



To Our Customers:

The attached Safety Data Sheet (SDS) was prepared by the vendor of the product you purchased through one of our divisions. We used the manufacturer's electronic document directly or scanned a paper copy and generated a file for our automated SDS delivery system.

All statements, technical information, and recommendations contained therein are solely that of the manufacturer of the product. We at Zep Inc. did not verify the accuracy and completeness of the statements and do not warrant or guarantee the information. We provide vendor SDSs to assist our customers in their compliance efforts. The attached document is in compliance with one of the respective country regulatory requirements noted below:

The OSHA Hazard Communication Standard (in the United States)
The Hazardous Products Regulations (in Canada)

We made every effort to deliver all of the information prepared by the manufacturer. We cannot anticipate all conditions under which this information will be used. If you have any questions about the statements on the SDS, please contact the company shown on the document.

Zep Inc. assumes no liability or responsibility for loss or damage resulting from the improper use or handling of this product, from incompatible product combinations, or from the failure to follow instructions, warnings, and advisories in the manufacturer's product label and Safety Data Sheet.

Sincerely,

Product Stewardship Team
Zep Inc.

Safety Data Sheet (SDS)

According to US regulation OSHA Hazard Communication Standard 29 CFR 1910.1200

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Trade Name : Engine Combustion Charmber Cleaner(ECF-1)

1.2. Relevant identified uses of the substance or mixture and uses advised against

Type of use : Cleaner for Engine combuststion Charmber

1.3. Details of the supplier of the safety data sheet

Manufacturer : KD Finechem Co., Ltd (☎ +82-31-680-0505)

Address : 286, Pyeongtaekhang-ro, Poseung-eup, Pyeongtaek-si, Gyeonggi-do, Korea

Supplier : KD Finechem Co., Ltd (☎ +82-31-680-0505)

Address : 286, Pyeongtaekhang-ro, Poseung-eup, Pyeongtaek-si, Gyeonggi-do, Korea

1.4. Emergency telephone number

☎ TEL. +82-31-680-0505 / FAX. +82-31-680-0506

SECTION 2 Hazards identification

2.1 Classification of the substance or mixture

According to US regulation OSHA Hazard Communication Standard 29 CFR 1910.1200

1) Physicochemical : Not Classified

2) Health hazards : Skin corrosion/irritation Category 2

3) Environmental hazards : Not Classified

2.2 Label elements

According to US regulation OSHA Hazard Communication Standard 29 CFR 1910.1200

1) Pictogram



2) Signal Word : Warning

3) Hazard Statement(s)

H315 Causes skin irritation

4) Precautionary Statement(s)

■ Precautionary

P264 Wash hands and thoroughly after handling.

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

■ Response

P302+P352 IF ON SKIN: wash with plenty of water.

P321 Specific treatment (see ... on this label).

P332+P313 IF SKIN irritation occurs: Get medical advice/attention.

P362+P364 Take off contaminated clothing and wash it before reuse.

- Storage
Not Classified
- Disposal
Not Classified

2.3 Other hazards.

No data available

SECTION 3 Composition/information on ingredients

Substance name	Product identifier	Content in % weight	Classification
1. Edetic acid	CAS No. : 60-00-4 EC List No: 200-449-4 Index-No.: 607-429-00-8	2 ~ 8 %	Eye Irrit. 2 / H319
2. (3R)-3-ethoxy-2-methyldodecane	CAS No. : 78330-23-1 EC List No: 680-593-6	2 ~ 8 %	Not Classified
3. Water	CAS no. : 7732-18-5 EC List no: 231-791-2	85 ~ 90 %	Not Classified
4. Sodium metasilicate	CAS No. : 6834-92-0 EC List No. : 229-912-9	0 ~ 5 %	Skin Corr. 1B / H314 STOT SE 3 / H335

SECTION 4 First aid measures

4.1 Description of first aid measures

4.1.1. General advice

Get medical advice/attention if you feel unwell

4.1.2. Following inhalation

After inhalation: fresh air.

4.1.3. Following skin contact

Wash off with soap and plenty of water.

4.1.4 Following eye contact

Flush eyes with water as a precaution.

4.1.5 Following ingestion

After swallowing: make victim drink water (two glasses at most). Consult doctor if feeling unwell.

4.1.6 Self-protection of the first aider

A rescuer should wear personal protective equipment, such as rubber gloves and air-tight goggles.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

SECTION 5 Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media :

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2. Special hazards arising from the substance or mixture

Carbon oxides

Combustible. Vapors are heavier than air and may spread along floors.

Forms explosive mixtures with air on intense heating.

Development of hazardous combustion gases or vapours possible in the event of fire.

5.3. Advice for firefighters

In the event of fire, wear self-contained breathing apparatus.

5.4 Further information

Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6 Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols.

Evacuate the danger area, observe emergency procedures, consult an expert.

For personal protection see section 8.

6.2. Environmental precautions

Do not let product enter drains.

6.3. Methods and material for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10).

Take up with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

6.4. Reference to other sections

For disposal see section 13.

SECTION 7 Handling and storage

7.1. Precautions for safe handling

For precautions see section 2.2.

7.2. Conditions for safe storage, including any incompatibilities

Recommended storage conditions - room temperature atmospheric pressure

Tightly closed.

7.3 Specific end uses

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

SECTION 8 Exposure controls/personal protection

8.1 Control parameters

Exposure limit value

1. Edetic acid

Occupational exposure limit values (Workplace Exposure Limits)

KOREA OEL : No Data available

ACGIH : No Data available

OSHA : No Data available

NIOSH : No Data available

US WEEL : TWA - 10mg/m³

DNELs (Derived no effect levels) :

No data available

PNECs (Predicted no effect concentrations) :

No data available

2. (3R)-3-ethoxy-2-methyldodecane

Occupational exposure limit values (Workplace Exposure Limits)

KOREA OEL : No Data available

ACGIH : No Data available

OSHA : No Data available

NIOSH : No Data available

US WEEL : TWA - 10mg/m³

DNELs (Derived no effect levels) :

No data available

PNECs (Predicted no effect concentrations) :

No data available

3. WATER

Occupational exposure limit values (Workplace Exposure Limits)

KOREA OEL : No Data available

ACGIH : No Data available

OSHA : No Data available

NIOSH : No Data available

US WEEL : TWA - 10mg/m³

DNELs (Derived no effect levels) :

No data available

PNECs (Predicted no effect concentrations) :

No data available

4. Sodium metasilicate

Occupational exposure limit values (Workplace Exposure Limits)

KOREA OEL : No Data available

ACGIH : No Data available

OSHA : No Data available

NIOSH : No Data available

US WEEL : TWA - 10mg/m³

DNELs (Derived no effect levels) :

No data available

PNECs (Predicted no effect concentrations) :

No data available

8.2 Exposure controls

8.2.1. Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice.

Wash hands before breaks and at the end of workday.

8.2.2. Personal protective equipment

8.2.2.1. Eye/face protection

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

8.2.2.2. Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product.

Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices.

Wash and dry hands.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

8.2.2.3. Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls.

If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

8.2.2.4. Thermal hazards

No specific measures.

8.2.3. Environmental exposure controls

Prevent further leakage or spillage if safe to do so.

Do not let product enter drains.

Discharge into the environment must be avoided.

SECTION 9 Physical and chemical properties

9.1. Information on basic physical and chemical properties

A. Physical state	Liquid
B. Color	Colorless
C Odor	Oderless
D. Melting Point / Freezing Point	0 °C
E. Boiling point or initial boiling point and boiling range	> 100°C
F. Flammability	non-flammability
G. Lower and upper explosion limit	No data available
H. Flash point	non-flammability
I. Auto-ignition temperature	No data available
J. Decomposition temperature	No data available
K. pH	11.0 ~ 13.0
L. Kinematic viscosity	No data available
M. Solubility (in water)	Complete.
N. Partition coefficient n-octanol/water (log value)	No data available
O. Vapour pressure	No data available
P. Density and/or relative density	1.000 ~ 1.100
Q. Relative vapour density	No data available
R. Particle characteristics	No data available

SECTION 10 Stability and reactivity

10.1 Reactivity : No data available

10.2 Chemical stability : Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions : No data available

10.4 Conditions to avoid : No data available

10.5 Incompatible materials : Strong acids, Strong oxidizing agents, Strong bases, Aldehydes, Aluminum

10.6 Hazardous decomposition products

In the event of fire: see section 5

SECTION 11 Toxicological information

11.1 Information on toxicological effects

1. Edetic acid

Acute toxicity

Oral : LD50 4500 mg/kg Rat - male and female - (OECD Test Guideline 401)

Inhalation : No data available

Dermal : No data available

Skin contact : Skin - Rabbit Result: No skin irritation - 4 h (ECHA)

Eye contact or Irritation : Eyes - Rabbit Result: eye irritation (ECHA)

Sensitization : Maximization Test - Guinea pig Result: negative (ECHA)

Carcinogenicity :

OSHA : Not listed

NTP : Not listed

IARC (GROUP) : Not listed

ACGIH : Not listed

EC : Not listed

Mutagenesis : No data available

Reproductive toxicity : No data available

Specified target organ general toxicity - single exposure : No data available

Specified target organ general toxicity - repetitive exposure : No data available

Aspiration respiratory organs hazard : No data available

Signs and Symptoms of Exposure : No data available

Additional Information : Repeated dose toxicity - Rat - male - Oral - 2 yr -

NOAEL (No observed adverse effect level) - 1.700 mg/kgRemarks: (ECHA)

2. (3R)-3-ethoxy-2-methyldodecane

Acute toxicity

Oral : No data available

Inhalation : No data available

Dermal : No data available

Skin contact : No data available

Eye contact or Irritation : No data available

Sensitization : No data available

Carcinogenicity :

OSHA : Not listed

NTP : Not listed

IARC (GROUP) : Not listed

ACGIH : Not listed

EC: Not listed

Mutagenesis : No data available

Reproductive toxicity : No data available

Specified target organ general toxicity - single exposure : No data available

Specified target organ general toxicity - repetitive exposure : No data available

Aspiration respiratory organs hazard : No data available

Signs and Symptoms of Exposure : No data available

Additional Information : No data available

3. WATER

Acute toxicity

Oral : LD50 90000mg/kg Rat

Inhalation : No data available

Dermal : No data available

Skin contact : No data available

Eye contact or Irritation : No data available

Sensitization : No data available

Carcinogenicity :

OSHA : Not listed

NTP : Not listed

IARC (GROUP) : Not listed

ACGIH : Not listed

EC: Not listed

Mutagenesis : No data available

Reproductive toxicity : No data available

Specified target organ general toxicity - single exposure : No data available

Specified target organ general toxicity - repetitive exposure : No data available

Aspiration respiratory organs hazard : No data available

Signs and Symptoms of Exposure : No data available

Additional Information : No data available

4. Sodium metasilicate

Acute toxicity

Oral : LD50 Oral - Rat - male and female - 1152 ~ 1349 mg/kg

Inhalation : LC50 Inhalation - Rat - male and female - 4 h - > 2.06 mg/l - vapor

Dermal : No data available

Skin contact : Skin - Rabbit Result: Corrosive - 4 h (OECD Test Guideline 404)

Eye contact or Irritation : Causes serious eye damage.

Sensitization : Local lymph node assay (LLNA) - Mouse Result: negative (OECD Test Guideline 429)

Carcinogenicity :

OSHA : Not listed

NTP : Not listed

IARC (GROUP) : Not listed

ACGIH : Not listed

EC: Not listed

Mutagenesis : Result: negative

Test Type: Ames test

Test system: Escherichia coli/Salmonella typhimurium

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 471

Reproductive toxicity : No data available

Specified target organ general toxicity - single exposure : Inhalation - May cause respiratory irritation.

Respiratory system

Specified target organ general toxicity - repetitive exposure : No data available

Aspiration respiratory organs hazard : No data available

Signs and Symptoms of Exposure : No data available

Additional Information : No data available

11.2 Further information

No data available

SECTION 12 Ecological information

12.1 Toxicity

1. Edetic acid

Fishes : static test LC50 - Lepomis macrochirus (Bluegill sunfish) - 41 mg/L - 96 h Remarks: (ECHA)

Crustacea : static test EC50 - Daphnia magna (Water flea) - 625 mg/l - 24 h (DIN 38412)

Seaweeds : No data available

2. (3R)-3-ethoxy-2-methyldodecane

Fishes : No data available

Crustacea : No data available

Seaweeds : No data available

3. WATER

Fishes : No data available

Crustacea : No data available

Seaweeds : No data available

4. Sodium metasilicate

Fishes : semi-static test LC50 - Danio rerio (zebra fish) - 210 mg/l - 96 h (ISO 7346/1)

Crustacea : static test EC50 - Daphnia magna (Water flea) - 1,700 mg/l - 48 h

Seaweeds : EC50 - Desmodesmus subspicatus (green algae) - 207 mg/l - 72 h (DIN 38412)

12.2 Persistence and Degradability

1. Edetic acid

Persistence : 0.085 (Pow, 20.5°C)

Degradability : aerobic - Exposure time 20 d Result: 0 - 20 % - Not readily biodegradable. Remarks: (ECHA)

2. (3R)-3-ethoxy-2-methyldodecane

Persistence : No data available

Degradability : No data available

3. WATER

Persistence : log Kow - 1.38

Degradability : No data available

4. Sodium metasilicate

Persistence : No data available

Degradability : No data available

12.3 Bioaccumulative potential

1. Edetic acid

Accumulation : Lepomis macrochirus - 28 d at 21 °C - 80 µg/l(Edetic acid) (BCF): 1.8

2. (3R)-3-ethoxy-2-methyldodecane

Accumulation : No data available

3. WATER

Accumulation : No data available

4. Sodium metasilicate

Accumulation : No data available

12.4 Mobility in Soil

1. Edetic acid : No data available

2. (3R)-3-ethoxy-2-methyldodecane: No data available

3. WATER : No data available.

4. Sodium metasilicate : No data available

12.5 Result of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Other adverse effects

Discharge into the environment must be avoided.

SECTION 13 Disposal considerations

13.1 Waste treatment methods

13.1.1. Product / Packaging disposal

Offer surplus and non-recyclable solutions to a licensed disposal company.

Dispose of as unused product.

13.1.2. Waste treatment-relevant information

Can be incinerated together with household waste in compliance with applicable technical regulations following consultation with approved waste disposal management companies and authorities in charge.

13.1.3. Sewage disposal-relevant information

Release to the environment or sewage system is prohibited. Must be treated as hazardous waste.

13.1.4. Other disposal recommendations

Handle contaminated packages in the same way as the substance itself.

SECTION 14 Transport information

14.1 UN number

ADR/RID: -

IMDG: -

IATA: -

14.2 UN proper shipping name

ADR/RID : Not regulated as dangerous goods

IMDG : Not regulated as dangerous goods

IATA : Not regulated as dangerous goods

14.3. Transport hazard class(es)

ADR/RID: -

IMDG: -

IATA: -

14.4. Packing group

ADR/RID: -

IMDG: -

IATA: -

14.5. Environmental hazards

ADR/RID: -

IMDG: -

IATA: -

14.6. Special precautions for user

No data available

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

No data available

SECTION 15 Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

1. Edetic acid

E.U

Harmonised Classification : -

Major Accident Hazard Legislation : SEVESO III(Directive 2012/18/EU) - Not regulated

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer :Not regulated

Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants(POPs) and amending Directive 79/117/EEC : Not regulated

Substances of very high concern (SVHC) : Not regulated

Annex XVII of Regulation (EC) No 1907/2006: Not regulated

Take note of Dir 94/33/EC on the protection of young people at work.

U.S & CANADA

OSHA regulation (29 CFR1910.119) : Not Listed

CERCLA 103 regulation(40 CFR 302.4) : Not Listed

EPCRA 302 regulation(40 CFR355.30) : Not Listed

EPCRA 304 regulation(40 CFR355.40) : Not Listed

EPCRA 311 & 312 regulation(40 CFR370) : Not Listed

EPCRA 313 regulation(40 CFR372.65) : Not Listed

US. Toxic Substances Control Act : Listed

CWA (Clean Water Act) : This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

CALIFORNIA PROPOSITION 65 : Not Listed

U.S. State Right-to-Know Regulations

New Jersey: Listed

Massachusetts: Listed

Pennsylvania: Listed

CEPA - Domestic Substances List (DSL) : Listed

2. (3R)-3-ethoxy-2-methyldodecane

E.U

Harmonised Classification : -

Major Accident Hazard Legislation : SEVESO III(Directive 2012/18/EU) - Not regulated

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer :Not regulated

Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants(POPs) and amending Directive 79/117/EEC : Not regulated

Substances of very high concern (SVHC) : Not regulated

Annex XVII of Regulation (EC) No 1907/2006: Not regulated

Take note of Dir 94/33/EC on the protection of young people at work.

U.S & CANADA

OSHA regulation (29 CFR1910.119) : Not Listed

CERCLA 103 regulation(40 CFR 302.4) : Not Listed

EPCRA 302 regulation(40 CFR355.30) : Not Listed

EPCRA 304 regulation(40 CFR355.40) : Not Listed

EPCRA 311 & 312 regulation(40 CFR370) : Not Listed

EPCRA 313 regulation(40 CFR372.65) : Not Listed

US. Toxic Substances Control Act : Listed

CWA (Clean Water Act) : This product does not contain any substances regulated as pollutants pursuant to the
Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

CALIFORNIA PROPOSITION 65 : Not Listed

U.S. State Right-to-Know Regulations

New Jersey: Not Listed

Massachusetts: Not Listed

Pennsylvania: Not Listed

CEPA - Domestic Substances List (DSL) : Listed

3. WATER

E.U

Harmonised Classification : -

Major Accident Hazard Legislation : SEVESO III(Directive 2012/18/EU) - Not regulated

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer :Not regulated

Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent
organic pollutants(POPs) and amending Directive 79/117/EEC : Not regulated

Substances of very high concern (SVHC) : Not regulated

Annex XVII of Regulation (EC) No 1907/2006: Not regulated

Take note of Dir 94/33/EC on the protection of young people at work.

U.S & CANADA

OSHA regulation (29 CFR1910.119) : Not Listed

CERCLA 103 regulation(40 CFR 302.4) : Not Listed

EPCRA 302 regulation(40 CFR355.30) : Not Listed

EPCRA 304 regulation(40 CFR355.40) : Not Listed

EPCRA 311 & 312 regulation(40 CFR370) : Not Listed

EPCRA 313 regulation(40 CFR372.65) : Not Listed

US. Toxic Substances Control Act : Listed

CWA (Clean Water Act) : This product does not contain any substances regulated as pollutants pursuant to the
Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

CALIFORNIA PROPOSITION 65 : Not Listed

U.S. State Right-to-Know Regulations

New Jersey: Not Listed

Massachusetts: Not Listed

Pennsylvania: Not Listed

CEPA - Domestic Substances List (DSL) : Listed

4. Sodium metasilicate

E.U

Harmonised Classification : H314, H335

Major Accident Hazard Legislation : SEVESO III(Directive 2012/18/EU) - Not regulated
Regulation (EC) No 1005/2009 on substances that deplete the ozone layer :Not regulated
Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants(POPs) and amending Directive 79/117/EEC : Not regulated
Substances of very high concern (SVHC) : Not regulated
Annex XVII of Regulation (EC) No 1907/2006: Not regulated
Take note of Dir 94/33/EC on the protection of young people at work.

U.S & CANADA

OSHA regulation (29 CFR1910.119) : Not Listed
CERCLA 103 regulation(40 CFR 302.4) : Not Listed
EPCRA 302 regulation(40 CFR355.30) : Not Listed
EPCRA 304 regulation(40 CFR355.40) : Not Listed
EPCRA 311 & 312 regulation(40 CFR370) : Not Listed
EPCRA 313 regulation(40 CFR372.65) : Not Listed
US. Toxic Substances Control Act : Listed
CWA (Clean Water Act) : This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).
CALIFORNIA PROPOSITION 65 : Not Listed
U.S. State Right-to-Know Regulations
New Jersey: Not Listed
Massachusetts: Not Listed
Pennsylvania: Not Listed
CEPA - Domestic Substances List (DSL) : Listed

15.2 Chemical safety assessment

Advice on product handling can be found in sections 7 and 8 of this safety data sheet.

SECTION 16 Other Information

The information presented herein is believed to be factual as it has been derived from the works from the works and opinions of persons believed to be qualified experts; however, nothing contained in this information is to be taken as a warrant or representation for which KD Finechem Co., LTD. Bears legal responsibility. The user should review any recommendation in the specific context of the intended use to determine whether they are appropriate.

(i) Indication of changes

A. Issue date : 22. Mar. 2023 (SDS Version 2.0)

B. Last revision : 22. Mar. 2023 (SDS Version 2.0)

(ii) NFPA Ratings

Health: 0

Flammability: 0

Instability: 0