flammability or explosive limits</td>
<td>No data available</td>
</tr>
<tr>
<td>Upper</td>
<td>No data available</td>
</tr>
<tr>
<td>Lower</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>No information available</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>No information available</td>
</tr>
<tr>
<td>Relative Density</td>
<td>No information available</td>
</tr>
<tr>
<td>Solubility</td>
<td>No information available</td>
</tr>
<tr>
<td>Partition coefficient; n-octanol/water</td>
<td>No data available</td>
</tr>
<tr>
<td>Autoignition Temperature</td>
<td>No information available</td>
</tr>
<tr>
<td>Decomposition Temperature</td>
<td>No information available</td>
</tr>
<tr>
<td>Viscosity</td>
<td>No information available</td>
</tr>
</tbody>
</table>

10. Stability and reactivity

Reactive Hazard: None known, based on information available.

Stability: Stable under normal conditions.


Incompatible Materials: Strong oxidizing agents.

Hazardous Decomposition Products: None under normal use conditions.

Hazardous Polymerization: Hazardous polymerization does not occur.

Hazardous Reactions: None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information

Oral LD50: Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.

Dermal LD50: Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.

Vapor LC50: Based on ATE data, the classification criteria are not met. ATE > 20 mg/l.

Component Information

<table>
<thead>
<tr>
<th>Component</th>
<th>LD50 Oral</th>
<th>LD50 Dermal</th>
<th>LC50 Inhalation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium iodide</td>
<td>2779 mg/kg (Rat)</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
<tr>
<td>Iodine</td>
<td>315 mg/kg (Rat)</td>
<td>1425 mg/kg (Rabbit)</td>
<td>4.588 mg/L 4h (Rat)</td>
</tr>
</tbody>
</table>

Toxicologically Synergistic Products: No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure:

Irritation: Irritating to respiratory system

Sensitization: No information available

Hygiene Measures: Handle in accordance with good industrial hygiene and safety practice.
Carcinogenicity

The table below indicates whether each agency has listed any ingredient as a carcinogen.

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>IARC</th>
<th>NTP</th>
<th>ACGIH</th>
<th>OSHA</th>
<th>Mexico</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium iodide</td>
<td>7681-11-0</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
<tr>
<td>Iodine</td>
<td>7553-56-2</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
</tbody>
</table>

Mutagenic Effects

No information available

Reproductive Effects

Adverse reproductive effects have occurred in humans.

Developmental Effects

No information available.

Teratogenicity

No information available.

STOT - single exposure

Respiratory system Central nervous system (CNS)

STOT - repeated exposure

None known

Aspiration hazard

No information available

Symptoms / effects, both acute and delayed

No information available

Endocrine Disruptor Information

No information available

Other Adverse Effects

The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity

This product contains the following substance(s) which are hazardous for the environment. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment. Contains a substance which is:. Very toxic to aquatic organisms.

<table>
<thead>
<tr>
<th>Component</th>
<th>Freshwater Algae</th>
<th>Freshwater Fish</th>
<th>Microtox</th>
<th>Water Flea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium iodide</td>
<td>-</td>
<td>Onchorhynchus mykiss: LC50: 3200 mg/L/120h</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Iodine</td>
<td>-</td>
<td>Onchorhynchus mykiss: LC50 = 1,7 mg/l/96 h</td>
<td>-</td>
<td>EC50 = 0,2 mg/l/48 h</td>
</tr>
</tbody>
</table>

Persistence and Degradability

No information available

Bioaccumulation/Accumulation

No information available

Mobility


<table>
<thead>
<tr>
<th>Component</th>
<th>log Pow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium iodide</td>
<td>0.04</td>
</tr>
<tr>
<td>Iodine</td>
<td>2.49</td>
</tr>
</tbody>
</table>

13. Disposal considerations

Waste Disposal Methods

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

<table>
<thead>
<tr>
<th>Code</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOT</td>
<td>Not regulated</td>
</tr>
<tr>
<td>TDG</td>
<td>Not regulated</td>
</tr>
<tr>
<td>IATA</td>
<td>Not regulated</td>
</tr>
<tr>
<td>IMDG/IMO</td>
<td>Not regulated</td>
</tr>
</tbody>
</table>

15. Regulatory information

All of the components in the product are on the following Inventory lists: X = listed
International Inventories

<table>
<thead>
<tr>
<th>Component</th>
<th>TSCA</th>
<th>DSL</th>
<th>NDSL</th>
<th>EINECS</th>
<th>ELINCS</th>
<th>NLP</th>
<th>PICCS</th>
<th>ENCS</th>
<th>AICS</th>
<th>IECSC</th>
<th>KECL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium iodide</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>231-659-4</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Iodine</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>231-442-4</td>
<td>-</td>
<td>X</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b)                      Not applicable
SARA 313                       Not applicable

SARA 311/312 Hazardous Categorization

<table>
<thead>
<tr>
<th>Hazard</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Health Hazard</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chronic Health Hazard</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fire Hazard</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sudden Release of Pressure Hazard</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reactive Hazard</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Clean Water Act               Not applicable
Clean Air Act                 Not applicable
OSHA Occupational Safety and Health Administration
Not applicable

CERCLA                       Not applicable

California Proposition 65     This product does not contain any Proposition 65 chemicals

State Right-to-Know

<table>
<thead>
<tr>
<th>Component</th>
<th>Massachusetts</th>
<th>New Jersey</th>
<th>Pennsylvania</th>
<th>Illinois</th>
<th>Rhode Island</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iodine</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>X</td>
</tr>
</tbody>
</table>

U.S. Department of Transportation

Reportable Quantity (RQ):     N
DOT Marine Pollutant:         N
DOT Severe Marine Pollutant:  N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations
Mexico - Grade

Moderate risk, Grade 2

Canada

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

WHMIS Hazard Class

D2B  Toxic materials

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**16. Other information**

Prepared By

Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date

23-Jan-2015

Revision Date

23-Jan-2015

Print Date

23-Jan-2015

Revision Summary

This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Disclaimer

The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as 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 material or in any process, unless specified in the text.

**End of SDS**