1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product identifier

Product Name
LY364947

Other means of identification

Catalog Number
72592

UN/ID no.
UN2811

Document Number
DX21131

Synonyms
E-616451; HTS 466284; TGF-β RI Kinase Inhibitor;

Recommended use of the chemical and restrictions on use

Recommended Use
Laboratory chemicals

STEMCELL TECHNOLOGIES INC.'S QUALITY MANAGEMENT SYSTEM IS CERTIFIED TO ISO 13485. PRODUCTS ARE FOR RESEARCH USE ONLY AND NOT INTENDED FOR HUMAN OR ANIMAL DIAGNOSTIC OR THERAPEUTIC USES UNLESS OTHERWISE STATED.

Details of the supplier of the safety data sheet

Manufacturer/Supplier
STEMCELL Technologies Canada Inc.
Suite 500 - 1618 Station Street
Vancouver, British Columbia V6A 1B6 Canada

Emergency telephone number

Emergency Telephone
1-800-667-0322

2. HAZARDS IDENTIFICATION

Classification

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

<table>
<thead>
<tr>
<th>Hazard</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute toxicity - Oral</td>
<td>Category 3</td>
</tr>
<tr>
<td>Skin corrosion/irritation</td>
<td>Category 2</td>
</tr>
<tr>
<td>Serious eye damage/eye irritation</td>
<td>Category 2A</td>
</tr>
<tr>
<td>Specific target organ toxicity</td>
<td>Category 3</td>
</tr>
</tbody>
</table>

Hazard not otherwise classified (HNOC)
SAFETY DATA SHEET

72592 - LY364947

Revision Date 23-Oct-2018
Revision Number 2

Label elements

Precautionary Statements - Prevention
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Avoid breathing dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area
Wear protective gloves/eye protection/face protection

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention
IF ON SKIN: Wash with plenty of water and soap
If skin irritation occurs: Get medical advice/attention
Take off contaminated clothing and wash it before reuse
IF INHALED: Remove person to fresh air and keep comfortable for breathing
Call a POISON CENTER or doctor if you feel unwell
IF SWALLOWED: Immediately call a POISON CENTER or doctor
Rinse mouth

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

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

Other Information
Very toxic to aquatic life
Unknown acute toxicity
100% of the mixture consists of ingredient(s) of unknown toxicity
0% of the mixture consists of ingredient(s) of unknown acute oral toxicity
100% of the mixture consists of ingredient(s) of unknown acute dermal toxicity
100% of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas)
100% of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor)
100% of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist)

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Substance</th>
<th>Synonyms</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-616451; HTS 466284; TGF-βRI Kinase Inhibitor;</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS No.</th>
<th>Weight-%</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-(3-Pyridin-2-yl)(1H)-pyrazol-4-yl quinoline</td>
<td>396129-53-6</td>
<td>100</td>
</tr>
</tbody>
</table>

*The exact percentage (concentration) of composition has been withheld as a trade secret.

4. FIRST AID MEASURES

Description of first aid measures

General advice
Show this safety data sheet to the doctor in attendance.

Inhalation
Remove to fresh air. IF exposed or concerned: Get medical advice/attention. Get medical attention immediately if symptoms occur.

Eye contact
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists. Do not rub affected area.

Skin contact
Wash off immediately with soap and plenty of water for at least 15 minutes. Get medical attention if irritation develops and persists.

Ingestion
Do NOT induce vomiting. Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. Get medical attention.

Self-protection of the first aider
Avoid contact with skin, eyes or clothing. Wear personal protective clothing (see section 8).

Most important symptoms and effects, both acute and delayed
Symptoms
Burning sensation.

Indication of any immediate medical attention and special treatment needed
Note to physicians: Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media: CAUTION: Use of water spray when fighting fire may be inefficient.

Specific hazards arising from the chemical: No information available.

Explosion data:
- Sensitivity to Mechanical Impact: None.
- Sensitivity to Static Discharge: None.

Special protective equipment for fire-fighters: Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:

Personal precautions: Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas. Avoid contact with skin, eyes or clothing.

Other Information: Refer to protective measures listed in Sections 7 and 8.

Environmental precautions:

Environmental precautions: Prevent further leakage or spillage if safe to do so.

Methods and material for containment and cleaning up:

Methods for containment: Prevent further leakage or spillage if safe to do so.

Methods for cleaning up: Pick up and transfer to properly labeled containers.

Prevention of secondary hazards: Clean contaminated objects and areas thoroughly observing environmental regulations.

7. HANDLING AND STORAGE
Precautions for safe handling

Advice on safe handling
Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse. Ensure adequate ventilation. Avoid breathing vapors or mists. In case of insufficient ventilation, wear suitable respiratory equipment.

Conditions for safe storage, including any incompatibilities

Storage Conditions
Keep containers tightly closed in a dry, cool and well-ventilated place. Keep out of the reach of children.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Limits
The following ingredients are the only ingredients of the product above the cut-off level (or level that contributes to the hazard classification of the mixture) which have an exposure limit applicable in the region for which this safety data sheet is intended or other recommended limit. At this time, the other relevant constituents have no known exposure limits from the sources listed here.

Appropriate engineering controls

Engineering controls
Shower
Eyewash stations
Ventilation systems.

Individual protection measures, such as personal protective equipment

Eye/face protection
If splashes are likely to occur, wear safety glasses with side-shields.

Hand protection
Wear suitable gloves. Impervious gloves.

Skin and body protection
Wear suitable protective clothing. Long sleeved clothing.

Respiratory protection
No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

General hygiene considerations
Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Avoid contact with skin, eyes or clothing.
9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
<th>Remarks ± Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Solid</td>
<td></td>
</tr>
<tr>
<td>Appearance</td>
<td>Crystalline</td>
<td></td>
</tr>
<tr>
<td>Color</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Odor</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Odor threshold</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Property</td>
<td>Values</td>
<td>Remarks ± Method</td>
</tr>
<tr>
<td>Melting point / freezing point</td>
<td>No data available</td>
<td>None known</td>
</tr>
<tr>
<td>Boiling point / boiling range</td>
<td>No data available</td>
<td>None known</td>
</tr>
<tr>
<td>Flash point</td>
<td>No data available</td>
<td>None known</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No data available</td>
<td>None known</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No data available</td>
<td>None known</td>
</tr>
<tr>
<td>Flammability Limit in Air</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper flammability limit:</td>
<td>No data available</td>
<td>None known</td>
</tr>
<tr>
<td>Lower flammability limit:</td>
<td>No data available</td>
<td>None known</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>No data available</td>
<td>None known</td>
</tr>
<tr>
<td>Vapor density</td>
<td>No data available</td>
<td>None known</td>
</tr>
<tr>
<td>Relative density</td>
<td>No data available</td>
<td>None known</td>
</tr>
<tr>
<td>Water solubility</td>
<td>No data available</td>
<td>None known</td>
</tr>
<tr>
<td>Solubility in other solvents</td>
<td>~0.5 mg/mL in a 1:1 solution of DMF:PBS (pH 7.2); ~1 mg/mL in DMSO &amp; DMF;</td>
<td>None known</td>
</tr>
<tr>
<td>Partition coefficient</td>
<td>No data available</td>
<td>None known</td>
</tr>
<tr>
<td>Autoignition temperature</td>
<td>No data available</td>
<td>None known</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
<td>None known</td>
</tr>
<tr>
<td>Kinematic viscosity</td>
<td>No data available</td>
<td>None known</td>
</tr>
<tr>
<td>Dynamic viscosity</td>
<td>No data available</td>
<td>None known</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Softening point</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Molecular weight</td>
<td>272.3</td>
<td></td>
</tr>
<tr>
<td>Molecular formula</td>
<td>C17H12N4</td>
<td></td>
</tr>
<tr>
<td>VOC Content (%)</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Liquid Density</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Bulk density</td>
<td>No information available</td>
<td></td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

Reactivity                       | No information available. |
Chemical stability               | Stable under normal conditions. |
SAFETY DATA SHEET

Possibility of hazardous reactions
None under normal processing.

Hazardous polymerization
Hazardous polymerization does not occur.

Conditions to avoid
None known based on information supplied.

Incompatible materials
Strong oxidizing agents.

Hazardous decomposition products
Carbon dioxide (CO2). Carbon monoxide. Nitrogen oxides (NOx).

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information

Inhalation
Specific test data for the substance or mixture is not available. May cause irritation of respiratory tract.

Eye contact
Specific test data for the substance or mixture is not available. Irritating to eyes. (based on components). Causes serious eye irritation.

Skin contact
Specific test data for the substance or mixture is not available. Causes skin irritation. (based on components).

Ingestion
Specific test data for the substance or mixture is not available. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. Toxic if swallowed. (based on components).

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms
Redness. May cause redness and tearing of the eyes.

Numerical measures of toxicity

Acute toxicity

The following values are calculated based on chapter 3.1 of the GHS document.

ATEmix (oral) 100.00 mg/kg

Unknown acute toxicity

100 % of the mixture consists of ingredient(s) of unknown toxicity
0 % of the mixture consists of ingredient(s) of unknown acute oral toxicity
100 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity
100 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas)
100 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor)
100 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist)
Delayed and immediate effects as well as chronic effects from short and long-term exposure

<table>
<thead>
<tr>
<th>Classification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin corrosion/irritation</td>
<td>Classification based on data available for ingredients. Irritating to skin.</td>
</tr>
<tr>
<td>Serious eye damage/eye irritation</td>
<td>Classification based on data available for ingredients. Irritating to eyes.</td>
</tr>
<tr>
<td>Respiratory or skin sensitization</td>
<td>No information available.</td>
</tr>
<tr>
<td>Germ cell mutagenicity</td>
<td>No information available.</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>No information available.</td>
</tr>
<tr>
<td>Reproductive toxicity</td>
<td>No information available.</td>
</tr>
<tr>
<td>STOT - single exposure</td>
<td>May cause respiratory irritation.</td>
</tr>
<tr>
<td>STOT - repeated exposure</td>
<td>No information available.</td>
</tr>
<tr>
<td>Aspiration hazard</td>
<td>No information available.</td>
</tr>
</tbody>
</table>

12. ECOLOGICAL INFORMATION

<table>
<thead>
<tr>
<th>Classification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ecotoxicity</td>
<td>Avoid release into the environment. Runoff from fire control or dilution water may cause pollution.</td>
</tr>
<tr>
<td>Persistence and degradability</td>
<td>No information available.</td>
</tr>
<tr>
<td>Bioaccumulation</td>
<td>There is no data for this product.</td>
</tr>
<tr>
<td>Other adverse effects</td>
<td>No information available.</td>
</tr>
</tbody>
</table>

13. DISPOSAL CONSIDERATIONS

<table>
<thead>
<tr>
<th>Classification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waste treatment methods</td>
<td></td>
</tr>
<tr>
<td>Waste from residues/unused products</td>
<td>Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.</td>
</tr>
<tr>
<td>Contaminated packaging</td>
<td>Do not reuse empty containers.</td>
</tr>
</tbody>
</table>
14. TRANSPORT INFORMATION

Note: Transport in accordance with local, state, and federal regulations. When sold in quantities of less than or equal to 1 mL, or 1 g, with an Excepted Quantity Code of E1, E2, E4, or E5, this item meets the De Minimis Quantities exemption, per IATA 2.6.10. Therefore packaging does not have to be labeled as Dangerous Goods/Excepted Quantity.

DOT
UN/ID no. UN2811
Proper shipping name Toxic solid, organic, n.o.s. (LY364947)
Hazard class 6.1 - POISON
Packing Group III

TDG
Not regulated

MEX
Not regulated

ICAO (air)
UN/ID no. 2811
Proper shipping name Toxic solid, organic, n.o.s. (LY364947)
Hazard class 6.1 - POISON
Packing Group III

IATA
UN Number 2811
Transport hazard class(es) 6.1 - POISON
Packing Group III

IMDG
Not regulated

RID
UN Number 2811
UN proper shipping name Toxic solid, organic, n.o.s. (LY364947)
Transport hazard class(es) 6.1 - POISON
Packing Group III

ADR
UN Number 2811
UN proper shipping name Toxic solid, organic, n.o.s. (LY364947)
Transport hazard class(es) 6.1 - POISON
Packing Group III

15. REGULATORY INFORMATION

International Inventories
Does not comply

TSCA
Does not comply
SAFETY DATA SHEET

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Revision Date: 23-Oct-2018
Revision Number: 2

DSL/NDSL: Does not comply
EINECS/ELINCS: Does not comply
ENCS: Does not comply
IECS: Does not comply
KECL: Does not comply
PICCS: Does not comply
AICS: Does not comply

Legend:
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECS - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances

US Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazard Categories

<table>
<thead>
<tr>
<th>Hazard Category</th>
<th>Yes/No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute health hazard</td>
<td>Yes</td>
</tr>
<tr>
<td>Chronic Health Hazard</td>
<td>No</td>
</tr>
<tr>
<td>Fire hazard</td>
<td>No</td>
</tr>
<tr>
<td>Sudden release of pressure hazard</td>
<td>No</td>
</tr>
<tr>
<td>Reactive Hazard</td>
<td>No</td>
</tr>
</tbody>
</table>

CWA (Clean Water Act)
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

CERCLA
This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

US State Regulations

California Proposition 65
This product does not contain any Proposition 65 chemicals.
U.S. State Right-to-Know Regulations

US State Regulations This product does not contain any substances regulated by state right-to-know regulations

U.S. EPA Label Information

EPA Pesticide Registration Number Not applicable

16. OTHER INFORMATION, INCLUDING DATE OF PREPARATION OF THE LAST REVISION

Prepared By, Quality Control. STEMCELL Technologies Canada Inc.

Revision Date 23-Oct-2018

Revision Note No information available.

Disclaimer The information provided in 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 guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered 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 materials or in any process, unless specified in the text. STEMCELL Technologies Inc. shall not be held liable for any damage resulting from handling or from contact with the product.

End of Safety Data Sheet