Section 1. Product and Company Identification

Product Name Levulinic Acid
CAS Number 123-76-2

Parchem - fine & specialty chemicals
415 Huguenot Street
New Rochelle, NY 10801
(914) 654-6800 **(914) 654-6899**
parchem.com **info@parchem.com**

EMERGENCY RESPONSE NUMBER
CHEMTEL
Toll Free US & Canada: 1 (800) 255-3924
All other Origins: 1 (813) 248-0585
Collect Calls Accepted

Section 2. Hazards Identification

Classification of the substance or mixture
Physical hazards: Not classified.
Health hazards: Acute toxicity, oral Category 4
Skin corrosion/irritation: Category 2
Serious eye damage/eye irritation: Category 2A
Specific target organ toxicity, single: Category 3 respiratory tract irritation exposure
Environmental hazards: Not classified.

GHS Label Elements

Pictograms:

Signal word: Warning

Hazard and precautionary statements
Hazard Statement
H302 Harmful if swallowed.
H315 Causes skin irritation.
H315 + H320 Causes skin and eye irritation.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.
Precautionary statement
Prevention
P261 Avoid breathing dust/fume/gas/mist/vapors/spray.
P264 Wash thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.

P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves.
P280 Wear eye/face protection.

Response

P301 + P312 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
P302 + P352 IF ON SKIN: Wash with plenty of water.
P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P312 Call a POISON CENTER/doctor if you feel unwell.
P321 Specific treatment (see this label).
P330 Rinse mouth.
P332 + P313 If skin irritation occurs: Get medical advice/attention.
P337 + P313 If eye irritation persists: Get medical advice/attention.
P362 + P364 Take off contaminated clothing and wash it before reuse.

Storage

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
P405 Store locked up.

Disposal

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazard(s) not otherwise classified (HNOC): None known.
Supplemental information: None.

Section 3. Composition / Information on Ingredients

Common Name Levulinic Acid
Synonym(s) 4-oxopentanoic acid; acetopropionic acid; beta-acetyl propionic acid; 4-oxo pentanoic acid; 4-oxo valeric acid; 3-keto butane-1-carboxylic acid
CAS Number 123-76-2

COMPONENT	CAS NUMBER	CONCENTRATION
Levulinic Acid	123-76-2	100%

Section 4. First Aid Measures

Inhalation: If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. For breathing difficulties, oxygen may be necessary. Call a physician if symptoms develop or persist.
Skin contact: Take off immediately all contaminated clothing. Get medical attention if irritation develops and persists. Wash skin thoroughly with soap and water for several minutes.
Eye contact: Remove contact lenses, if present and easy to do. Get medical attention if irritation develops and persists. Promptly wash eyes with plenty of water while lifting the eye lids.

Ingestion: Call a physician or poison control center immediately. If swallowed, rinse mouth with water (only if the person is conscious). Do not induce vomiting. If vomiting occurs, the head should be kept low so that stomach vomit doesn't enter the lungs.

Most important symptoms/effects, acute and delayed: Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause respiratory irritation. Skin irritation. May cause redness and pain.

Indication of immediate medical attention and special treatment needed
Not available.

General information: Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

Section 5. Firefighting Measures

Suitable extinguishing media: Water spray, fog, CO2, dry chemical, or alcohol resistant foam.
Unsuitable extinguishing media: Do not use a solid water stream as it may scatter and spread fire.

Specific hazards arising from the chemical: Fire may produce irritating, corrosive and/or toxic gases.

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. Structural firefighters protective clothing will only provide limited protection. Wear self-contained breathing apparatus with a full facepiece operated in the positive pressure demand mode when fighting fires.
Fire fighting equipment/instructions: In case of fire and/or explosion do not breathe fumes. Use standard firefighting procedures and consider the hazards of other involved materials. Move containers from fire area if you can do so without risk. Water runoff can cause environmental damage. Ventilate closed spaces before entering them. Keep run-off water out of sewers and water sources. Dike for water control.

Specific methods: Use water spray to cool unopened containers. General fire hazards Static charges generated by emptying package in or near flammable vapor may cause flash fire.

Section 6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures: Keep unnecessary personnel away. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Eliminate all sources of ignition. Avoid contact with skin or inhalation of spillage, dust or vapor.

Methods and materials for containment and cleaning up: Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb with inert absorbent such as dry clay, sand or diatomaceous earth, commercial sorbents, or recover using pumps.
This product is miscible in water.
Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Prevent product from entering drains. Do not allow material to contaminate ground water system. Absorb in vermiculite, dry sand or earth and place into containers.
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. This material and its container must be disposed of as hazardous waste.

Environmental precautions: Prevent further leakage or spillage if safe to do so. Do not contaminate water. Retain and dispose of contaminated wash water. Avoid release to the environment. Contact local authorities in case of spillage to drain/aquatic environment.

Section 7. Handling and Storage

Precautions for safe handling: Do not handle or store near an open flame, heat or other sources of ignition. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Avoid breathing vapor. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Wash thoroughly after handling.

Conditions for safe storage, including any incompatibilities: Keep container closed. Handle containers with care. Open slowly in order to control possible pressure release. Store in a cool, well-ventilated area.

Section 8. 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: Use explosion-proof ventilation equipment to stay below exposure limits.

Individual protection measures, such as personal protective equipment
Eye/face protection: Wear safety glasses with side shields (or goggles).
Skin protection
Hand protection: Chemical resistant gloves.
Other: Not available.
Respiratory protection: Respiratory protection not required. If ventilation is insufficient, suitable respiratory protection must be provided.
Thermal hazards: Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations: Keep away from food and drink. 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.

Section 9. Physical and Chemical Properties

Appearance
Physical state: Solid.
Form: Solid.

Odor: Characteristic.
Odor threshold: Not available.
pH: Not available.
Melting point/freezing point: 87.8 °F (31 °C)
Initial boiling point and boiling range: 473 - 474.8 °F (245 - 246 °C)
Flash point: > 200.0 °F (> 93.3 °C) Closed Cup
Evaporation rate: Not available.
Flammability (solid, gas): Not available.

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: 1 mm Hg at 102°C
Vapor density: Not available.
Relative density: Not available.

Solubility(ies)
Solubility (water): Soluble

Partition coefficient (n-octanol/water): Not available.
Auto-ignition temperature: Not available.
Decomposition temperature: Not available.
Viscosity: Not available.

Other information
Flammability class: Combustible IIIB estimated
Molecular formula: C5H8O3
Molecular weight: 116.12 g/mol
Specific gravity: 1.13 at 25 °C

Section 10. 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: No dangerous reaction known under conditions of normal use.
Conditions to avoid: Avoid temperatures exceeding the flash point. Contact with incompatible materials.
Incompatible materials: Strong oxidizing agents.
Hazardous decomposition products: No hazardous products if stored and handled as indicated.

Section 11. Toxicological Information

Information on likely routes of exposure
Inhalation: May cause irritation to the respiratory system.
Skin contact: Causes skin irritation.
Eye contact: Causes serious eye irritation.
Ingestion: Harmful if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics: Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Skin irritation. May cause redness and pain. May cause respiratory irritation.
Information on toxicological effects: Acute toxicity In high concentrations, vapors are anesthetic and may cause headache, fatigue, dizziness and central nervous system effects. Harmful if swallowed. May cause respiratory irritation.

Product	**Species**	**Test Results**
LEVULINIC ACID (CAS 123-76-2)		
Acute *Dermal* LD50	Rabbit	> 5000 mg/kg
Oral LD50	Rat	1850 mg/kg

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

Skin corrosion/irritation: Causes skin irritation.
Serious eye damage/eye Irritation: Causes serious eye irritation

Respiratory or skin sensitization
Respiratory sensitization: Not available.
Skin sensitization: This product is not expected to cause skin sensitization.

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

Carcinogenicity
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: May cause respiratory irritation.
Specific target organ toxicity - repeated exposure: Not classified.
Aspiration hazard: Not available.

Section 12. 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.

Section 13. Disposal Considerations

Waste Treatment Methods: Dispose of product and contaminated packaging in accordance with all local, state, and federal environmental control regulations.

Section 14. Transport Information

AND: Not regulated as dangerous goods.
ADR: Not regulated as dangerous goods.
RID: Not regulated as dangerous goods.

DOT Bulk: Not regulated as dangerous goods.
DOT Non-Bulk: Not regulated as dangerous goods.

IATA: Not regulated as dangerous goods.
IMDG: Not regulated as dangerous goods.

Section 15. Regulatory Information

US federal regulations: This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
CERCLA Hazardous Substance List (40 CFR 302.4): Not listed.
US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050): Not listed.
SARA 304 Emergency release notification: Not regulated.
OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050): Not listed.
TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D): Not regulated.
Superfund Amendments and Reauthorization Act of 1986 (SARA)
Hazard categories
Immediate Hazard: Yes
Delayed Hazard: No
Fire Hazard: No
Pressure Hazard: No
Reactivity Hazard: No
SARA 302 Extremely hazardous substance: Not listed.
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.

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

International Inventories

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

*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).

Section 16. Other Information

Disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product.

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