SAFETY DATA SHEET

SECTION 1. IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING

Product Name	: EVAMAX 2000 F Grey, BASE
SDS Number	: 14722300-002
Product Type	: Epoxy Resin Paint, Base, 2 packages
Intended Use	: Coating
Company Name	: CHUGOKU MARINE PAINTS (S) PTE. LTD.
Address	: 21 Tuas Street, Singapore 638458
Charge Section	: Technical Dept.
Telephone Number	: +(65)-68612264 Fax Number : +(65)-68618306
E-Mail Address	: technical@cmpsin.com.sg
Emergency Telephone Number	: +(65)-68612264 (Weekdays / 0830 - 1700 hrs)
Issued Date	: August 04, 2016
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SECTION 2. HAZARDS IDENTIFICATION

Material elements categorized as "Not classified" or "Classification not possible" by GHS are not described.

[GHS CLASSIFICATION]

Flammable liquids	: Category 3
Skin corrosion /irritation	: Category 2
Serious eye damage/eye irritation	: Category 2
Skin sensitizers	: Category 1
Carcinogenicity	: Category 2
Reproductive toxicity	: Category 1
Specific target organ toxicity (single exposure)	
: Category 2 (respiratory organs, liver, central nervous system, kidney)	
Specific target organ toxicity (repeated exposure)	
: Category 2 (lungs, respiratory organs, nervous system, central nervous system, organ of hearing)	
Aquatic environmental hazards/Acute	: Category 2
Aquatic environmental hazards/Long-term	: Category 2

[GHS LABEL ELEMENTS]

Pictograms

Signal word **Danger**

[HAZARD STATEMENTS]

H226 : Flammable liquid and vapour
H315 : Causes skin irritation
H317 : May cause allergic skin reaction
H319 : Causes serious eye irritation
H351 : Suspected of causing cancer
H360 : May damage fertility or the unborn child
H371 : May causes damage to respiratory organs, liver, central nervous system, kidney, anesthetic action, repiratory tract irritation, through.
H373 : May causes damage to lungs, respiratory organs, nervous system, central nervous system, organ of hearing through prolonged or repeated exposure.
H401 : Toxic to aquatic life
H411 : Toxic to aquatic life with long lasting effects

[PRECAUTIONARY STATEMENTS]

<Prevention>

P210 : Keep away from ignition sources such as heat/sparks/open flame. - No smoking.
P233 : Keep container tightly closed.
P241 : Use explosion-proof electrical/ventilation/lighting/equipment by the manufacturer/ supplier or the competent authority.
P242 : Use only non-sparking tools.
P243 : Take precautionary measures against static discharge.
P260 : Do not breathe dust/fume/gas/mist/vapours/spray.
P264 : Wash hands and exposed body thoroughly after handling.
P272 : Contaminated work clothing should not be allowed out of the workplace.
P273 : Avoid release to the environment.
P280 : Wear protective gloves, glasses and respirator.

<Response / First Aid Measures>

P304+P340+P310 : IF INHALED : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a doctor/physician.
P301+P310+P330+P331 : IF SWALLOWED : Immediately call a doctor/physician. Rinse mouth. Do NOT induce vomiting.
P305+P351+P338+P337+P313 : IF IN EYES : Rinse cautiously with water for minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, get medical advice/attention.
P303+P361+P352 : IF ON SKIN (or hair) : Remove/Take off immediately all contaminated clothing. Wash with plenty of soap and water.
P302+P333+P313 : IF ON SKIN : If skin irritation or rash occurs, get medical advice/attention.
P314 : Get medical attention/advice if you feel unwell.
P363 : Wash contaminated clothing before reuse.
P391 : Collect spillage.

* Refer to "5. FIRE-FIGHTING MEASURES" in the 5th clause of this SDS.

<Storage>

P403+P235 : Store in well-ventilated place. Keep cool.

<Disposal>

P501 : Dispose of contents/container in accordance with local/regional/national/international regulations.

<Other Hazard Information>

* It is a flammable liquid and explosive if a steam piles up.
* It may possibly cause intoxication of organic-solvent.
* It contains a substance to cause mutagenic.
* It is possible to cause rash and inflammation if it adheres to the skin.

SECTION 3. COMPOSITION / INFORMATION ON INGREDIENTS

Specific of chemical material : Mixture

Hazard Component

Ingredient name	CAS No.	Content Weight %
Titanium dioxide	13463-67-7	1 - 5
Aluminium oxide	1344-28-1	1 - 5
Poly[2-(chloromethyl)oxirane-alt-propane-2,2-diyldiphenol]	25068-38-6	10 - 20
Xylene	1330-20-7	5 - 10
Ethylbenzene	100-41-4	1 - 5
1-Butanol	71-36-3	1 - 5
2-Propanol, 1-methoxy-	107-98-2	1 - 5
Coumarone indene resins	63393-89-5	1 - 5

SECTION 4. FIRST-AID MEASURES

EYE CONTACT

* Rinse eyes and eyelids for 15 minutes or more with pure running water immediately.
* Consult a doctor as soon as possible.

SKIN CONTACT

* Remove immediately contaminants with clothes, etc..
* Wash skin thoroughly with fresh water, soap, or skin detergent. Do not use solvents and thinners.
* Receive diagnosis of a doctor, when change is looked at by appearance or when painful.
* Remove immediately all contaminated clothing.

INHALATION

* If inhaled large quantity of a steam, gas and like, move a patient to the fresh air place immediately and keep him warm and quiet. If breathing is irregular or stopped, respire artificially. Care a patient not to vomit. Get medical attention.
* If inhaled a steam, gas and like or feels worse, move a patient to the quiet and fresh air place, and consult a doctor.

INGESTION

* If swallow accidentally, keep a patient in a quiet place and consult a doctor immediately.
* Care a patient not to swallow a vomit.

SECTION 5. FIRE-FIGHTING MEASURES

Extinguishing media

Carbon dioxide fire extinguisher, Foam fire extinguisher, Powder fire extinguisher, Dry sand

Extinction method

* Wear appropriate protective equipments (heat-resistance clothes and like).
* Remove any inflammable things promptly from the circumference.
* Use the adequate fire extinguisher.
* Fight a fire from the windy side.
* Cool off closed container exposed at high temperature with water mist.
* Do not use (stream of water from a hose, high pressure water) for fire extinguishing.

SECTION 6. ACCIDENTAL RELEASE MEASURES

* Wear appropriate protective equipments (Glove, protective mask, apron and goggles)
* Collect spills in closed container and keep in safe place.
* Ensure to comply with the requirement of the authorities when disposing the contaminated cloths and equipments.
* Clear away all sources of ignition, heat, and inflammable materials immediately.
* Provide a suitable fire extinguisher for a precaution of a fire.
* Collect spills with the appropriate tools which are equipped to prevent sparks caused by impact and static electricity.
* Absorb spills with non combustible materials such as dry sand and soil, and collect in closed containers.
  For extensive spillage, prevent outflow with land elevation.
* Do not let spills to drains, rivers and sea. Special care must be taken for environmental protection.

SECTION 7. HANDLING AND STORAGE

Handling

* Handle carefully in a well ventilated place.
* Keep container closed tightly.
* No ignition and no spark. Do not handle a high temperature material in the outskirts.
* Provide earthing leads and an explosion-prevention for electrical equipments and installations.
* Use adequate tools to prevent sparks.
* Wear overall clothes and goggles to protect skin, membrane and eyes.
* After handling product, wash a face and hands carefully, and do not bring contaminated protective equipments into a rest station or canteen.
* Wear appropriate protective clothes and implements, and provide sufficient ventilation when working in a confined place.
* Do not handle if allergies were acting up in past years.
* Wear antistatic clothes and shoes.

Storage

* Avoid direct sunlight.
* Store in a well ventilated place.
* Keep away from fire and a heat source.
* Store containers against descent and fall in earthquake etc..

SECTION 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Ingredient name	Exposure Limit	ACGIH (TLV)
Titanium dioxide	-	10mg/m3
Aluminium oxide	-	10(Al)mg/m3
Poly[2-(chloromethyl)oxirane-alt-propane-2,2-diyldiphenol]	-	-
Xylene	50ppm	100ppm
Ethylbenzene	20ppm	20ppm
1-Butanol	25ppm	20ppm
2-Propanol, 1-methoxy-	-	100ppm
Coumarone indene resins	-	-

Equipment requirement

* Install the equipment of the explosion-prevention type.
* Install the exhaust to avoid pile up of a steam.
* Provide earthing leads to equipment for transportation, loading/unloading, and stirring of a liquid.
* Handling place should be free from high temperature and the source of ignition.
* When working inside, provide a local ventilation to prevent an exposure to harmful circumstance and mist of coating material.
* When working in the confined tank, provide a ventilation to change air sufficiently in the entire tank.

Protection

Respiratory protection

* Wear the gas mask for organic gas.

Eye Protection

* Wear an eye shield or goggle.

Skin protection

* Wear the appropriate gloves, which are not permeable with the organic solvent or chemicals.
* Wear cloths which do not expose skin directly. Preferably the cloths are not permeable with chemicals.

Others protection

* During working for electrostatic-coating, wear appropriate antistatic shoes.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	: Liquid
Colour	: Grey
Odour	: Solvent odour
Odour Threhold	: No Data
PH (value)	: No Data
Melting / Freezing Point	: Not Applicable
Boiling Point	: 117.7 - 144.4 deg C
Flash Point	: 32.8 deg C
Evaporation Rate	: No Data
Flammability (Solid, Gas)	: Not Applicable
Explosion limits (LEL, UEL)	: (lower limit) 1.1%, (upper limit) 12%
Vapour Pressure	: 1333 Pa (32 deg C)
Density	: 1.63 - 1.73 g/ml
Solubility (ies)	: Not Applicable
Partition coefficent (n-octanol / water)	: Not Applicable
Auto-Ignition Temperature	: 278 deg C
Decomposition Temperature	: Not Applicable
Viscosity	: Not Applicable

SECTION 10. STABILITY AND REACTIVITY

Reactivity
* Specific test data related to reactivity is not available.

Chemical Stability
* Stable under normal condition.

Possibility of hazardous reactions
* No dangerous reaction in a normal condition.

Conditions to avoid
* No data available.

Incompatible materials
* No data available.

Hazardous decomposition products
* Generate low-molecular weight monomers such as CO and NOx.

Other danger information
* No data available.

SECTION 11. TOXICOLOGICAL INFORMATION

Material elements categorized as "Not classified" or "Classification not possible" by GHS are not described.

Harmful information on substance

<Titanium dioxide>

Acute toxicity	: No data available
Serious eye damage/eye irritation	: Category 2B

<Aluminium oxide>

Acute toxicity	: No data available
Specific target organ toxicity (single exposure)	: Category 3 (respiratory tract irritation)
Specific target organ toxicity (repeated exposure)	: Category 1 (lungs)

<Poly[2-(chloromethyl)oxirane-alt-propane-2,2-diyldiphenol]>

Acute toxicity	: No data available
Skin corrosion/irritation	: Category 2
Serious eye damage/eye irritation	: Category 2B
Skin sensitizers	: Category 1

<Xylene>

Acute toxicity	
LD50 (Oral)	: 1700 mg/kg
LC50 (Inhalation)	: 29.08 mg/l (4 hours)
Skin corrosion/irritation	: Category 2
Serious eye damage/eye irritation	: Category 2
Reproductive toxicity	: Category 1B
Specific target organ toxicity (single exposure)	: Category 1 (respiratory organs, liver, central nervous system, kidney)
Specific target organ toxicity (single exposure)	: Category 3 (anesthetic action)
Specific target organ toxicity (repeated exposure)	: Category 1 (respiratory organs, nervous system)
Aspiration hazards	: Category 1

<Ethylbenzene>

Acute toxicity	
LD50 (Oral)	: 3500 mg/kg
LC50 (Inhalation)	: 17.2 mg/l (4 hours)
Serious eye damage/eye irritation	: Category 2B
Carcinogenicity	: Category 2
Reproductive toxicity	: Category 1B
Specific target organ toxicity (single exposure)	: Category 2 (central nervous system)
Specific target organ toxicity (single exposure)	: Category 3 (respiratory tract irritation)
Aspiration hazards	: Category 1

<1-Butanol>

Acute toxicity	
LD50 (Dermal)	: 3400 mg/kg
LC50 (Inhalation)	: 24.2 mg/l (4 hours)
Skin corrosion/irritation	: Category 2
Serious eye damage/eye irritation	: Category 2A
Specific target organ toxicity (single exposure)	: Category 3 (respiratory tract irritation, anesthetic action)
Specific target organ toxicity (repeated exposure)	: Category 1 (central nervous system, organ of hearing)

<2-Propanol, 1-methoxy->

Acute toxicity	: No data available
Serious eye damage/eye irritation	: Category 2B
Specific target organ toxicity (single exposure)	: Category 3 (anesthetic action)

<Coumarone idene resins>

Acute toxicity	: No data available
Skin sensitizers	: Category 1

Harmful information on the product

The safety test is not done as the product.

SECTION 12. ECOLOGICAL INFORMATION

12.1 Toxicity

Titanium dioxide	Fish (Brachydanio Rerio) / LC50 / 5000 mg/l / 96h Green Algae / EC50 / 440 mg/l / 72h Daphnia Magna / EC50 / 7600 mg/l / 48h
Aluminium Oxide	Fish (Salmo Trutta) / EC50 / > 100 mg/l / 96h Algae / EC50 / > 100 mg/l / 72h Daphnia Magna / EC50 / > 100 mg/l / 48h
Poly [2-(cholоromethyl) oxirane-alt-propane-2,2-diyldiphenol]	Fish / LC50 / 2.4 mg/l / 96h Bacteria / EC50 / > 100 mg/l / 96h Daphnia Magna / EC50 / 3.6 mg/l / 24h
Xylene	Fish (Roccus Saxatilis) / LC50 / 2 mg/l / 96h Algae / IC50 / > 3.2 mg/l / 72h Daphnia / EC50 / 8.5 mg/l / 48h
1-Butanol	Fish (Leuciscus Idus) / LC50 / 1200 mg/l / 96h Algae / IC50 / > 500 mg/l / 72h Daphnia Magna / EC50 / 1983 mg/l / 24h
2-Propanol, 1-methoxy-	Fish (Rainbow Trout) / LC50 / 134 mg/l / 96h Algae / LC50 / 20800 mg/l / 48h Daphnia / EC50 / 408 mg/l / 48h
Coumarone indene resins	No Data Available

12.2 Persistance and Degradability

Titanium dioxide	No Data Available
Aluminium oxide	Not readily biodegradable BOD : No Data / COD : No Data
Poly [2-(cholоromethyl) oxirane-alt-propane-2,2-diyldiphenol]	Biodegradation (5%) - 28 days Readily Biodegradable BOD : No Data / COD : No Data
Xylene	Biodegradation (88%) - 28 days Readily Biodegradable BOD : No Data / COD : No Data
1-Butanol	Biodegradation (98%) - 19 days Readily Biodegradable BOD : No Data / COD : No Data
2-Propanol, 1-methoxy-	Biodegradation (96%) - 28 days Readily Biodegradable BOD : No Data / COD : 1.84 mg/g
Coumarone indene resins	No Data Available

12.3 Bioaccumulative Potential

Titanium dioxide	No Data Available
Aluminium oxide	No Data Available
Poly [2-(cholоromethyl) oxirane-alt-propane-2,2-diyldiphenol]	Log Pow : 3.242 / BCF: 31 Potential : Low
Xylene	Log Pow : 3.12 / BCF : 8.1 - 25.9 Potential : Low
1-Butanol	Log Kow : 0.88 / BCF : 0.38 Potential : Low
2-Propanol, 1-methoxy-	Log Pow : 1.2 / BCF : <100 Potential : Low
Coumarone indene resins	No Data Available

12.4 Mobility in Soil

Titanium dioxide	No Data Available
Aluminium oxide	May be leached from the ground at low pH (<5.5) or high pH (>8.5)
Poly [2-(cholоromethyl) oxirane-alt-propane-2,2-diyldiphenol]	No Data Available
Xylene	It will be highly mobile and may contaminate ground water. Floats on water
1-Butanol	The product is partly soluble inwater. May spread in the aquatic environment
2-Propanol, 1-methoxy-	It will be highly mobile and may contaminate ground water. Floats on water
Coumarone indene resins	No Data Available

12.5 PBT & vPvB Assesment

* Not Available

SECTION 13. DISPOSAL CONSIDERATIONS

* Paint ingredient, incinerated ash and used container should be disposed by recognized companies which are licensed as industrial waste disposal by prefectural governor.
* Do not dispose the sewage to the ground and drains after washed a container, instrument equipment, and like.
* Incineration waste and waste water should be disposed in accordance with the regulations and legislations for Waste Disposal, or entrust such business to the approved licensed parties.
* Paint and wastes should be disposed in small pieces by the open type of incinerator to have absorbed them with diatomite. (The incinerator should be installed the necessary equipments against dioxin)

SECTION 14. TRANSPORT INFORMATION

*	UN number	: 1263
*	UN proper Shipping name	: Paint
*	Transport Hazard Class (es)	: Flammable liquids (class 3)
*	Packing group	: III
*	Evironmental Hazards	: Marine Pollutant (Yes)
*	Transport in Bulk (according to Annex II of MARCOL 73/78 and IBC Code)	: Not Applicable
*	Special Precaution for Users	: Make sure there are no damage, corrode and leak on the product container. Products should be also prevented from falling, loosening or tumbling during transit. Packing, labeling and transport take place according to appropriate regulation.

SECTION 15. REGULATORY INFORMATION

* Standard on Hazard communication for hazardous chemicals and dangerous goods (SS586-2008)
* Chemical Weapons Prohibition Act
* Control of Vectors and Pesticides Act
* Environmental Protection and Management Act
* Environmental Protection and Management (Hazardous Substances) Regulations
* Environment Public Health Act
* Fire Safety Act
* Fire Safety (Petroleum and Flammable Materials) Regulations
* Hazardous and Port Authority of Singapore (Dangerous Goods, Petroleum and Explosives) Regulations
* Misuse of Drugs Act
* Prevention of the Sea Act
* Strategic Goods (Control) Act
* Workplace Safety and Health Act
* Workplace Safety and Health (General Provisions) Regulations

SECTION 16. OTHER INFORMATION

Main Quotation Literature

* Japan Paint Manufacturers Association "Chemical Data Base for SDS (paints)"
* Japan Paint Manufacturers Association "a Guidebook to GHS Label and SDS"
* Raw-material maker "Safety Data Sheet"
* Database of National Institute of Technology and Evaluation (NITE)

Notice to Reader

This Safety Data Sheet is offered for your information regarding hazard of product, caution against handling and regulatory information. Please observe following items and ensure health, safety and environment conservation.

* Correspond to rules and regulations in the country/the region used.
* The information in this SDS should be provided to all user/employer including your related companies that handle this product.
* The information in this SDS is based on the present state of our acknowledge at the date of issue. However, we do not assume any liability whatsoever for the accuracy or completeness of the information contained herein. This SDS may be amended in the newly acquired knowledge.
* The data given here do not signify any warranty with regards to the product's properties.
* Make sure safety by user, if user applies without recognized method by CHUGOKU MARINE PAINTS, LTD.(CMP).
* Please consult CMP before exporting this product outside Singapore/Malaysia.

Abbreviations and Acronyms

* GHS - Globally Harmonized System of Classification and Labeling of Chemicals
* SDS - Safety Data Sheet
* CAS - Chemical Abstracts Service
* ACGIH - American Conference of Governmental Industrial Hygienists
* TLV - Threshold Limit Value
* ppm - part per million
* LEL - Lower Explosive Limit
* UEL - Upper Explosive Limit
* LD50 - Lethal Dose, 50% or Median Lethal Dose
* LC50 - Lethal Concentration, 50% or Median Lethal Concentration
* EC50 - Half Maximal Effective Concentration
* IC50 - Half Maximal Inhibitory Concentration
* BOD - Biological Oxygen Demand
* COD - Chemical Oxygen Demand
* Log Pow - Octanol–Water Partition Coefficient
* Log Kow - Octanol–Water Partition Coefficient
* BCF - Bio Concentration Factors