Material Safety Data Sheet

1. Product and Company Identification

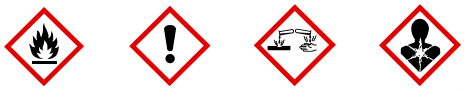
Product Name： Coatings for enamelled Copper Wire
Product Code：Polyurethane Varnish（YPU280-35）
Suggested Use & Restriction：Insulating coatings for Copper Wire
Identification of Supplier：Yee Fong Chemical & Industrial Co., Ltd. Taoyuan plant / No.377, Haihu E. Rd., Lujhu Township, Taoyuan County, Taiwan
Phone Number/Tax Number：TEL：(03) 3541944；FAX：(03) 3541957

2. Hazards Identification

Hazard Identification：Flammable liquids Grade 3
Acute toxicity Grade 4 (Swallow)
Corrosion / irritation of the skin Grade 1
Serious injury /Irritation of the eyes Grade 1
Specific organ systematic toxicity～Repeated exposure Grade 1
Aspiration hazard Grade 1
Hazardous substances in the water environment Grade 3 (acute toxicity)

Mark Content：

Symbols：



Warnings：Danger

Hazard Warning Information：Flammable liquid and vapor
Harmful if swallowed
Harmful in contact with skin
Causes severe skin burns and eye damage
Long-term or repeated exposure will cause organ damage
May be fatal if swallow and enter into respiratory
Harmful to aquatic organisms

Precautionary statements：Place container in a well-ventilated place
Away from the Inflammables - Smoking prohibited.
If contact with the eyes, wash with plenty of water immediately and seek medical care
Wear suitable protective clothing, gloves, goggles / face shields

Other Hazards：—

3. Component Identification Information

Hazardous Ingredients				
Name	Synonyms	Chemical formula	Content (%)	CAS. No.
CRESOL	CRESYLIC ACID METHYLPHENOL METHYLBENZENE	C_7H_8O	18	00108-39-4
PHENOL	CARBOLIC ACID BENZENOL	C_6H_6O	18	00108-95-2
XYLENE	DIMETHYLBENZENE MIXED XYLENE	C_8H_{10}	29	01330-20-7

4. First Aid Measures

First Aid Procedures Under Different Exposure:

Inhalation :

1. Remove pollution sources or move the Patient to fresh air.
2. If not breathing, apply artificial respiration or CPR immediately by trained people.
3. Seek medical treatment immediately.

Skin contact:

1. Erased or siphoning off excess chemicals Promptly.
2. Wash by water or soapy water for about 20 minutes immediately.
3. Seek medical treatment immediately.

Eye contact:

1. Hold eyelids immediately, rinse contaminated eyes with water for 30 minutes.
2. Seek medical treatment immediately.

Ingestion :

1. If the patient is about to lose consciousness or have lost consciousness, do not feed anything.
2. Rinse the mouth with water thoroughly.
3. Do not induce vomiting.
4. Seek medical treatment immediately.

The most important symptoms and hazardous effects：

Inhalation: headache, dizziness, heartburn, vomiting, loss of appetite, fatigue.
Contact: skin redness and blistering, blindness, pain, burns burning.

Protection of first aid personnel：Required to wear protective equipment and then first aid in the safe zone.

Notes to a Physician：Inform the patient's symptoms and exposure pathways, provide material safety data sheets as a reference.

5. Fire Fighting Measures

Suitable Extinguishing：Dry chemical, foam, carbon dioxide

Special hazards that may be encountered when extinguishing：Skin or eye contact burns, smoke inhalation choking injuries or suffocation.

Special fire fighting procedures： Not suitable extinguishing with water, but a water spray is able to cool down the containers which exposed to fire. If there is no risk, move the container from the scene of the fire. Wear the appropriate protective masks to extinguish the fire.

Special protective equipment for fire-fighters：Fire fighters must wear Class B chemical protective suits and air respirators（If necessary, plus anti-Flash aluminum approvals jacket）.

6. Accidental Release Measures

Personal precautions：

1. Restrict access until the contaminated area is completely clean.
2. Confirming that the person who is responsible for the clean-up is well-trained.
3. Wear appropriate personal protective equipment (PPE).

Environmental Considerations：

1. Ventilate the leakage area.
2. Remove all ignition sources.
3. Notify the environmental protection unit.

Clean-up methods：

1. Use rag or paper towel to absorb when small amount of leakage of liquid. Use dry sand or similar material to absorb when massive fluid leaks.
2. Avoid inflow to sewer or ditch。

7. Handling and Storage Methods

Handling：

1. Keep away from heat, ignition sources and incompatible materials.
2. Use non-sparking, qualified explosion-proof equipment and electrical safety system.
3. Posted “Smoking and lighting fires strictly prohibited "as warning signs.
4. Empty barrels, containers and pipes residue to clean before welding or cutting.
5. Operating in a well-ventilated area and away from storage area.
6. Do not use with incompatible materials (such as strong oxidant) to reduce the risk of fire and explosion.
7. The containers should be labeled. Keep tightly closed when not in use and avoid damage.

Storage：

1. Store in a cool, dry, well-ventilated, and direct sunlight place.
2. Workspace and storage areas shall be separated to avoid a lot of storage in the indoor.
3. Storage should be capped tightly closed to prevent solvent escaping.

8. Exposure Prevention Measures

Engineering controls：

1. Operate under completely explosion-proof equipment.
2. Supply sufficient fresh air to supplement the pull out of the air by the exhaust system.
3. Emissions required to take appropriate measures on the environment.

Control parameters:

Average allowable concentration of eight hours time weighted / Average allowable concentration of short period / Maximum allowable concentration / Biological indicators:

Hazardous substances	Average allowable concentration of eight hours time weighted	Average allowable concentration of short period	Maximum allowable concentration	Biological indicators
Cresol	5ppm	10ppm	--	--
Phenol	5ppm	10ppm	--	--
Xylene	100ppm	125ppm	--	containing In urine of kima uric acid 1.5g A / 1g creatinine after work

Personal protective equipment：

Eyes：Poorly ventilated chemical safety goggles, full-face helmet.

Breath：

1. Organic vapor canister and dust droplet filter respiratory protection.
2. Whole face self-priming protection
3. Air-supplying respirator

Gloves：Chemical protective gloves made from polyvinyl alcohol is preferred.

Others：Rubber coveralls protective clothing, work boots, and emergency irrigator.

Hygienic measures：

1. Food, clothing and the skin should be taken to avoid contamination.
2. Workplace non-smoking or diet.
3. Wash hands thoroughly after handling this substance.
4. Maintain a clean work

9. Physical and Chemical Properties

Physical state: Liquid	Shape: Viscous liquid
Color:Light coffee	Smell: Special smell
pH： 4~5	Boiling point / Boiling range：>135℃
Decomposition temperature: —	Flash Point：>27℃ Test methods：Closed Cup
Ignition temperature：>450℃	Explosion limits： Upper explosive limit: — Lower explosive limit:1.0%
Vapor pressure：1~9mmHg (17℃)	Vapor Density：3.8
Density：1.0~1.14 g/cm^3 (20℃)	Solubility：5% (100℃)
Octanol / water partition coefficient (log/kow)：—	Evaporation rate：—

10. Stability and Reactivity

Stability：Stable under normal conditions
Hazardous reactions under Special Conditions：Fire
Conditions to avoid：Contact with the source of fire
Substances to be avoided：Strong oxidizing agent, alkali, heat
Hazardous Decomposition Products：—

11. Toxicity Data

Routes of exposure：Inhalation, skin, eyes, ingestion.

Cresol Acute toxicity：
Inhalation：Concentration 6mg/kg, cause austerity nose, throat irritation, respiratory mucosa dry.
Skin：May cause severe irritation. Tingling and intense burning sensation may occur after contact with a few minutes.
Eyes：Liquid splashes into the eyes may cause burns, varying degrees of damage depending on the amount of contact time.
Ingestion：Will cause severe mucous membrane irritation accompanied by intense burning sensation of the mouth and throat.

Phenol Acute toxicity：
Inhalation：Concentration 6mg/kg, cause austerity nose, throat irritation, respiratory mucosa dry.
Skin：May cause severe irritation. Tingling and intense burning sensation may occur after contact with a few minutes.
Eyes：Liquid splashes into the eyes may cause burns, varying degrees of damage depending on the amount of contact time.
Ingestion：Will cause severe mucous membrane irritation accompanied by intense burning sensation of the mouth and throat.

Xylene Acute toxicity：
Inhalation：
1. Brief exposure to 200ppm concentration can irritate the nose and throat.

2. Exposed to 700ppm concentration, can cause nausea and vomiting.
3. Exposure to high concentrations can cause incoordination, loss of consciousness, liver kidney damage, respiratory failure and death.

Skin：
1. Long-term exposure can cause dermatitis.
2. Vapors may irritate the skin.

Eyes：Vapor and liquid can irritate the eyes.

12. Ecological Information

Cresol Ecotoxicity：

Lc_{50}(Fish):1000μg/L/96H(Lepomis macrochairus)

Persistence and degradability:
1. Release into the soil, mobility exists in the soil.
2. Released into water, up to a few days to adapt to the environment, will degrade within eight hours.
3. Released into the air, the vapor phase the material will react with photochemical product of hydrogen radical. The half-life of about 8 to 10 hours;
4. Have radical reaction with nitrate when nighttime, the half-life of about 2 to 5 minutes.

Bioaccumulation：
The majority is broken down in the liver and excreted in the urine, a small portion is discharged by the breathing; No food chain concentrated or accumulated.

The liquidity of the soil：
Would seep into the soil.

Other adverse effects:—

Phenol Ecotoxicity：

Lc_{50}(Fish):1000μg/L/96H(Lepomis macrochairus)

Persistence and degradability:
1. Release into the soil, mobility exists in the soil.
2. Released into water, up to a few days to adapt to the environment, will degrade within eight hours.
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Bioaccumulation：
The majority is broken down in the liver and excreted in the urine, a small portion is discharged by the breathing; No food chain concentrated or accumulated.

The liquidity of the soil：
Would seep into the soil.

Other adverse effects:—

Xylene Ecotoxicity：

Lc_{50}(Fish):13.5mg/L/96H(Lepomis macrochairus)

Persistence and degradability:
1. Release into water, will be eliminated by evaporation.
2. Release into the air, with the hydrogen radical reactions quickly eliminated.
3. Test with standard biodegradable, will be decomposed by ditch activity pollution.

Half-life (air): 2.6 ~ 44 hours
Half-life (water surface): 168 to 672 hours
Half-life (groundwater): 336 to 8640 hours
Half-life (soil): 168 to 672 hours

Bioaccumulation：
The majority is broken down in the liver and excreted in the urine, a small portion is

discharged by the breathing; No food chain concentrated or accumulated.

The liquidity of the soil：

Would evaporate and seep into the soil.

Other adverse effects:—

13. Waste Disposal Method

Waste Disposal Method：

Refer to Toxic Chemical Substances Control Act, the industrial waste storage, clearance and processing methods and related laws, prohibit indiscriminate dumping.

14. Transport Information

UN number：UN1992
International shipping name：Coating
Hazard classification of transportation：The third category of flammability and the sixth category of toxic substances.
Packing Group：—
Marine pollutant (Yes/No)：No
Special delivery methods and precautions：—

15. Regulatory Information

Applicable laws and regulations：	
1. Labor safety and sanitation rules	4. General rules of the dangerous and harmful materials
2. Organic solvent poisoning prevention rules	5. Standards of permissible concentration of harmful substances in the working environment
3. The rules of the traffic safety	6. Storage of industrial waste clean-up processing methods and facilities standards

16. Other Information

Reference	1. Industrial Technology Research Institute: The Center For Safety & Health Tecnology. MSDS. 2. Council Of Labor Affairs Executive Yuan GHS Information website http://ghs.cla.gov.tw 3.GHS Mixture Expert System	
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Tabulation Date	2012/7/6	

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