

**Section 1: Product & Company Information**

**Product Identifier:** Exo Endosol™ 250 Geothermal Fluid

**Other Means of Identification**

**Product Number:** -

**Recommended Use and Restrictions on Use**

**Recommended Use:** Geothermal Heat Transfer Fluid/Antifreeze

**Restrictions on use:** Not for human consumption.

**Manufacturer / Importer / Supplier / Distributor Information**

**Company Name:** CORECHEM Inc.

**Address:** 4320 Greenway Drive  
Knoxville, TN 37918  
USA

**Information Telephone Number:** 1-865-524-4239

**Fax Number:** 1-865-524-3375

**Website:** www.corecheminc.com

**Contact Person:** Regulatory Manager

**E-mail:** regulatory@corecheminc.com

**Emergency Phone Number:** Chemtrec® 1-800-424-9300 / Outside USA 1-703-527-3887 (monitored 24 hours/day)

**Section 2: Hazards Identification**

**GHS Hazard Classification(s)**

In accordance with OSHA Hazard Communication Standard 29 CFR 1910.1200 (HazCom 2012).

**Physical Hazard(s)**

Flammable, Liquids - 2

**Health Hazard(s)**

Corrosion/Irritation, Skin - 2

(Corrosion)Damage/Irritation, Eye - 2B

Specific Target Organ Toxicity (STOT)-CNS, Single exposure - 3

**Environmental Hazard(s)**

Not classified.

**Label Elements**

**Signal Word**

**DANGER**

**Hazard Symbol(s)**



**Hazard Statement(s)**

H225: Highly flammable liquid and vapor

H315: Causes skin Irritation

H320: Causes eye Irritation

H335: May cause respiratory Irritation

**Precautionary Statements**

**Prevention**

P210: Keep away from heat/sparks/open flames/hot surfaces. No smoking.

P233: Keep container tightly closed.

P240: Ground/bond container and receiving equipment.

P241: Use explosion-proof electrical/ventilating/lighting/equipment.

P242: Use only non-sparking tools.

P243: Take precautionary measures against static discharge.

P264: Wash face, hands and any exposed skin thoroughly after handling.

P280: Wear protective gloves/protective clothing/eye protection/face protection.

**Response**

P303 + P361 + P353: IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P337 + P313: If eye irritation persists: Get medical advice/attention.

P370 + P378: In case of fire: Use suitable extinguishing media for extinction.

**Storage**

P403 + P235: Store in a well-ventilated place. Keep cool.

**Disposal**

P501: Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

**Hazard(s) not otherwise classified (HNOC)**

None known.

**Section 3: Composition/Information on Ingredients**

**Mixtures**

Chemical Identity	Common Name/Synonym(s)	CAS #	Weight %	Impurity or Stabilizing Additive
Ethyl Alcohol	Ethanol	64-17-5	49 – 51%	No

**Section 4: First-Aid Measures**

**General Information**

Get medical advice/attention if you feel unwell. Show this safety data sheet to the doctor in attendance.

**Inhalation**

Move to fresh air. Get medical attention if symptoms occur.

**Skin Contact**

Wash skin thoroughly with soap and water. Get medical attention if symptoms occur. Wash contaminated clothing before reuse.

**Eye Contact**

Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. If eye irritation persists: Get medical advice/attention.

**Ingestion**

Rinse mouth. Call a POISON CENTER or doctor/physician if you feel unwell.

**Most important symptoms/effects, acute and delayed**

**Symptoms**

Symptoms will vary with alcohol level of the blood. Mild alcohol intoxication occurs at blood levels between 0.05- 0.15%. Approximately 25% of individuals show signs of intoxication at these levels. Above 0.15% the person is definitely under the influence of ethanol; 50-95% of individuals are clinically intoxicated at these levels. Severe poisoning occurs when the blood is ethanol level is 0.3- 0.5%. Above 0.5% the individual will be comatose and death can occur. The unabsorbed ethanol should be removed by gastric lavage after intubating the patient to prevent aspiration. Avoid the use of depressant drugs and administering excessive amounts of fluids.

**Indication of immediate medical attention and special treatment needed**

**Treatment**

Symptoms may be delayed. Treat symptomatically.

**Section 5: Fire-Fighting Measures**

**General Fire Hazards**

In case of fire and/or explosion do not breathe fumes. Vapors may cause a flash fire or ignite explosively.

**Suitable (and Unsuitable) Extinguishing Media**

**Suitable Extinguishing Media**

Water spray, foam, dry powder or carbon dioxide.

**Unsuitable Extinguishing Media**

Avoid water in straight hose stream; will scatter and spread fire.

**Specific Hazards Arising from the Chemical**

Vapors may cause a flash fire or ignite explosively. Vapors may travel considerable distance to a source of ignition and flash back. Prevent buildup of vapors or gases to explosive concentrations.

**Special Protective Equipment and Precautions for Firefighters**

**Special Fire-Fighting Equipment Procedures**

Alcohols burn with a pale blue flame which may be extremely hard to see under normal lighting conditions. Personnel may only be able to feel the heat of the fire without seeing flames. Extreme caution must be exercised in fighting alcohol fires. Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Cool containers with flooding quantities of water until well after fire is out. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. Always stay away from tanks engulfed in fire. Use water spray to keep fire-exposed containers cool. Move containers from fire area if you can do so without risk.

**Special Protective Equipment for Fire-Fighters**

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

**Section 6: Accidental Release Measures**

**Personal Precautions, Protective Equipment and Emergency Procedures**

Use personal protective equipment. Keep unauthorized personnel away. Keep upwind. Ventilate closed spaces before entering them. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.

### Methods and Materials for Containment and Clean-Up

Eliminate all ignition sources if safe to do so. Absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Collect in a non-combustible container for prompt disposal. Clean surface thoroughly to remove residual contamination. Dike far ahead of larger spill for later recovery and disposal.

### Notification Procedures

Dike for later disposal. Prevent entry into waterways, sewer, basements or confined areas. Stop the flow of material, if this is without risk. Inform authorities if large amounts are involved.

### Environmental Precautions

Do not contaminate water sources or sewer. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

## Section 7: Handling and Storage

### Precautions for Safe Handling

DO NOT handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Take precautionary measures against static discharges. Use personal protective equipment as required. Avoid inhalation of vapors and spray mists. Avoid contact with eyes, skin, and clothing. Do not taste or swallow. Use only with adequate ventilation. Wash hands thoroughly after handling. See Section 8 of the SDS for Personal Protective Equipment.

### Conditions for Safe Storage, including any Incompatibilities

Keep away from food, drink and animal feeding stuffs. Keep container tightly closed. Keep in a cool, well-ventilated place. Ground container and transfer equipment to eliminate static electric sparks. Comply with all national, state, and local codes pertaining to the storage, handling, dispensing, and disposal of flammable liquids.

## Section 8: Exposure Controls/Personal Protection

### Control Parameters

#### Occupational Exposure Limits

Chemical Identity	CAS #	Type	Value	Source
Ethyl Alcohol	64-17-5	STEL	1000 ppm	US. ACGIH Threshold Limit Values
Ethyl Alcohol	64-17-5	PEL	1000 ppm	US OSHA Table Z-1
Ethyl Alcohol	64-17-5	REL	1000 ppm	US. NIOSH: Pocket Guide to Chemical Hazards

#### Biological Limit Values

None of the components have assigned biological limit values.

### Appropriate Engineering Controls

No data available.

### Individual protection measures, such as personal protective equipment (PPE)

#### General Information

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. An eye wash and safety shower must be available in the immediate work area. Use explosion-proof ventilation equipment.

#### Eye/Face Protection

Wear safety glasses with side shields (or goggles). Wear face shield if there is risk of splashes.

#### Skin Protection

##### Hand Protection

Wear appropriate chemical resistant gloves.

##### Other

Wear appropriate chemical resistant clothing.

#### Respiratory Protection

If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn.

#### Hygiene Measures

Provide eyewash station and safety shower. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing to remove contaminants. Discard contaminated footwear that cannot be cleaned.

## Section 9: Physical and Chemical Properties

### Appearance:

Physical State: Liquid  
Color: Colorless liquid / invisible vapor.

### Odor:

Sweet, Alcohol-like

### Odor Threshold:

No data available.

### pH:

No data available.

### Melting Point/Freezing Point:

-29 °C (-20 °F)

### Initial Boiling Point and Boiling Range:

78.3 °C (172.9 °F)

### Flash Point:

17°C (62°F) - closed cup

### Evaporation Rate (butyl acetate=1):

Specific data not available - expected to be rapid.

### Flammability (solid, gas):

OSHA/NFPA Class IB Flammable Liquid

### Upper/Lower Limit on Flammability or Explosive Limits

Flammability Limit – Upper: 19% volume  
 Flammability Limit – Lower: 3.3% volume  
 Explosive Limit – Upper: No data available.  
 Explosive Limit – Lower: No data available.

**Vapor Pressure:** 59.5 hPa (44.6 mmHg) at 20 °C (68 °F) - For 100% Ethyl Alcohol

**Vapor Density (air =1):** 1.6

**Relative Density (water=1):** 0.90 – 0.95 g/mL at 25 °C (77 °F)

**Solubility(ies):**  
 Solubility in water: Completely  
 Solubility (other): No data available.

**Partition coefficient (n-octanol/water):** No data available.

**Auto-Ignition Temperature:** 363°C (685.4°F) - (Ethyl Alcohol)

**Decomposition Temperature:** No data available.

**Viscosity:** No data available.

### Other Information:

Molecular Weight: Mixture  
 Formula: Mixture

## Section 10: Stability and Reactivity

### Reactivity

No dangerous reaction known under conditions of normal use.

### Chemical Stability

Material is stable under normal conditions.

### Possibility of Hazardous Reactions

Hazardous polymerization does not occur.

### Conditions to Avoid

Heat, sparks, flames. Contact with incompatible materials.

### Incompatible Materials

Strong oxidizing agents. Alkali metals. Inorganic salts. Organic - organometallic. Inorganic hydrides.

### Hazardous Decomposition Products

Carbon oxides are expected to be, under fire conditions, the primary hazardous decomposition products.

## Section 11: Toxicological Information

### Information on routes of exposure

**Ingestion:** Harmful if swallowed.

**Inhalation:** Harmful if inhaled. May cause irritation to the respiratory system.

**Skin Contact:** Harmful if absorbed through skin. Causes mild skin irritation.

**Eye Contact:** Causes serious eye irritation. Eye exposure to Ethanol generally causes transient pain, irritation, and reflex lid closure. A foreign-body sensation may persist for one to two days. Vapors produce transient stinging and tearing, but no apparent adverse effects. Transiently impaired perception of color may occur with acute ingestion or chronic alcoholism.

### Information on Toxicological Effects

#### Acute Toxicity (List all possible routes of exposure)

##### Oral

Ethanol: LD 50 (Rat): 6,200 mg/kg

##### Dermal

No data available.

##### Inhalation

Ethanol: LC 50 (Rat, 10 h): 20,000 mg/l

##### Repeated Dose Toxicity

No data available.

### Skin Corrosion/Irritation

Standard Draize skin test (rabbit) - Dose: 20 mg/24 hrs Reaction: Moderate Repeated exposure may cause skin dryness or cracking.

### Serious Eye Damage/Eye Irritation

Standard Draize eye test (rabbit) - Dose: 500 mg Reaction: Severe Dose: 500 mg/24 hrs Reaction: Mild

### Respiratory/Skin Sensitization

Not a skin sensitizer.

### Carcinogenicity

#### IARC Monographs on the Evaluation of Carcinogenic Risks to Humans

Ethanol: Group 1, Carcinogenic to humans

#### US. National Toxicology Program (NTP) Report on Carcinogens

No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

## US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1052)

No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

### Germ Cell Mutagenicity

#### In Vitro

No mutagenic components identified.

#### In Vivo

No mutagenic components identified.

### Reproductive Toxicity

May damage fertility or the unborn child. Reproductive toxicity - Human - female - Oral. Effects on Newborns - measured low apgar scores and showed signs of alcohol dependence.

### Specific Target Organ Toxicity – Single Exposure

Central nervous system. Eyes. Respiratory tract irritation

### Specific Target Organ Toxicity – Repeated Exposure

None known.

### Aspiration Hazard

Not classified.

### Other Effects

None known.

## Section 12: Ecological Information

### Ecotoxicity

#### Acute Hazards to the Aquatic Environment

##### Fish

Ethanol: LC 50 (Rainbow trout, donaldson trout (Oncorhynchus mykiss), 96 h): 12,000 - 16,000 mg/l Mortality

Ethanol: LC 50 (Fathead minnow (Pimephales promelas), 96 h): 13,480 mg/l Mortality

Ethanol: LC 50 (Carp (Leuciscus idus melanotus), 48 h): 8,140 mg/l Mortality

##### Aquatic Invertebrates

Ethanol: EC 50 (Water flea (Daphnia obtusa), 48 h): 10,100 - 11,200 mg/l Intoxication

Ethanol: LC 50 (Brine shrimp (Artemia franchiscana), 48 h): 25.5 mg/l Mortality

Ethanol: LC 50 (Water flea (Daphnia magna), 48 h): 7,560 - 12,600 mg/l Mortality

#### Chronic Hazards to the Aquatic Environment

##### Fish

No data available.

##### Aquatic Invertebrates

No data available.

##### Toxicity to Aquatic Plants

No data available.

### Persistence and Degradability

#### Biodegradation

Expected to be readily biodegradable.

#### BOD/COD Ratio

No data available.

### Bioaccumulative Potential

#### Bioconcentration Factor (BCF)

No data available on bioaccumulation.

#### Partition Coefficient n-octanol / water (log Kow)

Ethanol: Log Kow: -0.31

### Mobility in Soil

The product is water soluble and may spread in water systems.

### Results of PBT and vPvB Assessment

No data available.

### Other Adverse Effects

The product components are 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.

## Section 13: Disposal Considerations

### Disposal Instructions

Discharge, treatment, or disposal may be subject to national, state, or local laws. Residual vapors may explode on ignition; do not cut, drill, grind, or weld on or near this container.

### Contaminated Packaging

Since emptied containers retain product residue, follow label warnings even after container is emptied.

### Section 14: Transportation Information

#### US Department of Transportation (DOT)

UN Number: UN1987  
UN Proper Shipping Name: Alcohols, n.o.s.  
Technical Name: -  
Hazard Class: 3  
Subsidiary Hazard Risk: -  
Packing Group: II  
DOT Label/Placard Exemptions: Not determined  
Special Provisions: 172, IB2, T7, TP1, TP8, TP28  
Packaging Exceptions: 49CFR 173.150, 4b  
Packaging Non-Bulk: 49CFR 173.202  
Packaging Bulk: 49CFR 173.242  
Reportable Quantity (RQ): No  
Marine Pollutant: No  
Poison Inhalation Hazard: No  
Special precautions for user: Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.  
Emergency Response Guidebook (ERG) #: 127

*Important Note: Shipping descriptions may vary based on mode of transport, quantities, package size, and/or origin and destination. Consult your company's Hazardous Materials/Dangerous Goods expert for information specific to your situation.*

### Section 15: Regulatory Information

#### US Federal Regulations

##### Toxic Substance Control Act (TSCA), Chemical Substance Inventory, Section 8(b)

This product or ingredients are listed on the TSCA inventory. Any impurities present in this product are exempt from listing.

##### Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Hazardous Substance List (40 CFR 302.4)

No chemicals in this material are subject to the reporting requirements of CERCLA.

##### Clean Air Act (CAA), Section 112(r)

No chemicals in this material are subject to the reporting requirements of CAA.

##### Emergency Planning and Community Right-To-Know Act (EPCRA)

###### EPCRA 302 Extremely Hazardous Substance

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

###### EPCRA 304 Emergency Response Notification

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 304.

###### EPCRA 311/312 Emergency and Hazardous Materials Reporting

Fire Hazard: Yes  
Sudden Release of Pressure: No  
Reactive: No  
Acute Health Hazard: Yes  
Chronic Health Hazard: Yes

###### EPCRA 313 Toxic Chemical Release Inventory (TRI) Reporting

This material does not contain any chemical(s) with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

#### US State Regulations

##### California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65)

This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

*Important Note: Due to the changing nature of regulatory requirements, the information in this document should NOT be considered all-inclusive or authoritative. Users should make their own investigations to determine the suitability of the information for their particular purposes. International, Federal, State and Local regulations should be consulted to determine compliance with all required reporting requirements.*

### Section 16: Other Information

#### Hazardous Materials Identification System (HMIS®) Classification

Health Hazard: 2  
Chronic Health Hazard: \*  
Flammability: 3  
Physical Hazard: 0

(Hazard Rating: 0 – Minimal / 1 – Slight / 2 – Moderate / 3 – Serious / 4 – Severe)

#### National Fire Protection Association (NFPA 704) Rating

Health Hazard: 2  
Fire Hazard: 3  
Reactivity Hazard: 0  
Special: N/A

(Hazard Rating: 0 – Minimal / 1 – Slight / 2 – Moderate / 3 – Serious / 4 – Severe)

Prepared by: Regulatory Manager  
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Revisions: -

**Key to Abbreviations and Acronyms**

ATE - Acute Toxicity Estimate	ACGIH - American Conference of Industrial Hygienists
BCF - Bioconcentration Factor	AIHA – American Industrial Hygiene Association
EC50 - Effective concentration, 50%	BEI - Biological Exposure Indices
IDHL – Immediately Dangerous to Life and Health	CAS – Chemical Abstracts Service
Kg – Kilogram	DOT – US Department of Transportation
l – Liter	EPA – US Environmental Protection Agency
lb – Pound	GHS - Globally Harmonized System of Classification and Labelling of Chemicals
LC50 - Lethal Concentration, 50%	IARC - International Agency for Research on Cancer
LD50 - Lethal Dose, 50%	IATA - International Air Transport Association
mg - milligram	IBC - Intermediate Bulk Container
ml – milliliter	IMDG - International Maritime Dangerous Goods
N/A – Not Applicable	NIOSH – National Institute for Occupational Safety and Health
N/D – Not Determined	NTP – National Toxicology Program
PEL – Permissible Exposure Limit	OSHA – US Occupational Health and Safety Administration
REL – Recommended Exposure Limit	SARA – US EPA Superfund Amendments and Reauthorization Act
STEL – Short-term Exposure Limit	TSCA – US EPA Toxic Substances Control Act
TWA - Time weighted average	UN - United Nations

**References**

HSDB® - Hazardous Substances Data Bank

**Disclaimer**

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