1. Identification

Product identifier: TFM HP Sea Lamprey Larvicide; Lamprecid® Sea Lamprey larvicide

Other means of identification: Not available.

Recommended use: Industrial use.

Recommended restrictions: None known.

Manufacturer / Importer / Supplier / Distributor information

Manufacturer: Iofina Chemical, Inc.
Address: 1025 Mary Laidley Drive, Covington, KY 41017
Telephone number: 859-356-8000

Supplier: U.S. Fish and Wildlife Service
Address: 1849 C Street NW Washington, D.C. 20240

Emergency telephone number: Chemtrec (U.S.) 1-800-424-9300

Supplier: Department of Fisheries and Oceans Canada - Sea Lamprey Control Centre
Address: 1219 Queen Street Sault Ste. Marie Ontario, Canada P6A 2E5
Emergency telephone number: Canutec (Canada) 1-613-996-6666

2. Hazard(s) identification

Physical hazards: Flammable liquids Category 3

Health hazards:
- Acute toxicity, oral Category 3
- Skin corrosion/irritation Category 2
- Serious eye damage/eye irritation Category 1
- Specific target organ toxicity, single exposure Category 3 respiratory tract irritation
- Specific target organ toxicity, single exposure Category 3 narcotic effects

OSHA defined hazards: Not classified.

Label elements

Signal word: Danger

Hazard statement: Flammable liquid and vapor. Toxic if swallowed. Causes skin irritation. Causes serious eye damage. May cause respiratory irritation. May cause drowsiness or dizziness.

Precautionary statement

Prevention
Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Avoid breathing mist/vapors. Wear protective gloves/protective clothing/eye protection/face protection. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Use only in well-ventilated areas.

Response
If on skin: Wash with plenty of water. If skin irritation occurs: Get medical advice/attention. Take off contaminated clothing and wash before reuse. If swallowed: Do NOT induce vomiting. 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. Immediately call a poison center/doctor. Wash contaminated clothing before reuse. In case of fire: Use foam, carbon dioxide, dry powder or water fog for extinction.

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

Disposal
Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazard(s) not otherwise classified (HNOC)
Static accumulating flammable liquids
3. Composition/information on ingredients

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-Trifluoromethyl-4-nitrophenol</td>
<td>88-30-2</td>
<td>20-40</td>
</tr>
<tr>
<td>Isopropyl alcohol</td>
<td>67-63-0</td>
<td>10-30</td>
</tr>
<tr>
<td>Sodium hydroxide</td>
<td>1310-73-2</td>
<td>1-10</td>
</tr>
</tbody>
</table>

Composition comments: All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First-aid measures

Inhalation: Remove victim from source of exposure. Get medical attention for any breathing difficulty.

Skin contact: Remove contaminated clothing and shoes. Wash the skin immediately with soap and water. Get medical attention if irritation develops or persists.

Eye contact: Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention immediately.

Ingestion: Never give anything by mouth to a victim who is unconscious or is having convulsions. Immediately rinse mouth and drink plenty of water. Do not induce vomiting without advice from poison control center. Seek immediate medical attention.

Most important symptoms/effects, acute and delayed: Irritation of nose and throat. Irritation of eyes and mucous membranes. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

Indication of immediate medical attention and special treatment needed: Treat symptomatically.

General information: Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Thermal burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital.

5. Fire-fighting measures


Unsuitable extinguishing media: None.

Specific hazards arising from the chemical: The product is flammable, and heating may generate vapors which may form explosive vapor/air mixtures.

Special protective equipment and precautions for firefighters: Self-contained breathing apparatus and full protective clothing must be worn in case of fire. Selection of respiratory protection for firefighting: follow the general fire precautions indicated in the workplace.

Fire-fighting equipment/instructions: Move containers from fire area if you can do it without risk.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures: Extinguish all ignition sources. Avoid sparks, flames, heat and smoking. Ventilate. Avoid inhalation of vapors and spray mist and contact with skin and eyes. Use personal protection as recommended in Section 8 of the SDS. Should not be released into the environment. Remove sources of ignition.

Methods and materials for containment and cleaning up: Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills in original containers for re-use.

Environmental precautions: Avoid discharge into drains, water courses or onto the ground unless authorized by permit.
7. Handling and storage

Precautions for safe handling

Avoid inhalation of vapors and contact with skin and eyes. Use appropriate Personal Protective Equipment. The product is a flammable liquid. Take the necessary precautionary measures. Follow rules for flammable liquids. Ground and bond containers when transferring material. Ground container and transfer equipment to eliminate static electric sparks. Wash at the end of each work shift and before eating, smoking and using the toilet. Change contaminated clothing. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place. Keep upright. Do not reuse containers. Store away from incompatible materials.

8. Exposure controls/personal protection

Occupational exposure limits

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

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isopropyl alcohol (CAS 67-63-0)</td>
<td>PEL</td>
<td>980 mg/m3</td>
</tr>
<tr>
<td>Sodium hydroxide (CAS 1310-73-2)</td>
<td>PEL</td>
<td>2 mg/m3</td>
</tr>
</tbody>
</table>

US. ACGIH Threshold Limit Values

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isopropyl alcohol (CAS 67-63-0)</td>
<td>STEL</td>
<td>400 ppm</td>
</tr>
<tr>
<td>Sodium hydroxide (CAS 1310-73-2)</td>
<td>TWA</td>
<td>200 ppm</td>
</tr>
<tr>
<td>Sodium hydroxide (CAS 1310-73-2)</td>
<td>Ceiling</td>
<td>2 mg/m3</td>
</tr>
</tbody>
</table>

US NIOSH Pocket Guide to Chemical Hazards: Ceiling Limit Value and Time Period (if specified)

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium hydroxide (CAS 1310-73-2)</td>
<td>Ceiling</td>
<td>2 mg/m3</td>
</tr>
</tbody>
</table>

US NIOSH Pocket Guide to Chemical Hazards: Recommended exposure limit (REL)

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isopropyl alcohol (CAS 67-63-0)</td>
<td>TWA</td>
<td>980 mg/m3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>400 ppm</td>
</tr>
</tbody>
</table>

US NIOSH Pocket Guide to Chemical Hazards: Short Term Exposure Limit (STEL)

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isopropyl alcohol (CAS 67-63-0)</td>
<td>STEL</td>
<td>1225 mg/m3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>500 ppm</td>
</tr>
</tbody>
</table>

Biological limit values

ACGIH Biological Exposure Indices

<table>
<thead>
<tr>
<th>Components</th>
<th>Value</th>
<th>Determinant</th>
<th>Specimen</th>
<th>Sampling Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isopropyl alcohol (CAS 67-63-0)</td>
<td>40 mg/l</td>
<td>Acetone</td>
<td>Urine</td>
<td>*</td>
</tr>
</tbody>
</table>

* - For sampling details, please see the source document.

Exposure guidelines

Use personal protective equipment as required. Keep working clothes separately.

Appropriate engineering controls

If working with material indoors: Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.

Individual protection measures, such as personal protective equipment

Eye/face protection

Wear safety glasses with side shields.

Skin protection

Hand protection

Wear protective gloves. Suitable gloves can be recommended by the glove supplier.

Other

Wear suitable protective clothing.
Respiratory protection

When engineering controls are not sufficient to lower exposure levels below the applicable exposure limit, use a NIOSH approved respirator. Seek advice from local supervisor. Selection and use of respiratory protective equipment should be in accordance with OSHA General Industry Standard 29 CFR 1910.134; or in Canada with CSA Standard Z94.4. Use a positive-pressure air-supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air-purifying respirators may not provide adequate protection.

Thermal hazards

Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations

Wash hands before breaks and immediately after handling the product. Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Appearance

Dark brown liquid.

Physical state

Liquid.

Form

Liquid.

Color

Dark brown.

Odor

Oily-nutty, phenolic.

Odor threshold

Not available.

pH

9

Melting point/freezing point

Not available.

Initial boiling point and boiling range

Not available.

Flash point

88.0 - 103.0 °F (31.1 - 39.4 °C)

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 pressure

Not available.

Vapor density

Not available.

Relative density

Not available.

Solubility(ies)

Not available.

Partition coefficient (n-octanol/water)

Not available.

Auto-ignition temperature

Not available.

Decomposition temperature

Not available.

Viscosity

23.28 cP (77°F/25°C)

Other information

Density

1.27 g/ml

10. Stability and reactivity

Reactivity

The product is stable and non-reactive under normal conditions of use, storage and transport.

Chemical stability

Stable at normal conditions.

Possibility of hazardous reactions

Hazardous polymerization does not occur.

Conditions to avoid

Heat, sparks, flames.

Incompatible materials

Strong oxidizing agents.

Hazardous decomposition products

11. Toxicological information

Information on likely routes of exposure

- **Ingestion**: Toxic if swallowed.
- **Inhalation**: Causes respiratory tract irritation. May cause central nervous system effects.
- **Skin contact**: Causes skin irritation.
- **Eye contact**: Causes severe eye damage.

Symptoms related to the physical, chemical and toxicological characteristics:
- Irritation of nose and throat. Irritation of eyes and mucous membranes. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

Information on toxicological effects

- **Acute toxicity**: Toxic if swallowed.

<table>
<thead>
<tr>
<th>Components</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-Trifluoromethyl-4-nitrophenol (CAS 88-30-2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Acute</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Dermal</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LD50</td>
<td>Rabbit</td>
<td>&gt; 2000 mg/kg</td>
</tr>
<tr>
<td>Oral</td>
<td>Rat</td>
<td>141 mg/kg</td>
</tr>
<tr>
<td><strong>Skin corrosion/irritation</strong>: Causes skin irritation.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Serious eye damage/eye irritation</strong>: Causes severe eye damage.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Respiratory sensitization</strong>: Not classified.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Skin sensitization</strong>: Not a skin sensitizer.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Germ cell mutagenicity</strong>: No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Carcinogenicity</strong>: This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Reproductive toxicity</strong>: Not classified.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Specific target organ toxicity - single exposure</strong>: May cause respiratory irritation. May cause drowsiness or dizziness.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Specific target organ toxicity - repeated exposure</strong>: Not classified.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Aspiration hazard</strong>: Not classified.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Further information</strong>: Components of the product may be absorbed into the body through the skin.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

12. Ecological information

**Ecotoxicity**: Very toxic to aquatic organisms; may cause adverse effects in the aquatic environment.

<table>
<thead>
<tr>
<th>Components</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-Trifluoromethyl-4-nitrophenol (CAS 88-30-2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Aquatic</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fish</td>
<td>LC50</td>
<td>Freshwater fish 0.6 - 37 mg/l</td>
</tr>
<tr>
<td>Rainbow trout, donaldson trout (Oncorhynchus mykiss)</td>
<td>0.842 mg/l, 96 hours</td>
<td></td>
</tr>
<tr>
<td>Invertebrate</td>
<td>LC50</td>
<td>Freshwater invertebrate 3.8 - 22.3 mg/l</td>
</tr>
<tr>
<td><strong>Persistence and degradability</strong>: No data is available on the degradability of this product.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Bioaccumulative potential</strong>: No data available.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Mobility in soil</strong>: No data available.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Other adverse effects</strong>: The product contains volatile organic compounds which have a photochemical ozone creation potential.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

13. Disposal considerations

**Disposal instructions**: This material and its container must be disposed of as hazardous waste. Dispose in accordance with all applicable regulations.

**Hazardous waste code**: D001: Waste Flammable material with a flash point <140 °F

**Waste from residues / unused products**: Dispose of in accordance with local regulations.
Contaminated packaging

Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

<table>
<thead>
<tr>
<th>UN number</th>
<th>UN3013</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN proper shipping name</td>
<td>Substituted nitrophenol pesticides, liquid, toxic, flammable</td>
</tr>
<tr>
<td>Transport hazard class(es)</td>
<td>6.1</td>
</tr>
<tr>
<td>Subsidiary class(es)</td>
<td>3</td>
</tr>
<tr>
<td>Packing group</td>
<td>III</td>
</tr>
<tr>
<td>Special precautions for user</td>
<td>Read safety instructions, SDS and emergency procedures before handling.</td>
</tr>
<tr>
<td>Special provisions</td>
<td>T14, TP2, TP13, TP27</td>
</tr>
<tr>
<td>Packaging exceptions</td>
<td>None</td>
</tr>
<tr>
<td>Packaging non bulk</td>
<td>201</td>
</tr>
<tr>
<td>Packaging bulk</td>
<td>243</td>
</tr>
</tbody>
</table>

IATA

<table>
<thead>
<tr>
<th>UN number</th>
<th>UN3013</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN proper shipping name</td>
<td>Substituted nitrophenol pesticide, liquid, toxic, flammable</td>
</tr>
<tr>
<td>Transport hazard class(es)</td>
<td>6.1</td>
</tr>
<tr>
<td>Subsidiary class(es)</td>
<td>3</td>
</tr>
<tr>
<td>Packaging group</td>
<td>III</td>
</tr>
<tr>
<td>Environmental hazards</td>
<td>Yes</td>
</tr>
<tr>
<td>Labels required</td>
<td>6.1, 3</td>
</tr>
<tr>
<td>ERG Code</td>
<td>6F</td>
</tr>
<tr>
<td>Special precautions for user</td>
<td>Read safety instructions, SDS and emergency procedures before handling.</td>
</tr>
</tbody>
</table>

IMDG

<table>
<thead>
<tr>
<th>UN number</th>
<th>UN3013</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN proper shipping name</td>
<td>SUBSTITUTED NITROPHENOL PESTICIDE, LIQUID, TOXIC, FLAMMABLE</td>
</tr>
<tr>
<td>Transport hazard class(es)</td>
<td>6.1</td>
</tr>
<tr>
<td>Subsidiary class(es)</td>
<td>3</td>
</tr>
<tr>
<td>Packaging group</td>
<td>III</td>
</tr>
<tr>
<td>Marine pollutant</td>
<td>Yes</td>
</tr>
<tr>
<td>Labels required</td>
<td>6.1, 3</td>
</tr>
<tr>
<td>EmS</td>
<td>F-E, S-D</td>
</tr>
<tr>
<td>Special precautions for user</td>
<td>Read safety instructions, SDS and emergency procedures before handling.</td>
</tr>
</tbody>
</table>

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

This substance/mixture is not intended to be transported in bulk.

15. Regulatory information

US federal regulations

This product is a “Hazardous Chemical” as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200. This material is not listed on the US TSCA 8(b) Inventory, and is exempt because it is FIFRA regulated.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)
Not regulated.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)
Not listed.

CERCLA Hazardous Substance List (40 CFR 302.4)
Sodium hydroxide (CAS 1310-73-2) LISTED

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories
Immediate Hazard - Yes
Delayed Hazard - No
Fire Hazard - Yes
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance
No

SARA 311/312 Hazardous chemical
Yes

SARA 313 (TRI reporting)
Not regulated.
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.

Food and Drug Administration (FDA)
Not regulated.

US state regulations
This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.

US. Massachusetts RTK - Substance List
Isopropyl alcohol (CAS 67-63-0)
Sodium hydroxide (CAS 1310-73-2)

US. New Jersey Worker and Community Right-to-Know Act
Isopropyl alcohol (CAS 67-63-0) 500 lbs

US. Pennsylvania RTK - Hazardous Substances
Isopropyl alcohol (CAS 67-63-0)
Sodium hydroxide (CAS 1310-73-2)

US. Rhode Island RTK
Isopropyl alcohol (CAS 67-63-0)
Sodium hydroxide (CAS 1310-73-2)

US. California Proposition 65
US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance
Not listed.

International Inventories

<table>
<thead>
<tr>
<th>Country(s) or region</th>
<th>Inventory name</th>
<th>On inventory (yes/no)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States &amp; Puerto Rico</td>
<td>Toxic Substances Control Act (TSCA) Inventory</td>
<td>No</td>
</tr>
</tbody>
</table>

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

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

Issue date                28-October-2013
Revision date             -
Version #                 01

NFPA Ratings

References

EPA: AQUIRE database
NLM: Hazardous Substances Data Base
US. IARC Monographs on Occupational Exposures to Chemical Agents
HSDB®: Hazardous Substances Data Bank
IARC Monographs. Overall Evaluation of Carcinogenicity
National Toxicology Program (NTP) Report on Carcinogens
ACGIH Documentation of the Threshold Limit Values and Biological Exposure Indices

Disclaimer
The information in the sheet was written based on the best knowledge and experience currently available.