

MATERIAL SAFETY DATA SHEET

1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME IN CHINESE 环氧面漆 (主剂)
PRODUCT NAME IN ENGLISH EPICON MARINE HB RED BROWN CS-511 , BASE
NAME OF MANUFACTURER CHUGOKU MARINE PAINTS (SHANGHAI) LTD.
ADDRESS OF MANUFACTURER 4677, JIASONG ROAD(NORTH),JIADING,SHANGHAI,CHINA
ZIP CODE 201814
FAX NO. 86-21-59501300
EMERGENCY TEL NO. 86-21-59501000
MSDS CODE SHA -503D EFFECTIVE DATE OCT 9,2008
FIRE-FIGHTING TEL. NO. 119

2 COMPOSITION/INFORMATION ON INGREDIENTS

MIXTURE

| CHEMICAL NAME | EPICON MARINE HB RED BROWN CS-511 , BASE | |
|-----------------------|--|------------|
| HAZARDOUS INGREDIENTS | CONCENTRATION(%) | CAS NO. |
| XYLENE | 5 - 10 | 1330-20-7 |
| BUTYL CELLOSOLVE | 5 - 10 | 111-76-2 |
| PGME | 5 - 10 | 107-98-2 |
| MIBK | 1 - 5 | 108-10-1 |
| EPOXY RESIN | 20-30 | 25068-38-6 |

3 HAZARD IDENTIFICATION

CLASSIFICATION OF HAZARD FLAMMABLE LIQUID TYPE 3
IN VIVO PATHWAY INHALATION, INGESTION, SKIN CONTACT
HUMAN HEALTH EFFECTS MAY CAUSE IRRITATION TO SKIN,EYE AND RESPIRATORY SYSTEM
ENVIRONMENTAL EFFECTS TAKE PRE-CAUTION TO PREVENT CONTAMINATION TO SOIL AND WATER
SPECIAL HAZARDS ACCUMULATION OF VAPOR MAY RESULT IN EXPLOSION

4 FIRST-AID MEASURES

SKIN CONTACT REMOVE CONTAMINATED CLOTHING
WASH WITH SOAP, WATER OR INDUSTRIAL CLEANSER. DO NOT USE SOLVENT.
EYE CONTACT FLUSH THOROUGHLY WITH RUNNING WATER. SEEK MEDICAL ADVICE
INHALATION REMOVE INTO FRESH AIR. LOOSEN COLLAR KEEP AT REST; OXYGEN THERAPY IF NECESSARY;
ARTIFICIAL RESPIRATION WHEN APNEA; SEEK MEDICAL ADVICE.
INGESTION GARGLE,VOMIT,GASTROLAVAGE IMMEDIATELY. SEEK MEDICAL ADVICE.

5 FIRE-FIGHTING MEASURES

PHYSICAL AND CHEMICAL HAZARDS FLAMMABLE LIQUID, ACCUMULATION OF VAPOR MAY RESULT IN EXPLOSION
EASILY GET FIRE WHEN MEET WITH NAKED FLAME OR HIGH TEMPERATURE.
VAPOR IS HEAVIER THAN AIR.
HARMFUL REACTIVE PRODUCTS FIRE WITH SMOKE、CO、CO₂
EXTINGUISHING MEDIA CO₂、FOAMS、 DRY SAND AND CHEMICAL POWDER.
FIRE FIGHTING MEASURES 1.FIRE FIGHTERS SHOULD WEAR PROPER PROTECTIVE EQUIPMENTS.
2.REMOVE IMFLAMMABLE MATERIALS NEAR FIRE IMMEDIATELY.
3.NO USING WATER.

6 ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS CLEANER SHOULD WEAR PERSONAL PROTECTIVE EQUIPMENT
ENVIRONMENTAL PRECAUTIONS SLUDGE SHALL BE KEPT IN CONTAINER & SEALED
METHODS FOR CLEANING UP SPILLAGE OR LEAKAGE SHOULD BE CLEANED WITH PROPER MATERIAL
AND THE WASTE SHOULD BE DISPOSED IN ACCORDANCE TO ALL LOCAL REGULATIONS

7 HANDLING AND STORAGE

| | |
|-----------------------------------|--|
| PRECAUTIONS IN HANDLING & STORAGE | 1. KEEP CONTAINER TIGHTLY CLOSED 2. KEEP AWAY FROM HEAT & FIRE 3. DON'T MIX WITH FOREIGN MATERIALS 4. KEEP IN COOL, DRY AREA (MAX.37° C & RH80%) 5. AVOID PHYSICAL DAMAGE SUCH AS KNOCKING |
|-----------------------------------|--|

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

| LIMIT VALUE | HAZARDOUS INGREDIENTS | ACGIH(TLV) |
|-------------|-----------------------|------------|
| | XYLENE | 100 ppm |
| | BUTYL CELLOSOLVE | 25 ppm |
| | PGME | 100 ppm |
| | MIBK | 50 ppm |
| | EPOXY RESIN | - |

| | |
|-------------------------------|---|
| HYGIENE MEASURES | THE HARMFUL GAS CONCENTRATION IN THE AIR TESTED BY GAS CHROMATOGRAPHY. DUST CONTENT IN AIR TESTED ACCORDING TO GB/T5748-1985. |
| ENGINEERING MEASURES | VENTILATION EQUIPMENT : 1. USE EXPLOSION PROFF EXHAUST VENTILATION 2. USE NONSPARK CLOSED TYPE GROUND VENTILATION SYSTEM |
| PERSONAL PROTECTIVE EQUIPMENT | RESPIRATORY : USE A RESPIRATORY MASK FOR ORGANIC SOLVENT GASSES EYE : WEAR PROTECTIVE GOGGLES SKIN AND BODY : WORKER SHOULD WEAR OVERALL WORKING SUIT & SAFETY SHOES HAND : WEAR PROTECTIVE GLOVES |

9 PHYSICAL AND CHEMICAL PROPERTIES

| | |
|-------------------------------------|------------------------------|
| APPEARANCE | LIQUID WITH SOLVENT SMELL |
| PH VALUE | NOT AVAILABLE |
| MELTING POINT(°C) | NOT AVAILABLE |
| BOILING POINT(°C) | NOT AVAILABLE |
| SPECIFIC DENSITY (WATER=1) | 1.50 - 1.60 |
| VAPOUR DENSITY (AIR=1) | >1 |
| OCTANOL/WATER PARTITION COEFFICIENT | NOT AVAILABLE |
| FLASH POINT(°C) | 28°C (CLOSED CUP) (XYLENE) |
| AUTOIGNITION TEMPERATURE (°C) | NOT AVAILABLE |
| EXPLOSION LIMIT (UEL) (%) | NOT AVAILABLE |
| EXPLOSION LIMIT (LEL) (%) | NOT AVAILABLE |
| SOLUBILITY | INSOLUBLE IN WATER |
| EVAPORATION RATE | >1 |

10 STABILITY AND REACTIVITY

| | |
|-------------------------------|---------------------------------------|
| STABILITY | STABLE |
| MATERIALS TO AVOID | STRONG OXIDIZED AGENTS,ACIDS,ALKALIS. |
| CONDITIONS TO AVOID | HEAT, SPARK & FLAME |
| HAZARDOUS POLYMERIZATION | IMPOSSIBLE |
| HAZARDOUS DECOMPOSED PRODUCTS | FIRE WITH SMOKE、CO、CO ₂ |

11 TOXICOLOGICAL INFORMATION

| ACUTE TOXICITY | HAZARDOUS INGREDIENTS | LD50 |
|----------------|-----------------------|------------|
| | XYLENE | 4300 mg/kg |
| | BUTYL CELLOSOLVE | 530 mg/kg |
| | PGME | 5660 mg/kg |
| | MIBK | 2080 mg/kg |
| | EPOXY RESIN | - |

12 ECOLOGICAL INFORMATION

| | |
|---------------------|---------------|
| ECOLOGICAL TOXICITY | NOT AVAILABLE |
| BIODEGRADATION | NOT AVAILABLE |
| NON-BIODEGRADATION | NOT AVAILABLE |

13 DISPOSAL CONSIDERATIONS

| | |
|------------------|---|
| WASTE TYPE | HAZARDOUS WASTE |
| DISPOSAL METHODS | DISPOSING SHOULD FOLLOW ALL LOCAL REGULATIONS |
| NOTES | STORAGE AND DISPOSING SHOULD FOLLOW ALL LOCAL REGULATIONS |

14 TRANSPORT INFORMATION

| | |
|--------------------------|--|
| DANGEROUS GOODS NO. | 33646 |
| UN NO. | 1263 |
| CLASSIFICATION OF HAZARD | FLAMMABLE LIQUID |
| HAZARD LABEL | III |
| PACKING METHODS | STEEL DRUM |
| PRECAUTIONS IN TRANSPORT | 1. KEEP CONTAINER TIGHTLY CLOSED 2. KEEP AWAY FROM STRONG SUNSHINE 3. AVOID PHYSICAL DAMAGE SUCH AS KNOCKING |

15 REGULATORY INFORMATION

NO. 170 International Regulation (<作业场所安全使用化学品公约>)
Regulations for Safety Using Chemical Product in Work-place (<作业场所安全使用化学品规定>)
Regulations on the Control over Safety of Dangerous Chemicals (<危险化学品管理条例>)
Rules on Management and Control Ships Carrying Dangerous Cargo (<船舶装载危险货物监督管理规则>)

16 OTHER INFORMATION

REFERENCE LIST

- RAW MATERIAL DATA BASE (JAPANESE PAINT MANUFACTURERS ASSOCIATION)
- SOLVENT POCKET BOOK (YUUKIE KAGAKU KYOKAI)
- INTERNATIONAL CHEMICAL SUBSTANCE SAFETY CARD (KAGAKU KOGYO NIPPON)
- REGISTRY OF TOXIC EFFECTS OF CHEMICAL SUBSTANCE (NIOSH)
- ACGIH : 1990-1991 THRESHOLD LIMIT VALUES FOR CHEMICAL SUBSTANCES AND PHYSICAL AGENTS.
- HAND BOOK OF HAZARDS AND HARM OF CHEMICAL SUBSTANCE (CHUOH RODOHSAIGAI BOHSHI KYOKAI)
- DATA BOOK OF HAZARDOUS SUBSTANCE (MARUZEN)

| | |
|----------------------|--|
| DATE PREPARED | 2008-10-9 |
| DIVISION IN CHARGE | CHUGOKU MARINE PAINTS(SHANGHAI)LTD./TECH. DIV. |
| SECTION TO REVIEW | CHUGOKU MARINE PAINTS(SHANGHAI)LTD. |
| COMMENTS OF REVISION | NO INFORMATION |

OTHER INFORMATION

- THE INFORMATION HEREIN IS GIVEN IN GOOD FAITH, BUT NO WARRANTY, EXPRESSED OR IMPLIED, IS MADE.
- THE INFORMATION IS CORRECT AT THE TIME OF PREPARATION, IT IS SUBJECT TO REVISION FROM TIME TO TIME WITHOUT NOTICE.