

MATERIAL SAFETY DATA SHEET

1. Identification of Product and Company

Name of product	: AM-107 A1
Type of product	: 40% Aqueous Formaldehyde Solution
Company	: Eternal Resin Co., Ltd. 19th Floor, Bangkok City Tower, 179/90-92 South Sathorn Road, Sathorn Bangkok 10120, Thailand Tel. 662-287-2000 Fax. 662-287-3523

2. Hazards Identification

Potential Acute Health Effects

Eye Contact	: Corrosive to eye. Eye irritant. Causes eye burns. Inflammation of the eye is characterized by redness, itching.
Skin Contact	: Corrosive, irritant, dryness, may cause eczema.
Ingestion	: May be corrosive to digestive tract, may cause burns to the digestive tract. May cause liver and kidney damage. May cause central nervous system depression. May be fatal or cause blindness if swallowed.
Inhalation	: Causes respiratory tract irritation. May cause central nervous system depression, characterized by nausea, headache, unconsciousness and coma. May cause allergic sensitization of the respiratory tract.

Chronic Health Effects

Carcinogenic effects	: Contains formaldehyde, which is classified A2 (suspected carcinogen for human) by ACGIH
Mutagenic effects	
Formaldehyde	: Mutagenic for mammalian somatic cells and for bacteria and/or yeast.
Methyl alcohol	: Mutagenic for mammalian somatic cells and for bacteria and/or yeast.

**3. Information on ingredient**

Ingredient	CAS Numbers	% By weight
Formaldehyde	50-00-0	40%
Methyl alcohol	67-56-1	7.0-10.0%
Water		50-53%

**4. First Aid Measures**

<b>Eye Contact</b>	: Check for and remove contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, holding eyelids.
<b>Skin Contact</b>	: In case of contact, immediately flush skin with running water for at least 15 minutes. Cover irritated skin with an emollient. Remove contaminated clothing and wash before reuse. Seek medical attention.
<b>Ingestion</b>	: Do not induce vomiting unless directed to do so by a physician. Never give anything by mouth to an unconscious person. Loosen tight clothing, such as collar, belt, waistband. Seek medical attention immediately.
<b>Inhalation</b>	: Remove to fresh air. Loosen tight clothing. If breathing is difficult, give oxygen. If victim is not breathing, give artificial respiration. Seek medical attention immediately.

**5. Fire Fighting Measures**

<b><u>Extinguishing media</u></b>	
For small fire	: Dry chemical, foam or carbon dioxide, water spray.
For large fire	: Water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion.
Fire fighting procedure	: Wear complete personal protective equipment and respirator.

## 6. Accidental Release Measures

Before proceeding with clean up. Use appropriate Personal Protective Equipment during clean up. Wear self-contained breathing apparatus and chemical-proof suit.

- Spillage / leakage** : Soak up small spills with earth, sand or other noncombustible absorbent material and remove in covered metal containers. Dike large spills and neutralize with dilute (5%) solution of ammonia, sodium sulfite, or sodium bisulfite and remove. Flush area with plenty of water.
- Waste disposal method** : Dispose in accordance with federal, state and local regulations.

## 7. Handling and Storage

- Handling** : Keep away from heat and sources of ignition. Ground all equipment. Do not pressurize, cut, weld, solder, drill, grind or expose empty containers to heat, sparks, or open flame.
- Do not ingest. Do not breathe vapor or mist. Use only with adequate ventilation. Wash thoroughly after handling. Do not get in eyes, on skin, or on clothing. Remove contaminated clothing and wash before reusing.
- Storage** : Store in a dry, well-ventilated area in tightly closed and sealed containers. Store away from incompatible materials such as oxidizing agents, reducing agents, acids, alkalis

## 8. Exposure Controls / Personal Protection

<b>Engineering Control</b>	:	Provide exhaust ventilation or other engineering controls to keep vapor concentrations below their respective threshold limit values. Safety showers and eyewash stations must be available in the work area.
<b>Exposure Limits</b>	:	TLV-C 0.3 ppm ( <i>ACGIH</i> ) TLV-TWA 0.75 ppm ( <i>OSHA</i> ) TLV-STEL 2 ppm ( <i>OSHA</i> )
<b>Personal protective equipment</b>		
Eyes	:	Wear chemical splash goggles and face shield.
Skin	:	Wear appropriate gloves to prevent skin exposure.
Clothing	:	Wear appropriate protective clothing to prevent skin exposure.
Respirators	:	Use a NIOSH/MSHA or European Standard EN149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

## 9. Physical and Chemical Properties

<b>Appearance</b>	:	Clear liquid, Colorless
<b>Odor</b>	:	Pungent
<b>Molecular Weight</b>	:	30.03
<b>Boiling point</b>	:	96°C
<b>Melting point</b>	:	-92°C
<b>pH</b>	:	2.5 – 3.5
<b>Specific gravity (25°C)</b>	:	1.080 - 1.110
<b>Vapour pressure (20°C)</b>	:	1.52 mm-Hg
<b>Solubility</b>	:	Easily soluble in water, alcohol, ether, acetone
<b>Flash point</b>	:	> 60.5°C
<b>Autoignition Temperature</b>	:	424 °C

**10. Stability and Reactivity**

<b>Stability</b>	:	Stable.
<b>Conditions to avoid</b>	:	Flame and spark.
<b>Materials to avoid</b>	:	Reactive with oxidizing agents, reducing agents, acids, alkalis. Slightly reactive to reactive with metals.
<b>Hazardous Decomposition Product</b>	:	Carbon monoxide, Carbon dioxide
<b>Hazardous polymerization</b>	:	Will not occur.
<b>Inhibitor</b>	:	Polymerization can be inhibited by the addition of methanol.

**11. Toxicological Information**

<b>Routes of Entry</b>	:	Absorption through skin, eye contact, inhalation, and ingestion.
<b>Toxicity to Animals</b>		
LD <sub>50</sub> [Oral, rat]	:	605 mg/kg ( <i>HSDB Non-Human Toxicity Values</i> )
LD <sub>50</sub> [Skin, rabbit]	:	270 mg/kg ( <i>HSDB Non-Human Toxicity Values</i> )
LD <sub>50</sub> [Inhalation, rat]	:	578 mg/m <sup>3</sup> @ 4 hr ( <i>HSDB Non-Human Toxicity Values</i> )
<b>Chronic Effects on Humans</b>		
Carcinogenic Effects	:	A2 – Suspected Human Carcinogen ( <i>ACGIH</i> ) Group 1 – Carcinogenic to humans ( <i>IARC</i> )
Mutagenic Effects	:	Mutagenic for mammalian somatic cells (formaldehyde, methyl alcohol). Mutagenic for bacteria and/or yeast (formaldehyde, methyl alcohol)

**12. Ecological Information****Ecotoxicity**LC<sub>50</sub> : 24.1 mg/L @ 96 hr (Fish)EC<sub>50</sub> : 42 mg/LLog K<sub>ow</sub> : 0.35

BCF : 3

**Bioaccumulative potential** : Bioaccumulation in aquatic organisms is not expected.**13. Disposal Consideration****Waste disposal method** : In accordance with all local, state, and federal regulations. Contact a licensed professional waste disposal service. Dissolve or mix with combustible solvent and burn in chemical incinerator equipped with after-burner and scrubber.**14. Transport Information****Shipping Name** : Formaldehyde solution**UN Number** : 2209**UN Class** : 8**UN Packing Group** : III**Placards** : Corrosive**15. Regulation Information****Hazardous Substance** : Type II (Hazardous Substance Act B.E. 2535)**Transport Regulation** : Land Transport Regulation for Hazardous Substance, Ministry of Industry B.E. 2546**16. Other Information**

This information relates only to the specific material designated and may not be valid for such material used in combination with other material or in any process. Such information is to the best of our knowledge and believed accurate and reliable as of the date indicated.