SAFETY DATA SHEET

CROSSBOW® L

SDS NUMBER: 62719260-15-LPI **SDS REVISIONS: FORMAT** **DATE OF ISSUE: 12/15/15** **SUPERSEDES: 05/27/14**

FOR CHEMICAL EMERGENCY, SPILL, LEAK, FIRE, EXPOSURE OR ACCIDENT, CALL CHEMTREC - DAY OR NIGHT 1-800-424-9300

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

1.1 PRODUCT IDENTIFIER:
TRADE NAME: **CROSSBOW® L SPECIALTY HERBICIDE**
1.2 RECOMMENDED USE: **WEED AND BRUSH HERBICIDE**
1.3 SUPPLIER DETAILS:
LOVELAND PRODUCTS, INC.
P.O. Box 1286 • Greeley, CO 80632-1286
1.4 24 Hour Emergency Phone: 1-800-424-9300 - **Medical Emergencies:** 1-866-944-8565 – **Product Information:** 1-888-574-2878 (LPI-CUST)
U.S. Coast Guard National Response Center: 1-800-424-8802

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to 29 CFR 1910.1200

Flammable Liquids	Category 4	H227
Acute Toxicity - Oral	Category 4	H302
Sensitization – Skin	Category 1	H317
Aspiration Hazard	Category 1	H304

2.2 Label elements

Signal word: DANGER

Hazard Statement:
H227 – Combustible Liquid
H302 – Harmful if swallowed.
H317 – May cause an allergic skin reaction.
H304 – May be fatal if swallowed and enters airways.

Precautionary Statement: (Prevention):
P210 – Keep away from heat/sparks/open flames/hot surfaces – No smoking.
P261 – Avoid breathing dust/fume/mist/vapors/spray.
P264 – Wash hands, face, and skin thoroughly after handling.
P270 – Do not eat, drink or smoke when using this product.
P272 – Contaminated work clothing must not be allowed out of the workplace.
P280 – Wear protective gloves/protective clothing/eye protection/face protection.

Precautionary Statement: (Response):
P301+P310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician if you feel unwell.
P302+P352 – IF ON SKIN: Wash with plenty of soap and water.
P331 – Do NOT induce vomiting.
P333+P313 – If skin irritation or rash occurs: Get medical advice/attention.
P363 – Wash contaminated clothing before reuse.
P370+P378 – In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.

Precautionary Statement: (Storage):
P403+P235 – Store in a well-ventilated place. Keep cool.
P405 – Store locked up.

Precautionary Statement: (Disposal):
P501 – Dispose of contents/container to an approved waste disposal plant.

2.3 Other hazards
No data available

3. COMPOSITION, INFORMATION ON INGREDIENTS

3.1 Substances

3.2 Mixtures

Classification according to 29 CFR 1910.1200

Chemical Name:	CAS No.	Concentration [%]
2,4-Dichlorophenoxyacteic acid, butoxyethyl ester	1929-73-3	34.40
Triclopyr-2-butoxethyl ester	64700-56-7	16.50
Kerosene (petroleum)	8008-20-6	41.50
2-Ethylhexanol	104-76-7	1.90
Other ingredients*	n/a	5.70

*Ingredients not precisely identified are proprietary or non-hazardous.

4. FIRST AID MEASURES

4.1 Description of First Aid Measures
General Advice: Get medical attention if symptoms occur.

If swallowed: Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor. Do not give anything by mouth to an unconscious person.

If on skin or clothing: Take of contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.

4.2 Most Important Symptoms and Effects, Acute and Delayed
Symptoms: Harmful if swallowed.

4.3 Immediate Medical Attention and Special Treatment

Treatment: **NOTES TO PHYSICIAN:** Skin contact may aggravate preexisting dermatitis. Repeated excessive exposure may aggravate preexisting lung disease. Maintain adequate ventilation and oxygenation of the patient. May cause asthma-like (reactive airways) symptoms. Bronchodilators, expectorants, antitussives and corticosteroids may be of help. The decision of whether to induce vomiting or not should be made by the physician. If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. Exposure to this material may impair the ability to operate hazardous equipment or drive vehicles. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.
FOR A MEDICAL EMERGENCY INVOLVING THIS PRODUCT CALL: 1-866-944-8565
Have the product label or container with you when calling a poison control center or doctor or going for treatment.

5. FIRE FIGHTING MEASURES

5.1 EXTINGUISHING MEDIA:

Suitable Extinguishing Media: Use medium appropriate to surrounding fire. Dry chemical, carbon dioxide (CO_2), foam, water fog or fine spray.

5.2 SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE:

Specific Hazards During Firefighting: During a fire, smoke may contain the original material in addition to irritating and possibly toxic gases generated by thermal decomposition or combustion, including oxides of nitrogen, oxides of carbon, hydrogen chloride, and trace amounts of phosgene.

5.3 SPECIAL PROTECTIVE EQUIPMENT AND PRECAUTIONS FOR FIREFIGHTERS

Special Protective Equipment for Firefighters: Self-contained breathing apparatus and full protective gear should be worn in fighting large fires involving chemicals. Use water spray to keep fire exposed containers cool. Keep people away. Isolate fire and deny unnecessary entry.

6. ACCIDENTAL RELEASE MEASURES

6.1 PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES

Personal Precautions: Avoid contact with skin and eyes. Ensure adequate ventilation. Wear suitable protective clothing. Remove all sources of ignition. Wash thoroughly after handling. See Section 8, Exposure Controls and Personal Protection, for additional information.

6.2 ENVIRONMENTAL PRECAUTIONS

Environmental Precautions: Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters or rinsate. Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

6.3 METHODS AND MATERIALS FOR CONTAINMENT AND CLEAN-UP

Methods for Clean-Up: Large Spills: Stop the flow of material, if this is without risk. Sweep up material and place in a suitable container for disposal. After removal flush contaminated area thoroughly with water.
Small Spills: Control the spill at its source. Soak up and absorb material then sweep up material and place in a suitable container for disposal. After removal flush contaminated area thoroughly with water.
Never return spills to original containers for re-use. See Section 13, Disposal Considerations, for additional information.

7. HANDLING AND STORAGE

7.1 PRECAUTIONS FOR SAFE HANDLING:

Advice on Safe Handling: Keep out of reach of children. Keep away from heat, sparks and open flame. Containers, even those that have been emptied, can contain vapors. Do not cut, drill, grind, weld or perform similar operations on or near empty containers. Avoid contact with eyes, skin, and clothing. Do not swallow. Avoid breathing vapor or mist. Wash thoroughly after handling. Keep container closed. Use with adequate ventilation. See Section 8, Exposure Control and Personal Protection.

7.2 CONDITIONS FOR SAFE STORAGE:

Requirements for Storage Areas and Containers: Store in a dry place. Store in original container. Keep container tightly closed when not in use. Do not store near food, foodstuffs, drugs or potable water supplies. Do not contaminate water, food or feed by storage or disposal.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 CONTROL PARAMETERS:

OCCUPATIONAL EXPOSURE LIMITS

U.S. Workplace Exposure Level (ACGIH) TLVs®

Components	Type	Value
Kerosene	TWA	200 mg/m^3, Skin ^{X}P

U.S. Workplace Exposure Level (OSHA) PELs

Components	Type	Value
No data available		

Biological limit values

ACGIH Biological Exposure Indices

Components	Value	Specimen
No listings		

8.2 EXPOSURE CONTROLS:

Engineering Measures

Investigate engineering techniques to reduce exposures. Local mechanical exhaust ventilation is preferred.

Individual Protection Measures:

Eye / Face Protection: Goggles or shielded safety glasses are recommended.

Skin Protection: Coveralls over long-sleeved shirt and long pants. Chemical-resistant gloves. Chemical-resistant apron. Chemical-resistant footwear and socks.

Respiratory Protection: In case of inadequate ventilation or risk of inhalation of mists or vapors, use suitable respiratory equipment approved by MSHA/NIOSH. Wear respiratory protection during operations where spraying or misting occurs. If respirators are used, a program should be in place to assure compliance with 29 CFR 1910.134, the OSHA Respiratory Protection standard. Wear air supplied respiratory protection if exposure concentrations are unknown.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 APPEARANCE : Liquid
ODOR: Sweet.
ODOR THRESHOLD: No data available.
COLOR: Red to brown.
pH: 3.8 (10% solution)
MELTING POINT / FREEZING POINT: No data available.
BOILING POINT: > 347°F / > 175°C (kerosene).
FLASH POINT: 147°F / 63.8°C (Closed cup).
FLAMMABILILITY (solid, gas): Not applicable.
UPPER / LOWER FLAMMABILITY OR EXPLOSIVE LIMITS: No data available.
VAPOR PRESSURE: 0.1 mmHg @ 37.8°C / 100°F.
SOLUBILITY: Emulsifies.
PARTITION CO-EFFICIENT, n-OCTANOL / WATER: No data available.
AUTO-IGNITION TEMPERATURE: No data available.
DECOMPOSITION TEMPERATURE: No data available.
VISCOSITY: (Dynamic): 6.56 mPa.s @ 25° C / 77°F
SPECIFIC GRAVITY (Water = 1): 1.01 g/ml
DENSITY: 8.44 lbs/gal / 1.01 kg/L

Note: These physical data are typical values based on material tested but may vary from sample to sample. Typical values should not be construed as a guaranteed analysis of any specific lot or as specification items.

10. STABILITY AND REACTIVITY

10.1 REACTIVITY
Stable

10.2 CHEMICAL STABILITY
Stable under normal temperature conditions

10.3 POSSIBILITY OF HAZARDOUS REACTIONS
No data available. Will not polymerize.

10.4 CONDITIONS TO AVOID
Some components of this product can decompose at elevated temperatures. Generation of gas during decomposition can cause pressure in closed systems.

10.5 INCOMPATIBILE MATERIALS
Avoid contact with acids, bases, and oxidizers.

10.6 HAZARDOUS DECOMPOSITION PRODUCTS
Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include but are not limited to hydrogen chloride, oxides of nitrogen, oxides of carbon, and trace amounts of phosgene.

11 TOXICOLOGICAL INFORMATION

11.3 LIKELY ROUTES OF EXPOSURE

Dermal. Inhalation. Ingestion.

LC_{50} (rat): > 5.19 mg/L (4H - Aerosol)

LD_{50} Oral (rat): 1,000 mg/kg (Estimated).

LD_{50} Dermal (rabbit): > 5,000 mg/kg

Acute Toxicity Estimates:

Acute Oral toxicity: low toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury. Observations in animals include lethargy. In humans symptoms may include abdominal discomfort, central nervous system depression, and diarrhea.

Acute Dermal toxicity: Prolonged skin contact is unlikely to result in absorption of harmful amounts. Observations in animals include lethargy.

Acute Inhalation toxicity: Prolonged excessive exposure to mist may cause adverse effects. Excessive exposure may cause irritation to the upper respiratory tract (nose and throat) and lungs. Observations in animals include lethargy.

Eye Irritation (rabbit): Moderate eye irritant. Corneal injury is unlikely.

Skin Irritation (rabbit): Essentially non-irritating. Prolonged contact may cause moderate skin irritation with local redness. May cause drying and flaking of the skin.

Inhalation: May be harmful if inhaled.

Ingestion: May be harmful if swallowed.

Specific Target Organ Toxicity – Repeated Exposure: Kidney, Liver, Eyes, Thyroid, Skin, Central Nervous System, Respiratory tract.

Aspiration: Aspiration into the lungs may occur during ingestion or vomiting, causing lung damage or even death due to chemical pneumonia.

Skin Sensitization (guinea pig): May cause an allergic skin reaction.

Carcinogenicity: Possible carcinogenicity. Kerosene: TLV-A3: Confirmed Animal Carcinogen with Unknown Relevance to Humans.

Germ Cell Mutagenicity: For the active ingredients, in vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

Interactive Effects: None known.

12 ECOLOGICAL INFORMATION

12.3 ECOTOXICITY

The pesticide is toxic to fish and may be toxic to aquatic invertebrates.

Your local agricultural agencies can provide further information on the type of soil in your area and the location of ground water

Ecotoxicological Data

	Species	Test Results
2,4-D BEE	Bluegill sunfish	0.61 mg/L – 96-hour LC_{50}
	Daphnia magna	7.2 – 33 mg/L – 48-hour EC_{50}
Triclopyr BEE	Bluegill sunfish	0.31 mg/L – 96-hour LC_{50}
	Daphnia magna	2.9 mg/L – 48-hour EC_{50}

Drift or runoff may adversely affect non-target plants.

Do not apply directly to water.

Do not contaminate water when disposing of equipment wash water.

Do not apply when weather conditions favor drift from target area.

12.2 PERSISTENCE AND DEGRADABILITY

Biodegradability: **2,4-D BEE:** Chemical degradation (hydrolysis) is expected in the environment. Material is expected to be readily biodegradable. **Triclopyr BEE:** Chemical degradation (hydrolysis) is expected in the environment. Material is expected to biodegrade very slowly.

12.3 BIOACCUMULATIVE POTENTIAL

Bioaccumulation: **2,4-D BEE and Triclopyr BEE:** Bioconcentration potential is moderate (BCF between 100 and 3000).

12.4 MOBILITY IN SOIL

Mobility is very high for Triclopyr BEE.

12.5 OTHER ADVERSE EFFECTS

Assessment: No data available.

13 DISPOSAL CONSIDERATIONS

13.1 WASTE TREATMENT METHODS

PESTICIDE DISPOSAL: Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

CONTAINER DISPOSAL: Containers 5 gallons or less: Container Reuse: Nonrefillable container. Do not reuse or refill this container. Offer for recycling if available. Triple rinse or pressure rinse container (or equivalent) promptly after emptying. **Triple rinse** as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container ¼ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. **Pressure rinse** as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 psi for at least 30 seconds. Drain for 10 seconds after the flow begins to drip. **Refillable Containers larger than 5 gallons: Container Reuse:** Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal, empty the remaining contents from this container into application equipment or a mix tank. Fill the container about 10% full with water and, if possible, spray all sides while adding water. If practical, agitate vigorously or recirculate water with the pump for two minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times. **Nonrefillable containers larger than 5 gallons: Container Reuse:** Nonrefillable container. Do not reuse or refill this container. Offer for recycling if available. Triple rinse or pressure rinse container (or equivalent) promptly after emptying. **Triple rinse** as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container ¼ full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. **Pressure rinse** as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 psi for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.. Do not contaminate water, food or feed by storage or disposal.

14 TRANSPORT INFORMATION

14.3 LAND TRANSPORT

DOT Shipping Description: 34 GALLONS OR LESS: NOT REGULATED BY USDOT.
DOT Shipping Description: GREATER THAN 34 GALLONS: RQ UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (2,4-D), 9, III ERG GUIDE 171
U.S. Surface Freight Classification: COMPOUND, TREE OR WEED KILLING, NOI (NMFC 50320, SUB 2: CLASS 60)

15 REGULATORY INFORMATION

15.1 SAFETY, HEALTH AND ENVIRONMENTAL REGULATIONS

NFPA & HMIS Hazard Ratings:

NFPA				HMIS	
3	Health	0	Least	3	Health
2	Flammability	1	Slight	2	Flammability
1	Instability	2	Moderate	1	Reactivity
		3	High	H	PPE
		4	Severe		

SARA Hazard Notification/Reporting
SARA Title III Hazard Category:

Immediate	Y	Fire	Y	Sudden Release of Pressure	N
Delayed	Y	Reactive	N		

Reportable Quantity (RQ) under U.S. CERCLA: 2,4-D butoxyethyl ester (CAS: 1929-73-3) 100 lbs.
SARA, Title III, Section 313: 2,4-D butoxyethyl ester (CAS: 1929-73-3) 34.4%
RCRA Waste Code: Not listed
CA Proposition 65: Not listed.

This chemical is a pesticide product registered by the United States Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets (SDS), and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:

CAUTION
Harmful if swallowed.
Causes moderate eye irritation.
Prolonged or repeated skin contact may cause allergic reactions in some individuals.
Avoid contact with eyes or clothing.
Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, of using tobacco.

16 OTHER INFORMATION

SDS STATUS: Format revised.

PREPARED BY: Registrations and Regulatory Affairs **REVIEWED BY:** Environmental Health and Safety

EPA REG. NO.: 62719-260-34704

[1]2,4-D Acid equivalent: 23.7%; 2 lb/gal. [2]Triclopyr acid equivalent: 11.9%; 1 lb/gal.

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[X](P): Avoid prolonged and repeated skin contact which can lead to diesel fuels dermal irritation and may be associated with an increased risk of skin cancer.

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