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SAFETY DATA SHEET

1 . IDENTIFICATION

Name of chemical substances:POLYBEST HARDENER (HARDENER FOR FIBER REINFORCED PLASTICS)

Kinds of product:Unsaturated polyester hardener

Company name:SUNDAY PAINT Co., Ltd

Address:6-1-124 NishiKujou, Konohana-ku, Osaka 554-0012 Japan

Section in charge:Mayor of customer service

Phone number:06-6466-6700

FAX number:06-6466-2751

Reference number:0161PK-4-DC

Use:For general use

2 . HAZARDS IDENTIFICATION

GHS classification:

Physicochemical Hazards:

Explosives	:Not classified
Flammable gases	:Not applicable
Flammable aerosols	:Not applicable
Oxidizing gases	:Not applicable
Gases under pressure	:Not applicable
Flammable liquids	:Category 4
Flammable solids	:Not applicable
Self-reactive substances and mixtures	:Classification not possible
Pyrophoric liquids	:Not classified
Pyrophoric solids	:Not applicable
Self-heating substances and mixtures	:Not classified
Substances and mixtures which, in contact with water, emit flammable gases	:Not classified
Oxidizing liquids	:Not classified
Oxidizing solids	:Not applicable
Organic peroxides	:Classification not possible
Corrosive to metals	:Classification not possible

Health hazards:

Acute toxicity - oral	:Category 4
Acute toxicity - dermal	:Category 5
Acute toxicity-inhalation/gases	:Not applicable
Acute toxicity-inhalation/vapour	:Category 2
Acute toxicity-inhalation/dusts and mists	:Classification not possible
Skin corrosion / irritation	:Category 2
Serious eye damage /irritation	:Category 1
Respiratory sensitization	:Classification not possible
Skin sensitization	:Classification not possible
Germ cell mutagenicity	:Not classified
Carcinogenicity	:Classification not possible
Reproductive toxicity	:Category 2
Specific target organ systemic toxicity (single exposure)	:Category 1 (respiratory organs, Central nervous system)
	:Category 2 (kidney)
	:Category 3 (Narcotic effects)
Specific target organ systemic toxicity (repeated exposure)	:Category 1 (Central nervous system , Peripheral nervous system)

:Category 2

(Liver , kidney)

:Classification not possible

Aspiration toxicity

Environmental hazards:

Hazardous to the aquatic
environment (acute toxicity)

:Category 3

Hazardous to the aquatic
environment (chronic toxicity)

:Classification not possible

GHS label elements:

Pictogram or symbol:



Signal words: Danger

Hazard statement:

Combustible liquid.

Toxic if inhaled.

Harmful if swallowed.

Causes skin irritation.

Causes serious eye damage.

Suspected of damaging fertility or the unborn child.

Causes damage to organs respiratory organs, Central nervous system.

May cause damage to organs kidney.

May cause drowsiness and dizziness.

Causes damage to organs Central nervous system , Peripheral nervous system through
prolonged or repeated exposure.May cause damage to organs Liver , kidney through
prolonged or repeated exposure.

Harmful to aquatic life.

Precautionary statements:

Prevention:

Use in place with local exhaust ventilation and without fire

Must not use in place with fire

Precaution, may cause to burn extremely in case of shock or heating

Wear protection gloves, protection glasses, protection side, protection clothes.

Wash thoroughly after handling.

Wear protective gloves as specified by the manufacturer/supplier or the competent
authority.

Obtain special instructions before use.

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

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

Wash hands thoroughly after handling.

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

Use only outdoors or in a well-ventilated area.

Avoid release to the environment-if this is not the intended use.

First aid measures:

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

If skin irritation occurs, seek medical advice/attention.

Take off contaminated clothing and wash before reuse.

If exposing it: Contact the doctor.

IF exposed: Call a POISON CENTER or doctor/physician.

IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.

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

Get medical attention/advice if you feel unwell.

When I inhaled it : Letting the place where the air is fresh take a rest with transferenc
e, the posture that are easy to breathe. Contact a doctor.IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses,
if present and easy to do. Continue rinsing.

Immediately call a POISON CENTRE or doctor/physician.

Storage:

Store in cool/well-ventilated place.

Store container tightly closed in well-ventilated place - if product is as volatile as to
generate hazardous atmosphere.

Store locked up.

Disposal:

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

3 . COMPOSITION / INFORMATION ON INGREDIENTS

Classification of the substance or mixture:A mixture.

Chemical or generic name:No information

Chemical characteristic (chemical formulas):No information

Poisonous and Deleterious Substances Control Act:No correspond

Component name:

Ingredient name	CAS no	Content (%)	Industrial Safety and Health Act	Poisonous and Deleterious Substances Control Act	Pollutant Release and Transfer Register Law
dimethyl phthalate	131-11-3	60.0 ~ 70.0		-	
2-butanone peroxide	1338-23-4	20.0 ~ 30.0		-	
methylethyl ketone	78-93-3	1.0 ~ 10.0		-	
hydrogeneperoxide	7722-84-1	0.1 ~ 1		-	

4 . FIRST AID MEASURES

Inhalation:

If inhaled vapour or gases and felt unwell, remove to fresh air and keep at rest in a position comfortable for breathing.

And call a doctor /physician if feels unwell.

If inhaled vapour or gases in large quantities, remove to fresh air and rest with keeping warm. And if breathing gets irregular or stops, perform article respiration. And do not let swallow vomit.

Consult a doctor/ physician immediately.

Skin contact:

Wipe off clinging substance with clean cloth quickly.

Wash off thoroughly with plenty of water and soap. Do not use solvent or paint thinner.

If any change of appearance is seen, or pain persists and feels unwell, consult a doctor/physician.

Take off immediately all contaminated clothing.

Eye contact:

Wash off with plenty of clean water immediately for 15 minutes or more. And remove contact lens ,if presence and easy to do.

And completely wash it including the underside of eyelid.

Consult a physician as soon as possible.

Call a POISON CENTER or doctor/physician immediately.

Ingestion:

If swallowed accidentally, rest and consult a doctor/physician immediately.

Do not let swallow vomit.

Avoid forcing to vomit without physician ' s instruction.

The protection of the person taking first aid measure.:

Wear proper protectors (safety goggles, respirator, gloves,etc.)

Ventilate

5 . FIRE-FIGHTING MEASURES

Extinguishing compositions:Carbon dioxide gas,foam , dry powder

Must not use extinguishing compositions:Water (stick water, high pressure water jet)

Special fire extinguishing method(protection of fire-fighting person):

Wear proper protectors (heat-resistant clothes,etc.)

Remove flammable matters immediately.

Use designated extinguishant.

If sealed container is exposed to high temperature, water to cool.

Fire-fight from windward.

6 . ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:

Wear proper protectors (safety goggles, respirator, gloves, apron,etc.)

Declare off-limits of the outskirts and do not bring it close anyone other than the person concerned and prevent a second disaster.

Remove ignition source, heat source and flammable matters immediately.

Prepare proper extinguisher for accidental fire.

Environmental precautions:

Take cautions not to cause influence on environment by discharge to river.

Methods and materials for containment and cleaning up:

Dispose of waste or clinging matter according to related regulation.

Recollect leakage in the container can be sealed and keep in safety place.

Recollect with tool of non-spark material.

Recollect with drysand, soil, or other non-flammable matter. If in large quantity, prevent from flowing out by banking.

7 . HANDLING AND STORAGE

Handling:

Handling technical measures:

Handle in good ventilated area.

Close container tightly with closer after use.

Take away from open flame, spark, heat-source

Use a non-spark type hand tool.

While working, wear antistatic working suits and shoes.

Wear proper protectors to prevent from contact on skin, mucous membrane, wearing clothes and eyes.

Wash hands and face well after handling, and avoid to bring polluted protectors in any place where person stays.

Handling instructions:

As a measure against static electricity accident, ground equipment and use electric appliances of explosion proof type.

Storage:

Storage, technical measures:

Avoid a direct sunlight.

Keep in good ventilated place.

Keep away from open flame and heat source.

8 . EXPOSURE CONTROLS / PERSONAL PROTECTION

Taking measures for equipment:

Use explosion proof type equipment.

Install ventilation equipment to prevent concentrating of vapour.

Ground equipment for transferring, pumping and stirring of fluid.

Provide equipment devised so that heat or ignition source can not be placed in the neighborhood of handling place.

Consider so that the operator can not touch or expose to corrosive substance directly.

In door application, use either not to expose the operator directly, such as using automatic painting machines, or that keeps the operator from exposure, such as local exhaust ventilation equipment.

Management density / permission density:

Chemical substance name	Exposure limits pp m	Exposure limits mg /m3	Skin
methylethyl ketone	200	590	
Chemical substance name	ACGIH_TLV-C ppm	ACGIH_TLV-C mg/m3	Skin
2-butanone peroxide	0.2	1.5	
Chemical substance name	ACGIH_TWA ppm	ACGIH_TWA mg/m3	Skin
dimethyl phthalate		5	
methylethyl ketone	200	590	
hydrogeneperoxide	1		
Chemical substance name	IARC		
hydrogeneperoxide	3		

Protective equipment:

Respiratory protective equipment:

In working, wear proper protection mask.

Hand protective equipment:

Wear the glove that organic solvents or chemicals can not permeate through.

Eyes protective equipment:

Wear protective eyeglasses or goggles.

Skin and body protective equipment:

Wear suitable clothing that should be impervious to chemicals and to avoid direct contact of skin in handling.

Other information:

Wear electricity shoes on electrostatic painting.

9 . PHYSICAL AND CHEMICAL PROPERTIES

Appearance:

Physical state:Liquid

Color:Colorless

Odour:Solvents Smell

pH:No information

Melting point/freezing point:No information

Initial boiling point and boiling range:284[]

Flash point:75[]

Auto-ignition temperature(ignition point):490[]

Flammability (solid, gas):No information

Upper/lower flammability or explosive limits:8[vol %] / 0.9[vol %]

Vapor pressure:133[Pa] (20[])

Vapour density:No information

Evaporation rate:No information

Specific gravity (relative density):No information

Solubility:

Solubility in water:No information

Dissolubility in water:No information

Solubility in solvent:No information

Dissolubility in solvent:No information

Partition coefficient:n-octanol/water:

dimethyl phthalate 1.6

Decomposition temperature:No information

1 0 . STABILITY AND REACTIVITY

Stability(possibility of hazardous reaction) :

There is no dangerous reaction in the range of room temperature.

Product is considered stable.

Conditions to avoid:

Avoid high temperature.

Hazardous decomposition products:

Hazardous gases such as carbon monoxide may be generated.

1 1 . TOXICOLOGICAL INFORMATION

Acute toxicity:

dimethyl phthalate

LD50(oral) rat 6800mg/kg

LD50(dermal) rabbit 23800mg/kg

2-butanone peroxide

LD50(oral) = 407mg/kg

LD50(dermal) = 4000mg/kg

LC50(vapour) = 200ppm(4h)

methylethyl ketone

LD50(oral) rat = 2737mg/kg

LD50(dermal) rabbit > 5000mg/kg

LC50(vapour) rat = 11700ppm(4h)

hydrogeneperoxide

LD50(oral) = 311mg/kg(4h)

LD50(dermal) = 4060mg/kg(4h)

LC50(vapour) = 1438ppm(4h)

Skin corrosion/irritation:

2-butanone peroxide Category 2

methylethyl ketone Category 2

hydrogeneperoxide Category 1

Serious eye damage /irritation:

dimethyl phthalate Category 2B
2-butanone peroxide Category 1
methylethyl ketone Category 2A
hydrogeneperoxide Category 1

Reproductive toxicity:

hydrogeneperoxide Category 2

Specific target organ / systemic toxicity - single exposure:

dimethyl phthalate Category 3
(Narcotic effects)
2-butanone peroxide Category 1
(respiratory organs)
methylethyl ketone Category 2
(kidney)
Category 3
(Respiratory tract irritation ,Narcotic effects)

Specific target organ / systemic toxicity - repeated exposure:

2-butanone peroxide Category 2
(Liver , kidney)
methylethyl ketone Category 1
(Central nervous system , Peripheral nervous system)

1 2 . ECOLOGICAL INFORMATION

Take care for spills or waste in handling because of its environmental impact. Especially take care for product or rinsing water not to flow into ground, river and drain directly.

Hazardous to the aquatic environment - Acute hazard:

dimethyl phthalate Category 3
hydrogeneperoxide Category 2

1 3 . DISPOSAL CONSIDERATIONS

Residual waste:

Let authorized industrial waste disposing agent to dispose of abolished paint, containers and others under agreement.

Dispose of abolished paint, materials and waste from incineration in accordance with regulation or laws of "Specified Hazardous Industrial Wastes" of Special Controlled Industrial Waste.

Must not dispose of waste water from washing container, machinery and etc. into the ground or drain without treatment.

Dispose of waste from waste water treatment, incineration and etc. in accordance with regulation or laws relating to disposal and cleaning of waste, or let special disposing agent to dispose.

Incinerate abolished paint absorbed to diatomaceous earth by small quantity in the open-type incinerator. Or incinerate them by spraying in the fire box. If it is apprehended that hazardous gases such as dioxins are generated, let authorized industrial waste disposing agent to dispose under agreement.

Polluted container and packing:

Let authorized industrial waste disposing agent to dispose of them under agreement.
Dispose of used container after removing contents completely.

1 4 . TRANSPORT INFORMATION

After confirming the state of container had no leakage, and load to prevent collapsing, fall and damage.

Obey the discription of "Handling and Storage"

UN number:3101(Organic peroxides Type B Liquid)

UN class:5.2(Organic peroxides)

Land transportation:

If falling under "Fire Service Act", "Industrial Safety and Health Act" or "Poisonous and Deleterious Substances Control Act" , obey the transport method regulated in each law.

Marine transportation:

ORGANIC PEROXIDE TYPE 5, LIQUID CLASS 5.2

Air transportation:

ORGANIC PEROXIDE TYPE 5, LIQUID CLASS 5.2

Indicator number:146

1 5 . REGULATORY INFORMATION

Fire and Disaster Management Act:

Dangerous, Category 5, Class 2 self-reactive substances (Designated amount 100kg)

Industrial Safety and Health Act:

Table 1-4 by Act of Parliament, Flammable material

Article 57-2, notifiable substances

Waste Management and Public Cleaning Act:

1 6 . OTHER INFORMATION

Literatures:

"Raw Materials Database" edited by Japan Paint Manufacturers Association

"Materials Safety Data Sheet Guide (Mixture)" edited by Japan Paint Manufacturers Association

"Solvent Pocket Book" Ohmsha, Ltd.

The Handbook for Precautions and First Aids to Dangerous Goods.

International Chemical Safety Cards.

Other information:

This SDS is necessary to handle our manufacture property and gathered up the matter which must be paid attention briefly for normal handling.

However the content noted above is prepared based on information or data available at the present, the evaluation of hazardousness and harmfulness is not adequate necessary, so be careful in handling.

This SDS may be revised without notice by revising law or new knowledge.

This SDS is based on the standard of Japan Paint Manufacturers Association with Laws of Japan but not from local government, accord to relevant local laws as required when handling.