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Safety Data Sheet

1. Product and Company Identification

Product name :Hardener F-10

Name of supplier :SOLAR CO., LTD.

Address :1-7, Nunobiki-cho-2-chome, Chuo-ku, Kobe, Hyogo-Pref. 651-0097 JAPAN

Division :R & D DEPT.

Phone :+81-790-49-2366

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Product code(MSDS NO) :EN880110-3

2. Hazards Identification

GHS classification and label elements of the product

GHS classification

PHYSICAL HAZARDS

Organic peroxides : Type D

HEALTH HAZARDS

Eye damage /eye irritation : Category 2

Skin sensitization : Category 1

Germ cell mutagenicity : Category 2

Carcinogenicity : Category 2

Reproductive toxicity : Category 1B

Specific target organ toxicity-single exposure : Category 1

Specific target organ toxicity-repeated exposure : Category 1

ENVIRONMENT HAZARDS

Hazardous to the aquatic environment-acute toxicity : Category 1



Signal word : Danger

HAZARD STATEMENT

Heating may cause a fire

Causes eye irritation

May cause an allergic skin reaction

Suspected of causing genetic defects

Suspected of causing cancer

May damage fertility or the unborn child

Causes damage to organs after single exposure.

Causes damage to organs following repeated exposure.

Very toxic to aquatic life

PRECAUTIONARY STATEMENT

Prevention

Obtain special instructions before use.

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

Wash contaminated parts thoroughly after handling.

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

Contaminated work clothing should not be allowed out of the workplace.

Wear protective gloves.

Wear face protection.

Use personal protective equipment as required.

Response

Get medical advice/attention if you feel unwell.

Specific treatment is required.

Wash contaminated clothing before reuse.

Collect spillage.

IF ON SKIN: Wash with plenty of soap and water.

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

IF exposed or concerned: Get medical advice/attention.

If skin irritation or rash occurs: Get medical advice/attention.

If eye irritation persists: Get medical advice/attention.

Storage

Store locked up.

Disposal

Avoid release to the environment.

Dispose of contents/container in accordance with local/national regulation.

3. Composition/Information on Ingredients

Substance/Preparation :Preparation

Ingredient name	content(%)	CAS No.	PRTR law No, Japan
Benzoyl peroxide	15 - 20	94-36-0	
Cyclohexanone peroxide	10 - 15	12262-58-7	
di-sec-octyl phthalate	20.6	117-81-7	1-355
Triethyl phosphate	10 - 15	78-40-0	
Dimethyl phthalate	5 - 10	131-11-3	
3-Methyl-3-methoxy butyl acetate	10 - 15	103429-90-9	
Cyclohexanone	1 - 5	108-94-1	
Amorphous silica	1 - 5	7631-86-9	
Hydrogen peroxide	<1.0	7722-84-1	
Pigment	<1.0	Non Public	
Water	1 - 5	7732-18-5	

4. First-Aid Measures**IF INHALED**

Remove victim to fresh air and keep at rest in a position comfortable for breathing.

If experiencing respiratory symptoms call a POISON CENTER or doctor/physician.

IF ON SKIN

Never use solvent or thinner.

Wash with plenty of soap and water.

If you observe unusual symptom, have irritation/pain and/or feel unwell, seek medical advice.

IF IN EYES :

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

If eye irritation persists: Get medical advice/attention.

IF SWALLOWED

Rinse mouth.

Do NOT induce vomiting.

Immediately call a POISON CENTER or doctor/physician.

5. Fire-Fighting Measures

Suitable extinguishing media

Water spray or fog is preferred; if water not available use dry chemical, CO2 or regular

foam.

Specific fire-fighting measures

- Use appointed fire extinguisher.
- Remove flammable matters quickly from nearby.
- Apply water from a safe distance to cool and protect surrounding area.

Special protective equipment and precautions for fire-fighters

- Fire extinguishing work has to be done from windward.
- Wear proper protective equipment.

6. Accidental Release Measures

Personnel precautions, protective equipment and emergency procedures

- Ventilate area after material pick up is complete.
- Wear proper protective equipment.
- Keep unauthorized personnel away.

Environmental precautions

- Prevent spills from entering sewers, watercourses or low areas.

Methods and materials for neutralization, containment and cleaning up

- Place in a covered container.
- Use non-sparking tools to collect absorbed material.
- Keep substance wet for later disposal.

Preventive measures for secondary accident

- Prepare extinguishers before catching fire.
- Keep substance wet using water spray.

7. Handling and Storage

Precautions for safe handling

Preventive measures

- Use personal protective equipment as required.
- Take precautionary measures against static discharge.

Safety Measures/Incompatibility

- Handle in good ventilation.
- Do not handle until all safety precautions have been read and understood.

Conditions for safe storage, including any incompatibilities

Recommendation for storage

- Storage temperature upper limit :30
- Keep container tightly closed.
- Protect from sunlight. Store in a well-ventilated place.

8. Exposure Control/Personal Protection

Control value

(Cyclohexanone)Japan control value (1995)<= 25ppm

Adopted value

- (Cyclohexanone)JSOH(1970) 25ppm; 100mg/m³
- (di-sec-octyl phthalate)JSOH(1995) 5mg/m³
- (Cyclohexanone)
- ACGIH(1990) TWA: 20ppm
- STEL: 50ppm (Skin)(Eye & URT irr)
- (di-sec-octyl phthalate)
- ACGIH(1996) TWA: 5mg/m³ (LRT irr)
- (Dimethyl phthalate)
- ACGIH(2005) TWA: 5mg/m³ (Eye & URT irr)
- (Benzoyl peroxide)
- ACGIH(1990) TWA: 5mg/m³ (URT & skin irr)

Report required substances, mhlw Japan

di-sec-octyl phthalate

Appropriate engineering controls

Do not use in areas without adequate ventilation.

Exhaust/ventilator should be available.

Protective equipment

Respiratory protection

Wear respiratory protection.

Hand protection

Wear protective gloves.

Eye protection

Wear eye/face protection.

Skin and body protection

Wear protective gloves/clothing

9. Physical and Chemical Properties

Physical properties

Appearance :paste

Color :brown

Self-Accelerating Decomposition Temperature/SADT :45

Flash point :77 (Seta closed style)

Specific gravity :ca 1.14

10. Stability and Reactivity

Possibility of hazardous reactions

May occur self-exothermic decomposition from heat or contamination.

Conditions to avoid

Avoid contact with acid, alkali, amine, heavy metal or reducing agent.

Avoid contact with combustibles (wood, paper, clothing, etc.).

11. Toxicological Information

Symptoms related to the physical, chemical and toxicological characteristics

Acute toxicity

Oral toxicity component(s) data

(3-Methyl-3-methoxy butyl acetate)

4600 mg/kg (JPMA 5th ed.)

(Cyclohexanone)

rat LD50 = 1544mg/kg (cal.)

Dermal toxicity component(s) data

(Cyclohexanone)

rabbit LD50 = 947mg/kg

Inhalation toxicity component(s) data

(Cyclohexanone)

vapor : rat LC50 = 2450ppm (ACGIH (2003))

Labor standard law, Japan; Toxic

Cyclohexanone

Irritant properties

Skin corrosion/Irritation component(s) data

(Cyclohexanone)

rabbit 500 mg open ; MILD

(di-sec-octyl phthalate)

rabbit 500 mg/24H ; MILD

Serious eye damage /irritation

Eye damage/irritation component(s) data

(Cyclohexanone)

rabbit 4.74mg ; SEVERE
 (di-sec-octyl phthalate)
 rabbit 500 mg/24H ; MILD
 (Benzoyl peroxide)
 rabbit 500 mg/24H ; MILD

Skin sensitization

(Benzoyl peroxide) ID794(2006), SIDS (2002) et al

Mutagenic effects

(Cyclohexanone) ID764(2006), CERI hazard data book (2000)

Carcinogenic effects

(Cyclohexanone)

IARC-Gr.3 ; Not Classifiable as a Human Carcinogen.

(di-sec-octyl phthalate)

IARC-Gr.3 ; Not Classifiable as a Human Carcinogen.

(Amorphous silica)

IARC-Gr.3 ; Not Classifiable as a Human Carcinogen.

(Benzoyl peroxide)

IARC-Gr.3 ; Not Classifiable as a Human Carcinogen.

(Cyclohexanone)

ACGIH-A3(1990) : Confirmed Animal Carcinogen with Unknown Relevance to Humans

(di-sec-octyl phthalate)

ACGIH-A3(1996) : Confirmed Animal Carcinogen with Unknown Relevance to Humans

(Benzoyl peroxide)

ACGIH-A4(1990) : Not Classifiable as a Human Carcinogen

(di-sec-octyl phthalate)

JSOH-2B; Insufficient Evidence of Carcinogenicity for Humans

Toxicity for reproduction

(di-sec-octyl phthalate) ID183(2006), CERI/NITE hazard assessment No.7 (2004)

(Cyclohexanone) ID764(2006), ACGIH (2003) et al

Delayed and immediate effects and also chronic effects from short- and long-term exposure

Specific target organ toxicity (single exposure cat.1)

(Cyclohexanone) liver; spleen; CNS

Specific target organ toxicity (single exposure cat.2)

(Cyclohexanone) lung

Specific target organ toxicity (repeated exposure cat.1)

(Cyclohexanone) kidney; liver; CNS

12. Ecological Information

Ecotoxicity

Aquatic toxicity

Very toxic to aquatic life

(Cyclohexanone)

Fish (fat head minnow) LC50=527 mg/L/96hr (CERI hazard data book, 2000)

(di-sec-octyl phthalate)

Crustacea (Daphnia magna) EC50=0.133mg/L/48hr (EU-RAR, 2001)

(Dimethyl phthalate)

Fish (Cyprinodon variegatus) LC50=29mg/L/96hr (EPA_Japan, 2002)

(Benzoyl peroxide)

Crustacea (Daphnia magna) EC50=0.07 mg/L/48hr (SIDS, 2004)

Water solubility

(Cyclohexanone)

25 g/L (PHYSPROP Database, 2005)

(di-sec-octyl phthalate)

none (ICSC, 2001)

(Dimethyl phthalate)
 0.43 g/100 ml (20 C) (ICSC, 2005)
 (Benzoyl peroxide)
 poor (ICSC, 2002)

Persistence and degradability

(di-sec-octyl phthalate)
 BOD_Degradation : 69%(Registered chemicals safety check & review data, Japan)
 (Dimethyl phthalate)
 BOD_Degradation : 93%(Registered chemicals safety check & review data, Japan)
 (Benzoyl peroxide)
 BOD_Degradation : 84%(Registered chemicals safety check & review data, Japan)

Bioaccumulative potential

(Cyclohexanone)
 log Pow=0.81 (ICSC, 2004)
 (di-sec-octyl phthalate)
 log Pow=5.03 (ICSC, 2001) ; BCF=29.7 (Check & Review, Japan)
 (Dimethyl phthalate)
 log Pow=1.6 (PHYSPROP Database, 2005)
 (Benzoyl peroxide)
 log Pow=3.46 (ICSC, 2002)

13. Disposal Considerations

Waste residues

Avoid release to the environment (- if this is not the intended use).
 Dispose of contents/container in accordance with local/national regulation.

Industrial disposals control law, Japan

Organic P contents > 1mg/L or Organic P extracts > 1mg/L
 Triethyl phosphate

Clean water act, Japan

life environment control, drainage =< 16mg-P/L (day ave. =< 8mg-P/L)
 Triethyl phosphate

14. Transport Information

UN No, UN CLASS

UN No :No data

Sea pollutants control law

Noxious Liquid ; Cat. Yequiv :di-sec-octyl phthalate
 Noxious Liquid ; Cat. Z :Cyclohexanone; Triethyl phosphate

Special precautions in connection with transport or conveyance

Follow instruction in Handling & Storage.
 Avoid temperature above :35

15. Regulatory Information

Industrial Safety and Health law, Japan

Harmful substances to be indicated :Cyclohexanone
 Chemical name et al should be informed :Cyclohexanone;Benzoyl peroxide;
 Amorphous silica;Dimethyl phthalate;di-sec-octyl phthalate
 Labor standard law, Japan; Toxic :Cyclohexanone

PRTR law, Japan

Listed chemicals Gr.1 :di-sec-octyl phthalate

Fire protection law, Japan

Self-reactive substances : organic peroxides ; (limited qty) Gr.2/100kg

Ship cargo control law, Japan

Organic peroxides

Air cargo control law, Japan

Organic peroxides

Chemical Substances Control Law, Japan

Priority Assessment Chemical Substances :di-sec-octyl phthalate

16. Other Information/References

Reference Book

Recommendations on the TRANSPORT OF DANGEROUS GOODS 16th edit. UN

2008 EMERGENCY RESPONSE GUIDEBOOK(US DOT)

2011 TLVs and BEIs. (ACGIH)

<http://monographs.iarc.fr/monoeval/grlist.html>

Supplier's SDS

Other information

This information contained in this data sheet represents the best information currently available to us. However, no warranty is made with respect to its completeness and we assume no liability resulting from its use. It are advised to make their own test