

 LG Chem	SAFETY DATA SHEET	Version: R0001.0001
	Esfenvalerate-PCO	Date of issue: 2020-02-04
		Revision date: Not applicable
		Change List:

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1. IDENTIFICATION

A. Product name

- Esfenvalerate-PCO

B. Recommended use and restriction on use

- | | |
|----------------------|-------------------------------------|
| - General use | : Insecticide |
| - Restriction on use | : Do not other than recommended use |

C. Manufacturer / Supplier / Distributor information

○ Manufacturer information

- | | |
|------------------------------|--|
| - Company name | : LG Chem, Ltd. |
| - Address | : 19, Ijin-ro, Onsan-eup, Ulju-gun, Ulsan, Republic of Korea |
| - Dept. | : Process technology team |
| - Telephone number | : 82-52231-5208 |
| - Emergency telephone number | : 82-52231-5208 |
| - Fax number | : |
| - E-mail address | : ryookh@lgchem.com |

○ Supplier/Distributer information

- | | |
|------------------------------|--|
| - Company name | : LG Chem, Ltd. |
| - Address | : 19, Ijin-ro, Onsan-eup, Ulju-gun, Ulsan, Republic of Korea |
| - Dept. | : Process technology team |
| - Telephone number | : 82-52231-5208 |
| - Emergency telephone number | : 82-52231-5208 |
| - Fax number | : |
| - E-mail address | : ryookh@lgchem.com |

2. HAZARD IDENTIFICATION

A. GHS Classification

- Acute toxicity (oral) : Category3
- Serious eye damage/irritation : Category2A
- Skin sensitization : Category1
- Acute aquatic toxicity : Category1
- Chronic aquatic toxicity : Category1

B. GHS label elements

○ Hazard symbols



○ Signal words

- Danger

○ Hazard statements

- H301 Toxic if swallowed
- H317 May cause an allergic skin reaction
- H319 Causes serious eye irritation
- H400 Very toxic to aquatic life
- H410 Very toxic to aquatic life with long lasting effects

o Precautionary statements

1) Prevention

- P261 Avoid breathing gas/mist/vapours/spray.
- P264 Wash hands thoroughly after handling.
- P270 Do not eat, drink or smoke when using this product.
- P272 Contaminated work clothing should not be allowed out of the workplace.
- P273 Avoid release to the environment.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.

2) Response

- P301+P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
- P302+P352 IF ON SKIN: Wash with plenty of soap and water.
- P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P321 Specific treatment
- P330 Rinse mouth.
- P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
- P337+P313 If eye irritation persists: Get medical advice/attention.
- P363 Wash contaminated clothing before reuse.
- P391 Collect spillage.

3) Storage

- P405 Store locked up.

4) Disposal

- P501 Dispose of contents/container in accordance with local/regional/national/international regulation

C. Other hazards which do not result in classification : (NFPA Classification)

o NFPA grade (0 ~ 4 level)

- Health : 2, Flammability : 1, Reactivity : 0

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	Trade names and Synonyms	CAS No.	Content(%)
(S)- α -Cyano-3-phenoxybenzyl (S)-2-(4-chlorophenyl)-3-methylbutyrate	(S)-alpha-Cyano-3-phenoxybenzyl (S)-2-(4-chlorophenyl)-3-methylbutyrate ; Benzeneacetic acid, 4-chloro-a-(1-methylethyl)-, cyano(3-phenoxyphenyl)methyl ester, (S-(R*,R*))- ; (S)- α -Cyano-3-phenoxybenzyl (S)-2-(4-chlorophenyl)-3-methylbutyrate ; Benzeneacetic acid, 4-chloro-a-(1-methylethyl)-, (S)-cyano(3-phenoxyphenyl)methyl ester, (aS)- ; (S)- α -Cyano-3-phenoxybenzyl (S)-2-(4-chlorophenyl)isovalerate ; Benzeneacetic acid, 4-chloro-a-(1-methylethyl)-, cyano(3-phenoxyphenyl)methyl ester, [S-(R*,R*)]- ;	66230-04-4	8.4
Secret	Secret	-	90 ~ 100

4. FIRST AID MEASURES

A. Eye contact

- Do not rub your eyes.
- Immediately flush eyes with plenty of water for at least 15 minutes and call a doctor/physician.
- Go to the hospital immediately if symptoms(flare, irritate) occur.
- Remove contact lenses if worn.

B. Skin contact

- Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
- Wash contaminated clothing thoroughly before re-using.
- Go to the hospital immediately if symptoms(flare, irritate) occur.
- Wash thoroughly after handling.

C. Inhalation contact

- When exposed to large amounts of steam and mist, move to fresh air.
- Take specific treatment if needed.

D. Ingestion contact

- Please be advised by doctor whether induction of vomit is demanded or not.
- Rinse your mouth with water immediately.
- Flush skin with plenty of wter for at least 15 minutes while removing contaminated clothing and shoes.

E. Delayed and immediate effects and also chronic effects from short and long term exposure

- Not available

F. Notes to physician

- Notify medical personnel of contaminated situations and have them take appropriate protective measures.

5. FIREFIGHTING MEASURES

A. Suitable (Unsuitable) extinguishing media

- Dry chemical, carbon dioxide, regular foam extinguishing agent, spray
- Avoid use of water jet for extinguishing

B. Specific hazards arising from the chemical

- Not available

C. Special protective actions for firefighters

- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- In case of conflagration, use automatic fire sprinkler. Major fire may require withdrawal, allowing the object itself to burn.
- Avoid inhalation of materials or combustion by-products.
- Do not approach the tank surrounded by fire until it is extinguished.
- Use appropriate extinguishing measure suitable for surrounding fire.
- Keep containers cool with water spray.
- Vapor or gas is burned at distant ignition sources can be spread quickly.

6. ACCIDENTAL RELEASE MEASURES

A. Personal precautions, protective equipment and emergency procedures

- Ventilate closed spaces before entering.
- Do not touch spilled material. Stop leak if you can do it without risk.
- Handle the damaged containers or spilled material after wearing appropriate protective equipment
- Do not direct water at spill or source of leak.
- Avoid skin contact and inhalation.
- Cleanup and disposal under expert supervision is advised.

B. Environmental precautions

- Prevent runoff and contact with waterways, drains or sewers.
- If large amounts have been spilled, inform the relevant authorities.

C. Methods and materials for containment and cleaning up

- Large spill : Stay upwind and keep out of low areas. Dike for later disposal.
- Notify the central and local government if the emission reach the standard threshold.
- Disposal of waste shall be in compliance with the Wastes Control?Act
- Appropriate container for disposal of spilled material collected.

- Small leak: sand or other non-combustible material, please let use absorption.
- Wipe off the solvent.
- Dike for later disposal.
- Avoid entering to sewers or water system.
- Prevent the influx to waterways, sewers, basements or confined spaces.

7. HANDLING AND STORAGE

A. Precautions for safe handling

- Avoid direct physical contact.
- Since emptied containers retain product residue(vapor, liquid, solid) follow all MSDS and label warnings even after container is emptied.
- Comply with all applicable laws and regulations for handling
- Dealing only with a well-ventilated place.
- Do not inhale the steam prolonged or repeated.

B. Conditions for safe storage, including any incompatibilities

- Store according to current laws and regulations
- Do not apply any physical shock to container.
- Avoid direct sunlight.
- Keep in the original container.
- Please pay attention to incompatibilities materials and conditions to avoid.
- Collected them in sealed containers.
- Do not eat, drink or smoke when using this product.
- Store away from water and sewer.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

A. Exposure limits

- ACGIH TLV
 - Not available
- OSHA PEL
 - Not available

B. Engineering controls

- Business owner is recommended to maintain below recommended exposure limits for the working place with general exhaust of gas/vapour/mist/fume.

C. Individual protection measures, such as personal protective equipment

- Respiratory protection
 - Respiratory protection is ranked in order from minimum to maximum.
 - Consider warning properties before use.
 - Any chemical cartridge respirator with organic vapor cartridge(s).
 - Any chemical cartridge respirator with a full facepiece and organic vaporcartridge(s).
 - Any air-purifying respirator with a full facepiece and an organic vapor canister.
 - For Unknown Concentration or Immediately Dangerous to Life or Health : Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply. Any self-contained breathing apparatus with a full facepiece.
 - Under conditions of frequent use or heavy exposure, Respiratory protection may be needed.
- Eye protection
 - Wear primary eye protection such as splash resistant safety goggles with a secondary protection face shield.
 - Provide an emergency eye wash station and quick drench shower in the immediate work area.
- Hand protection
 - Wear appropriate glove.
- Skin protection
 - Wear appropriate clothing.
- Others
 - Not available

9. PHYSICAL AND CHEMICAL PROPERTIES

A. Appearance	
- Appearance	Liquid
- Color	Not available
B. Odor	Not available
C. Odor threshold	Not available
D. pH	4.5 ~ 5.5
E. Melting point/Freezing point	Not available
F. Initial Boiling Point/Boiling Ranges	Not available
G. Flash point	159 °C
H. Evaporation rate	Not available
I. Flammability(solid, gas)	Not available
J. Upper/Lower Flammability or explosive limits	Not available
K. Vapour pressure	Not available
L. Solubility	Not available
M. Vapour density	Not available
N. Specific gravity(Relative density)	0.91 ~ 0.93
O. Partition coefficient of n-octanol/water	Not available
P. Autoignition temperature	Not available
Q. Decomposition temperature	Not available
R. Viscosity	Not available
S. Molecular weight	Not available

10. STABILITY AND REACTIVITY

A. Chemical Stability

- This material is stable under recommended storage and handling conditions.

B. Possibility of hazardous reactions

- Hazardous Polymerization will not occur.

C. Conditions to avoid

- Avoid contact with incompatible materials and condition.
- Avoid : Accumulation of electrostatic charges, Heating, Flames and hot surfaces

D. Incompatible materials

- Not available

E. Hazardous decomposition products

- May emit flammable vapour if involved in fire.

11. TOXICOLOGICAL INFORMATION

A. Information on the likely routes of exposure

- **(Respiratory tracts)**
 - Not available
- **(Oral)**
 - Toxic if swallowed
- **(Eye·Skin)**
 - Causes serious eye irritation
 - May cause an allergic skin reaction

B. Delayed and immediate effects and also chronic effects from short and long term exposure

- **Acute toxicity**
 - * **Oral**
 - Product (ATEmix) : 50mg/kg < ATEmix <= 300mg/kg
 - [Secret] : LD50 > 2000 mg/kg Rat

- [(S)- α -Cyano-3-phenoxybenzyl (S)-2-(4-chlorophenyl)-3-methylbutyrate] : LD50 88 mg/kg Rat
- [Secret] : LD50 8600 mg/kg Rat Corporate Solution From Thomson Micromedex (<http://csi.micromedex.com>)
- [Secret] : LD50 650 mg/kg Rat (BASF Canada Inc.)

*** Dermal**

- Product (ATEmix) : >5000mg/kg
- [Secret] : LD50 > 5000 mg/kg Rat
- [(S)- α -Cyano-3-phenoxybenzyl (S)-2-(4-chlorophenyl)-3-methylbutyrate] : LD50 > 2000 mg/kg Rabbit

*** Inhalation**

- Product (ATEmix) : Not available
- [(S)- α -Cyano-3-phenoxybenzyl (S)-2-(4-chlorophenyl)-3-methylbutyrate] : dust LC50 0.57 mg/l 4 hr Rat

○ Skin corrosion/irritation

- Not available

○ Serious eye damage/irritation

- Causes serious eye irritation

○ Respiratory sensitization

- Not available

○ Skin sensitization

- May cause an allergic skin reaction

○ Carcinogenicity

*** IARC**

- Not available

*** OSHA**

- Not available

*** ACGIH**

- Not available

*** NTP**

- Not available

*** EU CLP**

- Not available

○ Germ cell mutagenicity

- Not available

○ Reproductive toxicity

- Not available

○ STOT-single exposure

- Not available

○ STOT-repeated exposure

- Not available

○ Aspiration hazard

- Not available

12. ECOLOGICAL INFORMATION

A. Ecotoxicity

○ Fish

- [Secret] : LC50 0.027 mg/l 96 hr (Estimate)
- [(S)- α -Cyano-3-phenoxybenzyl (S)-2-(4-chlorophenyl)-3-methylbutyrate] : LC50 0.00007 mg/l 96 hr Oncorhynchus mykiss (ECOTOX)
- [Secret] : LC50 116 mg/l 48 hr (ECOTOX)
- [Secret] : LC50 1.5 mg/l 96 hr (ECOTOX)
- [Secret] : LC50 0.0000000203 mg/l 96 hr (Estimate)

○ Crustaceans

- [Secret] : LC50 0.000783 mg/l 48 hr (Estimate)
- [(S)- α -Cyano-3-phenoxybenzyl (S)-2-(4-chlorophenyl)-3-methylbutyrate] : EC50 0.00015 mg/l 48 hr Daphnia magna (HSDB)
- [Secret] : LC50 6.46 mg/l 48 hr (ECOTOX)

○ Algae

- [Secret] : EC50 0.003 mg/l 96 hr (Estimate)
- [Secret] : EC50 0.0000000632 mg/l 96 hr (Estimate)

B. Persistence and degradability

- **Persistence**
 - [Secret] : log Kow 7.45
 - [(S)- α -Cyano-3-phenoxybenzyl (S)-2-(4-chlorophenyl)-3-methylbutyrate] : log Kow 6.2 (ICSC)
 - [Secret] : log Kow 3.4 (Estimate)
 - [Secret] : log Kow 14.13 (estimate)
- **Degradability**
 - Not available

C. Bioaccumulative potential

- **Bioaccumulative potential**
 - [(S)- α -Cyano-3-phenoxybenzyl (S)-2-(4-chlorophenyl)-3-methylbutyrate] : BCF 5901 (Has the potential bioaccumulation.) (Estimate)
 - [Secret] : BCF 70.79 (Estimate)
- **Biodegradation**
 - [Secret] : 88.9 ~ 91.9 (%) 28 day (OECD TG 301B, GLP, IUCLID)
 - [(S)- α -Cyano-3-phenoxybenzyl (S)-2-(4-chlorophenyl)-3-methylbutyrate] : BIOWIN 6 (Estimate)

D. Mobility in soil

- [(S)- α -Cyano-3-phenoxybenzyl (S)-2-(4-chlorophenyl)-3-methylbutyrate] : Koc 55980 (Can be adsorbed in the soil)

E. Other adverse effects

- Not available

13. DISPOSAL CONSIDERATIONS

A. Disposal methods

- Stabilization and minimization treatment by incineration or similar method can be applied, if more than two kinds of designated wastes are in mixture state and it is impractical to separate them
- Oil water separation technology shall be applied as pre-waste treatment if it is applicable
- It shall be treated by incineration

B. Special precautions for disposal

- Anyone with business license number who generates industrial wastes shall treat the waste by him/herself or by entrusting to the legal entities who treat the wastes, recycle the wastes of others or install and operate the waste treatment facilities according to the Wastes Control Act
- Dispose of waste in accordance with all applicable laws and regulations.

14. TRANSPORT INFORMATION

A. UN No. (IMDG)

- 3082

B. Proper shipping name

- ENVIRONMENTALLY HAZARDOUS SUBSTANCES, LIQUID, N.O.S.

C. Hazard Class

- 9

D. IMDG Packing group

- III

E. Marine pollutant

- Applicable
- Applicable

F. Special precautions for user related to transport or transportation measures

- Local transport follows in accordance with Dangerous goods Safety Management Law.
- Package and transport follow in accordance with Department of Transportation (DOT) and other regulatory agency requirements.
- Air transport(IATA): Not subject to IATA regulations.
- EmS FIRE SCHEDULE : F-A (General fire schedule)
- EmS SPILLAGE SCHEDULE : S-F (Water-soluble marine pollutants)

15. REGULATORY INFORMATION

A. National and/or international regulatory information

- POPs Management Law
 - Not applicable
- Information of EU Classification
 - * Classification
 - [(S)- α -Cyano-3-phenoxybenzyl (S)-2-(4-chlorophenyl)-3-methylbutyrate] : H331,H301,H317,H410
- U.S. Federal regulations
 - * OSHA PROCESS SAFETY (29CFR1910.119)
 - Not applicable
 - * CERCLA Section 103 (40CFR302.4)
 - [Secret] : 453.599 kg 1000 lb
 - * EPCRA Section 302 (40CFR355.30)
 - Not applicable
 - * EPCRA Section 304 (40CFR355.40)
 - Not applicable
 - * EPCRA Section 313 (40CFR372.65)
 - Not applicable
- Rotterdam Convention listed ingredients
 - Not applicable
- Stockholm Convention listed ingredients
 - Not applicable
- Montreal Protocol listed ingredients
 - Not applicable

16. OTHER INFORMATION

A. Reference

- The information contained herein is believed to be accurate. It is provided independently of any sale of the product for purpose of hazard communication. It is not intended to constitute performance information concerning the product. No express warranty, or implied warranty of merchantability or fitness for a particular purpose is made with respect to the product or the information contained herein.
- This Safety Data Sheet was compiled with data and information from the following sources: KOSHA, NITE,ESIS, NLM, SIDS, IPCS

B. Issue date

- 2020-02-04

C. Revision number and Last date revised

- Not applicable

D. Other

- This SDS is prepared according to the Globally Harmonized System (GHS).