

Material Safety Data Sheet

Trade Name	SHL SYNTHDRO FRW 46
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1. CHEMICAL PRODUCT & COMPANY IDENTIFICATION

Trade Name	SHL SYNTHDRO FRW 46
General Characteristics	Water & additive's mixture
Hazard Classification	Irritant
Application	Fire Resistance Hydraulic Oil
Manufacturer's Name & Address	
SHL CO.,LTD	
Seoul Office	
Keumwoong BLDG, 5F 298 Jungdae-ro, Songpa-gu, Seoul, Korea	
TEL (+82-2) 443-0230/4	FAX (+82-2) 443-0235
Factory	
56, Taejanggongdan-gil, Wonju-si, Kangwon-do, Korea	
TEL (82-33) 734-5060	FAX (82-33) 734-5034
Supplier's Name	SHL CO.,LTD
Department	Technical Institute

2. HAZARD IDENTIFICATION

HAZARD CLASSIFICATION

Reproductive toxicity Category 2
Specific target organ toxicity (repeated exposure) Category 1

LABEL ELEMENTS

GHS Pictogram.



Signal Words

Warning

Hazard statements

H361

Suspected of damaging the fetus or fertility.

H372

It causes damage to internal organs in the body if it is exposed for a prolonged

Precautionary statement

Prevention

P201

To obtain an instruction manual before use.

P202

Do not handle until all safety precautions have been read and understood.

P260

Do not inhale (dust, fume, gas, mist, steam, spray).

P264

After handling, thoroughly wash the handling area.

P270

Do not eat, drink or smoke when using this product.

P280

(Protective gloves · Protective · Protective eyewear protection area) to wear.

Countermeasure

P308+P313

If you are exposed or concerned about exposure, seek medical advice and advice.

P314

If you feel uncomfortable, please seek medical advice and advice.

Storage :

P405

Keep in a storage location with lock.

Disposal

P501

(According to the contents described in the relevant regulations) Contents Discard

OTHER HAZARDS

Repeated contact may result in irritation on skin or hands.

NFPA Index

Water : Public health : 0, Fire : 0, Reaction : 0

Polyethylene polypropylene glycol : Public health : 0, Fire : 1, Reaction : 0

Diethylene glycol : Public health : 1, Fire : 1, Reaction : 0

Secret : Public health : 3, Fire : 2, Reaction : 0

The other : No data

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical identity	Synonyms	CAS No.	Concentration (%)
Water	Dihydrogen oxide	7732-18-5	35 - 45

Polyethylene polypropylene glycol	Polyoxyethylene polyoxypropylene	9003-11-6	20 - 30
Diethylene glycol	Hydroxydiethyl eter	111-46-6	40 - 50
Neodecanoic Acid	Neodecanoic Acid	26896-20-8	< 3
Fatty Acid	-	Secret	Secret
Secret1	Secret	Secret	Secret
Secret2	Secret	Secret	Secret
Pigment(RED)	C.I. acid red 131 -	12234-99-0	< 1

4. FIRST AID MEASURES

DESCRIPTION OF FIRST AID MEASURES

Eye Contact

Open the eyelid and wash the eye with water over 15 minutes.

If eye irritation persists: Get medical advice/attention.

Skin Contact

Wash the skin with soap and much water over 15 minutes.

Take off contaminated clothing and shoes immediately

If skin irritation persists: Get medical advice/attention.

Inhalation

Expose to fresh air. If not recovered, seek medical aid.

Ingestion

Immediately, receive medical treatment.

Advice to Physician

IF ON SKIN: Gently wash with plenty of soap and water.

5. FIRE-FIGHTING MEASURES

EXTINGUISHING MEDIA

Dry chemical, carbon dioxide, water, foam

Unsuitable Extinguishing Media

No data

Hazardous Substance Created during Burning

Toxic substances created (e.g. CO)

FIRE FIGHTING INSTRUCTIONS

Shut off all sources of fuel if possible, and use water to cool fire-exposed materials.

Wear air respirator or antigas mask in an airtight room if needed.

Rescuers wear appropriate protective equipment.

Avoid inhalation of hazardous substance created during burning and avoid skin exposure.

Do not breathe material or combustion by-products

Flash Point [Method]: N/A

Upper/Lower Flammable Limits (Approximate volume % in air): No data

Autoignition Temperature: No data

6. ACCIDENT RELEASE MEASURES

HUMAN BODY PROTECTION METHODS

Avoid contact with spilled material.

Avoid inhalation and skin exposure.

Do not walk or touch spilled material.

Do not breathe dust/fume/gas/mist/vapours/spray.

Change pollutant clothes to new one.

Wear air respirator or ventilate the air in an airtight room.

ENVIRONMENT PROTECTION METHODS

Prevent water pollution.

Do not directly expose the substance to nature.

CLEAN UP METHODS

Collect exposed materials in a proper container to dispose them.

7. HANDLING AND STORAGE

PRECAUTIONS FOR SAFE HANDLING

Avoid skin contact, eye contact, and vapor inhalation.

Prevent small spills and leakage to avoid slip hazard.

Do not eat and inhale. After handling, wash the hands and face
Do not heat or pressurize empty container
Handle the substance according to the current rules and regulations.

Loading/Unloading Temperature: Ambient

Transport Temperature: Ambient

Transport Pressure: Ambient

CONDITIONS FOR SAFE STORAGE

Keep container closed.

Handle containers with care. Open slowly in order to control possible pressure release.

Store in a well-ventilated area.

Store the substance according to the current rules and regulations.

Storage Temperature: Ambient

Storage Pressure: Ambient

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

OCCUPATIONAL EXPOSURE LIMIT

No occupational exposure limits have been set

ENGINEERING CONTROLS

Install local exhaust ventilation systems.

Check if the exposure is proper within the exposure criteria.

PERSONAL PROTECTION

Respiratory Protection

Respirator is needed if this liquid is frequently used or excessively exposed.

Respirator shall be certified by Occupational Safety & Health Agency.

Eye Protection

Wear face shield that enables wearing two safety goggles, which protect from scattering materials or harmful liquids.

Install spray washing system for eyes and emergency washing system in the shower type near the work field.

Hand Protection

Wear chemical-resistant gloves.

Body Protection

Wear chemical-resistant protective clothing.

9. PHYSICAL AND CHEMICAL INFORMATION

Appearance	Red transparent liquid
Odor	Low odor
pH	9.4
Pour Point	< -50°C
Boiling point	No data
Flash Point	N/A
Oxidation	Stable
Flammability	No data
Explosion	Stable
Vapor Pressure	No data
Solubility In Water	Soluble in water
Vapor Density	No data
Specific Gravity	1.089 (15/4°C)
Distribution Coefficient	No data
Autoignition Temp.	No data
Dissolution Temp.	No data
Viscosity	45.84 cSt (40°C)
Molecular weight	No data

10. STABILITY AND REACTIVITY

Stability

Stable in normal temperature and pressure, and for normal usage

Possibility of Hazardous Material Creation during Reaction

Will not occur.

Conditions & Materials to Avoid

All sources of ignition and excessive heat, and contact prohibition material.(strong oxidants)

Material created during Degradation

Thermal decomposition product. Toxic carbon compounds may be included (e.g. CO, NOx).

Toxic fumes, irritating and corrosive gases may be generated by thermal decomposition

11. TOXICOLOGICAL INFORMATION

Urgent Risk & Harmfulness Information

Inhalation

Inhalation of vapors may cause irritation of the respiratory tract and cough, dyspnea, drowsiness.

Eye Contact

May cause severe irritation

Skin Contact

May cause severe irritation

Ingestion

Ingestion may result in irritation, vomiting, diarrhea, stomachache, liver and kidney damage.

Toxicological Information

Acute Oral Toxicity

Water	LD50 90000 mg/kg : Rat (LD50 > 90 ml/kg (Rat))
Polyethylene polypropylene glycol	LD50 5000 mg/kg : Rat
Diethylene glycol	LD50 12565 mg/kg : Rat
Neodecanoic Acid	LD50 2700 ~ 3450 mg/kg : Rat
Fatty Acid	LD50 1100 mg/kg : Rat
Secret1	LD50 2,900 mg/kg : Rat
Secret2	LD50 675 mg/kg : Rat
Pigment(RED)	No data

Acute Dermal Toxicity

Diethylene glycol	LD50 11890 mg/kg : Rabbit
Neodecanoic Acid	LD50 >3640 mg/kg : Rat
Secret1	LD50 Rabbit, > 2,000 mg/kg
Other ingredients	No data

Acute Inhalation Toxicity

Neodecanoic Acid	No data
Fatty Acid	Vapor LC50 >0.645 mg/l Rat
Secret1	At room temperature, vapor exposure is very low because of its low volatility. Steam or mist of heated substance may irritate the respiratory tract (LD 50 is not confirmed)
Other ingredients	No data

Eye Irritability

Irritation

Subacute Toxicity

No data

Repeated Dose Toxicity

No data

Mutagenicity

reverse mutation: negative: TA98,100,1535,1537 : 6.1-1500 ug/plate, Chromosome
Cultured human lymphocyte : 100-800 ug/ml (Neodecanoic Acid)
Using the mouse, observation of craniofacial malformation, as well as decrease in the
number of births from ship made in the second generation reproductive examination by
exposure before breeding (DFGOT vol. 10 (1998)). With these capacities, the maternal body
weight loss and the hamster observation of death, that is, the ability to develop general
toxicity in the parent animals, clear distinct reproductive toxicity (diethylene glycol)
Rat(Albino), Dose : 100, 500, 1500 ppm/day (9 weeks), NOAEL Maternal toxicity /
gap generations between generations / gap genera toxicity between 2
generations:> 1500 ppm (neodecanoic acid)

Carcinogenicity

No data

Additional Advice

No data

12. ECOLOGICAL INFORMATION

AQUATIC TOXICITY AND ECOTOXICITY

○ Fish :

Water

Polyethylene polypropylene glycol	No data
Diethylene glycol	LC50 32000 mg/l 96 hr

Neodecanoic Acid	LC50 4.9 mg/l 96 hr Lepomis macrochirus
Fatty Acid	LC50 27.39 mg/l 96 hr Carassius auratus
Secret1	LC50, bluegill (Lepomis macrochirus), , 96 h: 190 mg/l
Secret2	LC50 36.756 mg/l 96 hr
Other ingredients	No data
○ Crustacean :	
Neodecanoic Acid	EC50 47.11 mg/l 48 hr Daphnia magna
Fatty Acid	LC50 75.844 mg/l 48 hr
Secret1	LC50, common shrimp Crangon crangon, (static renewal), 96 h, Survival: 179 mg/l
Secret2	LC50 158.021 mg/l 48 hr
Other ingredients	No data
○ Bird :	
Fatty Acid	LC50 51.218 mg/l 96 hr
Secret1	EyC50, alga Scendesmus sp., , biomass growth inhibition, 72 h: 565.5 mg/l
Secret2	EC50 13.795 mg/l 96 hr
Other ingredients	No data

ㄴ. Residuality / degradability

○ Residuality :	
Diethylene glycol	-1.47 log Kow (Estimate)
Secret2	EC50 13.795 mg/l 96 hr
Other ingredients	No data
○ Degradability :	No data

ㄷ. Bioaccumulation

○ Biodegradability :	
Diethylene glycol	31 (%) 28 day ((Aerobic, other bacteria: Abwasser, nicht adaptiert))
Neodecanoic Acid	3.162
Fatty Acid	35.2 (%) 28 day
Secret1	89.9 (%) 28 day
Secret2	4.168
Other ingredients	No data
○ Dearadability :	No data
○ Enrichment :	
Diethylene glycol	BCF 100 3 (Leuciscus idus melanotus(Fish, fresh water), 0.05mg/l)
Other ingredients	No data
라. MOBILITY	No data
마. Other harmful effects	No data

13. DISPOSAL CONSIDERATION

가. Disposal method

To fall under the designated waste under the Waste Management Act, disposing of contents and containers according to regulations.

ㄴ. Precautions on disposal

Please consider the notes stipulated in the regulations stipulated in the Waste Management Act.

14. TRANSPORT INFORMATION

Classification and Regulation According to Ship Transportation and Storage Rule of Hazardous Material of Ship Safety Act

Not Regulated

Caution during Transport

No data

Classification and Regulation According to Rule of Transportation

Not Regulated for transport according to UN, IMDG codes

15. REGULATORY INFORMATION

Regulation According to the Substance	N/A
Toxic Substance Control Act	N/A
High-Pressure Gas Safety Control Act	N/A
Act on Safety Management of Dangerous Goods	
Not classified as Dangerous Goods	

Regulation According to Foreign Laws

USA : CERCLA 103(40CFR302.4) : N/A
SARA 302(40CFR355.30) : N/A
SARA 304(40CFR355.40) : N/A
SARA 313(40CFR372.65) : N/A
OSHA(29CFR1910.119) : N/A
TSCA : Listed

16. OTHER INFORMATION

Source

Material's data of our laboratories and Korea Occupational Safety & Health Agency

Written Date

20-Sep-18

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Rev. 0

20-Sep-18

Other References

The information and recommendations contained herein are, to the best of our's knowledge and belief, accurate and reliable as of the date issued. The information and recommendations are offered for the user's consideration and examination. It is the user's responsibility to satisfy itself that the product is suitable for the intended use. If buyer repackages this product, it is the user's responsibility to insure proper health, safety and other necessary information is included with and/or on the container. Appropriate warnings and safe-handling procedures should be provided to handlers and users. Alteration of this document is strictly prohibited. Except to the extent required by law, re-publication or retransmission of this document, in whole or in part, is not permitted. If you have purchased the product for supply to a third party for use at work, it is your duty to take all necessary steps to secure that any person handling or using the product is provided with the information in this sheet. If you are an employer, it is your duty to tell your employees and others who may be affected of any hazards described in this sheet and of any precautions which should be taken.