

SAFETY DATA SHEET

I. CHEMICAL PRODUCT INFORMATION

Product Name CIRKIL RTU
Recommended Use Pesticide (EPA Reg. No. 88760-1)
Manufacturer Terramera, Inc.
333 Seymour Street, Suite 1100
Vancouver, BC V6B 5A6 Canada
+1-800-597-9509 (9:00am – 5:00pm PST)

Email msdsinfo@terramera.com
Emergency INFOTRAC +1-352-323-3500
Contract # 103390

II. HAZARD(S) IDENTIFICATION

Physical hazards	Flammable liquids	Category 2
Health hazards	Serious eye damage/eye irritation	Category 2B
	Specific target organ toxicity, single exposure	Category 3 respiratory tract irritation
	Specific target organ toxicity, single exposure	Category 3 narcotic effects
Environmental hazards	This mixture does not meet the classification criteria according to OSHA HazCom 2012.	
OSHA defined hazards	This mixture does not meet the classification criteria according to OSHA HazCom 2012.	

Label elements



Signal word Danger
Hazard statement Flammable liquid and vapor. Causes eye irritation. 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 or vapor. Wash thoroughly after handling. Use only outdoors or in a well-ventilated area. Wear protective gloves/eye protection/face protection.

Response If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. 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. Call a poison center/doctor if you feel unwell. If eye irritation persists: Get medical advice/attention. In case of fire: Use appropriate media to extinguish.

Storage Store in a well-ventilated place. Keep container tightly closed. Keep cool. 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 liquid can become electrostatically charged even in bonded and grounded equipment. Sparks may ignite liquid and vapor. May cause flash fire or explosion. Other hazards which do not result in classification: Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. Product may present an aspiration hazard, if ingested in large amounts. Prolonged or repeated overexposure may cause liver and kidney effects.

Supplemental information None.

III. COMPOSITION /INFORMATION ON INGREDIENTS

Mixtures

Chemical Name	CAS Number	%
Cold Pressed Neem Oil	8002-65-1	5.5
Other Ingredients		94.5

The exact concentrations of the above listed chemicals are being withheld as a trade secret as allowed by 29 CFR 1910.1200.

IV. FIRST AID MEASURES

Inhalation If inhaled: Remove person to fresh air and keep comfortable for breathing. If breathing is difficult, give oxygen. If breathing stops, provide artificial respiration. Call a POISON CENTER or doctor/physician if you feel unwell.

Eye Contact IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Skin Contact IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If skin irritation persists, call a physician. Wash contaminated clothing before reuse.

Ingestion Do not induce vomiting. Never give anything by mouth to a victim who is unconscious or is having convulsions. Get medical advice/attention if you feel unwell.

Most important symptoms/effects, acute and delayed

May cause mild to moderate eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause respiratory irritation. Symptoms may include upper respiratory irritation, coughing, and breathing difficulties. May cause central nervous system effects. Symptoms may include pain, headache, nausea, vomiting, dizziness, drowsiness and other central nervous system effects. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. Product may present an aspiration hazard, if ingested in large amounts. Aspiration into the lungs during swallowing or subsequent vomiting may cause chemical pneumonitis, which can be fatal.

Indication of immediate medical attention and special treatment needed

Provide general supportive measures and treat symptomatically. 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. Keep victim under observation. Symptoms may be delayed.

General information

Take off all contaminated clothing immediately. If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Wash contaminated clothing before reuse.

V. FIRE FIGHTING MEASURES:

Suitable extinguishing media Alcohol resistant foam. Water fog. Carbon dioxide (CO₂). Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.

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

Specific hazards arising from the chemical

Vapors may form explosive mixtures with air. Vapors may travel considerable distance to a source of ignition and flash back. This product is a poor conductor of electricity and can become electrostatically

charged. If sufficient charge is accumulated, ignition of flammable mixtures can occur. To reduce potential for static discharge, use proper bonding and grounding procedures. This liquid may accumulate static electricity when filling properly grounded containers. Static electricity accumulation may be significantly increased by the presence of small quantities of water or other contaminants. Material will float and may ignite on surface of water. During fire, gases hazardous to health may be formed.

Special protective equipment and precautions for firefighters

Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.

Fire fighting equipment/instructions

Ventilate the contaminated area. Evacuate area. Remove all sources of ignition. Firefighters should wear full protective gear. Move containers from fire area if you can do it without risk. Use water spray to cool unopened containers. Do not scatter spilled material with high pressure waterstreams. Prevent fire extinguishing water from contaminating surface water or the ground water system.

Specific methods

Use standard firefighting procedures and consider the hazards of other involved materials.

General fire hazards

Highly flammable liquid and vapor

Hazardous combustion Products

Carbon oxides. Other irritating fumes and smokes

VI. ACCIDENTAL RELEASE MEASURES:

Personal precautions, protective equipment and emergency procedures

Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Wear appropriate protective equipment and clothing during clean-up. Avoid inhalation of vapors and spray mists. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up

Take precautionary measures against static discharge. Use only non-sparking tools. Stop the flow of material, if this is without risk. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Contaminated absorbent material may pose the same hazards as the spilled product. Dike the spilled material, where this is possible. Prevent entry into waterways, sewer, basements or confined areas. Clean surface thoroughly to remove residual contamination. Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS. In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

Environmental precautions

Avoid discharge into drains, water courses or onto the ground. Use appropriate containment to avoid environmental contamination.

VII. HANDLING AND STORAGE:

Precautions for safe handling

Explosion-proof general and local exhaust ventilation. Minimize fire risks from flammable and combustible materials (including combustible dust and static accumulating liquids) or dangerous reactions with incompatible materials. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use non-sparking tools and explosion-proof equipment. These alone may be insufficient to remove static electricity. Avoid inhalation of vapors and spray mists. Avoid contact with eyes, skin, and clothing. When using, do not eat, drink or smoke. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities

Keep away from heat, sparks and open flame. This material can accumulate static charge which may cause spark and become an ignition source. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Avoid spark promoters. Ground/bond container and equipment. These alone may be insufficient to remove static electricity. Store in a cool, dry place out of direct sunlight. Keep out of the reach of children. Store in original tightly closed container. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS).

VIII. EXPOSURE CONTROLS / PERSONAL PROTECTION

Occupational exposure limits

No exposure limits noted for ingredient(s).

Biological limit values

No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls

Explosion-proof general and local exhaust ventilation. Ventilation should be sufficient to effectively remove and prevent buildup of

any vapors or fumes that may be generated during handling.

Individual protection measures, such as personal protective equipment

Eye/face protection	Provide an emergency eye wash fountain and quick drench shower in the immediate work area.
Skin protection	
Hand protection	Wear appropriate chemical resistant gloves. Advice should be sought from glove suppliers.
Other	Wear suitable protective clothing.
Respiratory protection	Use a NIOSH/MSHA approved respirator if there is a risk of exposure to dust/fume at levels exceeding the exposure limits. Advice should be sought from respiratory protection specialists.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations

When using, do not smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

IX. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	
Physical state	Liquid.
Form	Liquid.
Color	Light yellow.
Odor	Mild fragrant.
Odor threshold	Not available.
pH	5.9
Melting point/freezing point	-127.3 °F (-88.5 °C) estimated
Initial boiling point and boiling range	181.4 °F (83 °C)
Flash point	53.1 °F (11.7 °C) Closed Cup
Evaporation rate	Not available.
Flammability (solid, gas)	Not available.
Upper/lower flammability or explosive limits	
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	Not available.
Vapor density	Not available.
Relative density	Not available.
Solubility(ies)	
Solubility (water)	Not available.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Kinematic viscosity	2.28 cSt
Kinematic viscosity temperature	104 °F (40 °C)
Specific gravity	0.82

X. STABILITY AND REACTIVITY

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	Avoid heat, sparks, open flames and other ignition sources. Avoid temperatures exceeding the flash point. Contact with incompatible materials. Do not use in areas without adequate ventilation.
Incompatible materials	Acids. Bases. Strong oxidizing agents.
Hazardous decomposition products	Refer to hazardous combustion products in Section 5.

XI. TOXICOLOGY INFORMATION

Information on likely routes of exposure	
Inhalation	May cause irritation to the respiratory system. May cause central nervous system effects.
Skin contact	Based on test data on the finished product, the product is

Eye contact considered to not be a skin irritant.
May cause moderate eye irritation. Based on test data on the finished product, the product is considered to be a moderate eye irritant.

Ingestion May cause irritation of the gastrointestinal tract. Product may present an aspiration hazard, if ingested in large amounts.

Most important symptoms/effects, acute and delayed

May cause mild to moderate eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause respiratory irritation. Symptoms may include upper respiratory irritation, coughing, and breathing difficulties. May cause central nervous system effects. Symptoms may include pain, headache, nausea, vomiting, dizziness, drowsiness and other central nervous system effects. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. Product may present an aspiration hazard, if ingested in large amounts. Aspiration into the lungs during swallowing or subsequent vomiting may cause chemical pneumonitis, which can be fatal.

Information on toxicological effects

Acute toxicity This product is not classified as an acute toxicity hazard. The below product data is the calculated ATE values for this mixture. Individual ingredient component data appears below the product mixture ATE values.

Product	Species	Test Results
CIRKIL RTU (CAS Mixture)		
Acute		
<i>Dermal</i> LD50	Rabbit	> 5050 mg/kg
<i>Inhalation</i> LC50	Rat	> 21.07 mg/l, 4 hours
<i>Oral</i> LD50	Rat	3129 mg/kg

Components	Species	Test Results
Cold Pressed Neem Oil (CAS 8002-65-1)		
Acute		
<i>Dermal</i> LD50	Rabbit	> 2000 mg/kg
<i>Inhalation</i> LC50	Rat	> 6.2 mg/l, 4 hours
<i>Oral</i> LD50	Rat	> 5000 mg/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation Based on test data on the finished product, the product is considered to not be a skin irritant.

Serious eye damage/eye irritation May cause mild to moderate eye irritation.

Respiratory or skin sensitization

Respiratory sensitization This product is not expected to cause respiratory sensitization.

Skin sensitizer This product is not expected to cause skin sensitization. Based on testing of the finished product, this product is not considered to be a skin sensitizer.

Germ cell mutagenicity No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity No components present at greater than 0.1% are considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

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

Reproductive toxicity This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity -single exposure

Specific Target Organ Toxicity (STOT), Single Exposure: Category 3

May cause respiratory irritation. May cause drowsiness or dizziness.

Specific target organ toxicity -repeated exposure

Not classified as a specific target organ toxicity -repeated exposure.

Aspiration toxicity

Not expected to be hazardous by OSHA criteria. However, if the product is ingested in large amounts, the product may present an aspiration hazard.

Chronic effects

Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis. Prolonged or repeated overexposure may cause liver and kidney effects.

XII. ECOLOGICAL INFORMATION

Ecotoxicity

The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Persistence and degradability

No data is available on the degradability of this product.

Bioaccumulative potential

No data available.

Mobility in soil

No data available.

Other adverse effects

No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

XIII DISPOSAL CONSIDERATIONS

Disposal instructions

Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/container in accordance with local/regional/national/international regulations.

Local disposal regulations

Dispose in accordance with all applicable regulations.

Hazardous waste code

The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products

Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging

Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

XIV TRANSPORT INFORMATION

DOT

UN number

UN1993

UN shipping name

Flammable liquids, n.o.s. (alcohol)

Transport hazard class

3

Packing group

II

Special provisions

IB2, T7, TP1, TP8, TP28

Packaging exceptions

150

Packaging non bulk

202

Packaging bulk

242

Limited Quantity Exemption

For shipments by ground within the United States, the Limited Quantity / Consumer Commodity Exemption may apply for containers which hold specific quantities of the material. Refer to 49CFR Section 173.150 for details on this exemption.

DOT Bulk packaging type



XV. REGULATORY INFORMATION

US federal regulations

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

The labeling requirements under federal pesticide law differ from the classification criteria and hazard information required for material safety data sheets (MSDS), and for workplace labels of non-pesticide chemicals. The hazard information required on the pesticide label is reproduced below. The proposed pesticide label being reviewed by the Environmental Protection Agency includes other important information, including directions for use.

CAUTION
Harmful if swallowed.
Causes moderate eye irritation.

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

CERCLA Hazardous Substance List (40 CFR 302.4)
Not listed.

SARA 304 Emergency release notification
Not regulated.

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

SARA 311/312 Hazardous chemical No

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.

US state regulations

US. California Controlled Substances. CA Department of Justice (California Health and Safety Code

Section 11100)

Not listed.

US. Massachusetts RTK - Substance List

Not regulated.

US. New Jersey Worker and Community Right-to-Know Act

Not listed.

US. Pennsylvania Worker and Community Right-to-Know Law

Not listed.

US. Rhode Island RTK

Not regulated.

US. California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain

any chemicals currently listed as carcinogens or reproductive toxins.

International Inventories

Country(s) or region (yes/no)*	Inventory name	On inventory
Australia	Australian Inventory of Chemical Substances (AICS)	No
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	No
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	No
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	No
New Zealand	New Zealand Inventory	Yes
Philippines (PICCS)	Philippine Inventory of Chemicals and Chemical Substances	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	No

*A "Yes" indicates that all components of this product comply 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).

XVI. OTHER INFORMATION

Date of issue: NOV-4-2015

Version # 01-1

Declaration: The information in this SDS relates to this specific material: CIRKIL RTU. It may not be valid for this material if used in combination with any other material or in any process.

The information in the Safety Data Sheet is offered for your consideration and guidance when exposed to this product. Terramera, Inc. expressly disclaims all expressed or implied warranties and assume no responsibilities for the accuracy or completeness of the data contained herein. It is the user's responsibility to satisfy themselves as to the suitability and completeness of this information for their specific use and application. The data in this SDS does not apply to use with any other product or in any other process. This Safety Data Sheet may not be changed, or altered in any way without the expressed knowledge and permission of Terramera, Inc.