24 HOUR EMERGENCY TELEPHONE NUMBERS: INFOTRAC 1-800-535-5053

SECTION 1 IDENTIFICATION OF THE SUBSTANCE
PRODUCT NAME: CL-FES Ethanol Cleaner

SECTION 2 HAZARDS IDENTIFICATION
Emergency Overview
Danger: Highly flammable.
State of matter: Liquid colorless
Odor: Alcoholic

Potential environmental effects: Should not be released into the environment. Prevent further leakage or spillage if safe to do so.

Potential health effects
Acute effects
Eye contact: Causes eye irritation.
Skin: Prolonged or repeated contact may dry skin and cause irritation
Inhalation: May cause respiratory tract irritation
Ingestion: Aspiration hazard if swallowed - can enter lungs and cause damage

SECTION 3 COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol; ethyl alcohol</td>
<td>64-17-5</td>
<td>85</td>
</tr>
<tr>
<td>Propan-2-ol; isopropyl; isopropanol</td>
<td>67-63-0</td>
<td>9</td>
</tr>
<tr>
<td>Methanol</td>
<td>67-56-1</td>
<td>4</td>
</tr>
<tr>
<td>4-methylpentan-2-one; isobutyl methyl ketone</td>
<td>108-10-1</td>
<td>1</td>
</tr>
</tbody>
</table>

SECTION 4 FIRST AID MEASURES
Eye contact: Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician
Skin contact: Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Wash contaminated clothing before re-use. If skin irritation persists, call a physician.
Inhalation: Move to fresh air in case of accidental inhalation of vapors. If breathing is irregular or stopped, administer artificial respiration. Call a physician immediately.
Ingestion: If swallowed, seek medical advice immediately and show this container or label. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person.

SECTION 5 FIRE-FIGHTING MEASURES
Flammability
Auto ignition temperature: 400°C
Explosion limits
Lower explosion limit: 4 %(V)
Upper explosion limit: 20 %(V)
Fire/explosion: Flash back possible over considerable distance
Hazardous combustion products: Carbon oxides
Suitable extinguishing media
Water spray
Alcohol-resistant foam
Dry chemical
Carbon dioxide (CO2)
Protection measures and instructions: Wear self-contained breathing apparatus and protective suit.
Further information: Cool containers / tanks with water spray.

SECTION 6 ACCIDENTAL RELEASE MEASURES
Personal precautions: Keep people away from and upwind of spill/leak. Remove all sources of ignition. Do not breathe vapors or spray mist.
Environmental precautions: Should not be released into the environment. Prevent further leakage or spillage if safe to do so.
Methods for cleaning up: Soak up with inert absorbent material and dispose of as hazardous waste.

SECTION 7 HANDLING AND STORAGE
Safe handling advice: Provide sufficient air exchange and/or exhaust in work rooms. Wear personal protective equipment. Take precautionary measures against static discharges. Ensure all equipment is electrically grounded before
beginning transfer operations.

**Advice on protection against fire and explosion** Keep away from heat and sources of ignition. Use explosion-proof equipment.

**Storage** Keep containers tightly closed in a dry, cool and well-ventilated place.

### SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

**Engineering measures** Provide sufficient air exchange and/or exhaust in work rooms.

**Personal protective equipment**

- **Eyes** Safety glasses with side-shields
- **Skin** Protective suit and safety shoes
- **Inhalation** In case of insufficient ventilation, wear suitable respiratory equipment
- **Hand protection** Gloves suitable for permanent contact
- **Hygiene measures** Wash hands before breaks and immediately after handling the product
- **Protective measures** Wear suitable protective equipment

### Exposure Guidelines

#### Components Exposure limit(s)

**Ethanol**

- US. ACGIH Threshold Limit Values time weighted average 1,000 ppm
- US. NIOSH: Pocket Guide to Chemical Hazards Recommended exposure limit (REL): 1,000 ppm (1,900 mg/m3)
- US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) Permissible exposure limit 1,000 ppm (1,900 mg/m3)
- US. OSHA Table Z-1-A (29 CFR 1910.1000) time weighted average 1,000 ppm (1,900 mg/m3)
- US. OSHA Table Z-1-A (29 CFR 1910.1000) Short term exposure limit 300 ppm (885 mg/m3)

**Isopropyl Alcohol**

- US. ACGIH Threshold Limit Values time weighted average 200 ppm
- US. ACGIH Threshold Limit Values Short term time exposure limit 400 ppm
- US. NIOSH: Pocket Guide to Chemical Hazards Recommended exposure limit (REL): 400 ppm (980 mg/m3)
- US. NIOSH: Pocket Guide to Chemical Hazards Short term exposure limit (REL): 500 ppm (1,225 mg/m3)
- US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) Permissible exposure limit 400 ppm (980 mg/m3)
- US. OSHA Table Z-1-A (29 CFR 1910.1000) time weighted average 400 ppm (980 mg/m3)
- US. OSHA Table Z-1-A (29 CFR 1910.1000) Short term exposure limit 500 ppm (1,225 mg/m3)

**Methyl Alcohol**

- US. ACGIH Threshold Limit Values time weighted average 200 ppm
- US. ACGIH Threshold Limit Values Short term time exposure limit 250 ppm
- US. NIOSH: Pocket Guide to Chemical Hazards Recommended exposure limit (REL): 200 ppm (260 mg/m3)
- US. NIOSH: Pocket Guide to Chemical Hazards Short term exposure limit (REL): 250 ppm (325 mg/m3)

**Methyl Isobutyl Ketone**

- US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) Permissible exposure limit 100 ppm (410 mg/m3)
- US. OSHA Table Z-1-A (29 CFR 1910.1000) time weighted average 50 ppm
- US. OSHA Table Z-1-A (29 CFR 1910.1000) Short term exposure limit 750 ppm

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**PEL=** Permissible Exposure Limits  
**TW** Time Weighted Average (8 hr.)  
**TLV=** Threshold Limit Value  
**STEL=** Short Term Exposure Limit (15 min.)  
**EL=** Excursion Limit  
**WEEL=** Workplace Environmental Exposure Level

### SECTION 9 Physical and chemical properties

- **Odor** alcoholic
- **Form** liquid
- **Boiling point/boiling range** 74-80 °C
- **Flash point** 13 °C
- **Lower explosion limit** 4 % (V)
- **Upper explosion limit** 20 % (V)
- **Vapor pressure** ca. 66.661 hPa at 25 °C
Solubility: miscible
Viscosity: 0.51 mm²/s
Melting point/range: -114 °C
Density: 0.79 g/cm³

SECTION 10 STABILITY AND REACTIVITY

Conditions to avoid: Heat, flames and sparks
Hazardous decomposition products: Carbon oxides
Incompatible products: Strong oxidizing agents, Incompatible with acids, Halogenated compounds
Hazardous reactions: Hazardous polymerization does not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

Acute oral toxicity
- Ethanol: LD50 rat: 7,060 mg/kg; literature value
- Methyl Isobutyl Ketone: LD50 rat: 2,080 mg/kg; literature value
- Methanol: LD50 rat: 5,628 mg/kg

Acute inhalation toxicity
- Ethanol: LC50 rabbit: 66,000 mg/l; literature; 4 h
- Isopropyl alcohol: LC50 rabbit: 16,000 mg/l; literature; 8 h
- Methanol: LC50 rat: 100 g/m³; literature

Acute dermal toxicity
- Ethanol: LDLo rabbit: 20,000 mg/kg literature value
- Methyl Isobutyl Ketone: LDLo rabbit: 1,600 mg/kg literature value
- Methanol: LDLo rabbit: 15,800 mg/kg literature value

Skin irritation
- Isopropyl alcohol: rabbit: mild skin irritation; literature value
- Methyl Isobutyl Ketone: rabbit: mild skin irritation; literature value

Eye irritation
- Isopropyl alcohol: rabbit: moderate eye irritation; literature value
- Methyl Isobutyl Ketone: rabbit: moderate eye irritation; literature value

SECTION 12 DISPOSAL CONSIDERATIONS

Waste Classification

Waste from residues / unused products: In accordance with local and national regulations. Do not contaminate ponds, waterways or ditches with chemical or used container. The product should not be allowed to enter drains, water courses or the soil.

Uncleaned empty packaging: Do not burn, or use a cutting torch on, the empty drum. Triple rinse containers.

SECTION 13 TRANSPORT INFORMATION

DOT/49CFR
- UN 1987 Alcohols, N.O.S. (ethanol, iso-propanol), 3, II
ADR
- UN 1987 Alcohols, N.O.S. (ethanol, iso-propanol), 3, II
RID
- UN 1987 Alcohols, N.O.S. (ethanol, iso-propanol), 3, II
ADNR
- UN 1987 Alcohols, N.O.S. (ethanol, iso-propanol), 3, II
IMDG
- UN 1987 Alcohols, N.O.S. (ethanol, iso-propanol), 3, II, EmS F-E, S-D
ICAO/IATA
- UN 1987 Alcohols, N.O.S. (ethanol, iso-propanol), 3, II

SECTION 14 REGULATORY INFORMATION

U.S. Federal Classifications:
- OSHA Hazards: Flammable Liquid, Mild eye irritant, Mild respiratory irritant
- SARA 311/312: Fire Hazard, Acute Health Hazard
- U.S. Regulated Ingredients:
- CAS-Number

Components: Methanol 67-56-1, 4-methylpentan-2-one; isobutyl methyl ketone 108-10-1
Inventories

EU list of existing chemical substances
All chemical constituents are listed in: EU list of existing chemical substances

US TSCA Inventory
All chemical constituents are listed in: US TSCA Inventory

Australian Inv. of Chem. Substances AICS
All chemical constituents are listed in: Australian Inv. of Chem. Substances AICS

Canadian Domestic Substances List DSL
All chemical constituents are listed in: Canadian Domestic Substances List DSL

Jap. Inv. of Exist. & New Chemicals ENCS
All chemical constituents are listed in: Jap. Inv. of Exist. & New Chemicals ENCS

Korean Exist. Chemicals List ECL
All chemical constituents are listed in: Korean Exist. Chemicals List ECL

Philippines Inv. of Chem. Subst. PICCS
All chemical constituents are listed in: Philippines Inv. of Chem. Subst. PICCS

Inv. of Exist. Chem. Substances in China
All chemical constituents are listed in: Inv. of Exist. Chem. Substances in China

Other international regulations

WHMIS Classification
B2: Flammable Liquid
D2B: Toxic Material Causing Other Toxic Effects

SECTION 16 OTHER INFORMATION

Hazard Ratings

<table>
<thead>
<tr>
<th></th>
<th>Health</th>
<th>Fire</th>
<th>Reactivity</th>
<th>Hazard</th>
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