MATERIAL SAFETY DATA SHEET

1. Product and Company Identification

Product name：EMK 4830 Stripper
Other names：
Recommended use and restrictions on use：Photo resist Stripper.
Supplier detail： EMK Technologies Pte Ltd 21 Bukit Batok Crescent, #14-76,Wcega Tower, Singapore 658065
Emergency phone number： Tel : +65.6684 7855

2. Hazard Identification

Emergency classification：Inflammable Liquids (Category 4) Acute Toxicity Category 4 (Skin) Skin Corrosion／Irritation (Category 1) Target organ toxicity (Category 3) Serious Eye Damage ／ Eye Irritation (Category 1)
・GHS label：    ・Warning information：Danger！ ・Hazard statement：Flammable liquids. Harmful in contact with skin. Causes severe skin burns and eye damage. May cause respiratory irritation or may cause drowsiness or dizziness.

Cause serious eye damage. ・Precautionary statement：Do not breathe gas / fumes / vapor / mist. Avoid contacting with eyes. Avoid contacting with skin. Wear goggles / face shield. In case of contact with eyes, flush with plenty of water, call doctor immediately.
Other hazards：-

3. Composition／Information on Ingredients

Mixtures：

Chemical identity	
Names of ingredient	Concentration or Concentration range（% of contents）
Dimethyl sulfoxide（DMSO） CAS NO.：67-68-5	70～80%
Propylene glycol（PG） CAS NO.：57-55-6	5～10%
Alkyl amine	14～18%

4. First-Aid Measures

First-aid measures for different exposure routes： ・Inhalation：Move exposed person to fresh air. If not breathing, provide artificial respiration or oxygen by trained personnel. If heart has stopped

beating, start cardiopulmonary resuscitation (CPR).
Call physician immediately.

・Skin Contact：Avoid contact with the substance; if necessary, wear chemical impervious gloves. Flush skin with plenty of water for at least 15 minutes. Remove all the contaminated clothing, shoes, and leather products. Thoroughly clean contaminated clothes before reuse. Do not reuse contained shoes and leather products. Get medical attention immediately.

・Eye Contact：Immediately flush the eyes with large amounts of clean low-pressure water for at least 15 minutes, occasionally lifting the upper and lower lids. If pain or irritation persists, promptly obtain medical attention. Remove contact lenses, if worn. DO NOT use counteractive to flush eyes.

・Ingestion：Do not induce vomiting. Give large amounts of water to drink. Never give anything by mouth to
an unconscious person. Get medical attention.

Most important symptoms and hazardous effects：May cause irritation to skin, eyes, and respiratory tract.

Protection of First-aiders：Wear Class C protective gears and do first aid in a safe zone.

Notes to Physician：

・If inhaled, consider giving oxygen.

・If ingested, consider the use of esophageal endoscopy, gastric lavage to avoid.

5. Fire-Fighting Measures

Extinguishing Media：

・Water, foam, CO_2, dry powder

・Large fire：Use water spray and water bubbles to control the fire.

Fire and Explosion Hazards： Keep people away. Isolate fire area and deny unnecessary entry. Stay upwind. Keep out of low areas where gases (fumes) can accumulate. Water may not be effective in extinguishing fire. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of re-ignition has passed. Fight fire from protected location or safe distance. Consider use of unmanned hose holder or monitor nozzles. Immediately withdraw all personnel from area in case of rising sound from venting safety device or discoloration of the container. Burning liquids may be extinguished by dilution with water. Do not use direct water stream. May spread fire. Eliminate ignition sources. Move container from fire area if this is possible without hazard. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage.
Special Firefighting Procedures： Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, pants, boots, and gloves). Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with SCBA. If this is not available, wear full chemical resistant clothing with SCBA and fight fire from a remote location. For protective equipment in post-fire or non-fire clean up situations, refer to the relevant sections.
Special Equipment for the Protection of Firefighters： ・As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA／NIOSH and full Protective gear. ・If necessary, may cover a spark-proof coat on the protective clothing.

6. Accidental Release Measures

Personal Precautions： ・Evacuate all unnecessary and unprotected personnel. ・Keep upwind and keep away from low or confined area. ・Do not inhale vapor or mist.

・Wear appropriate personal protective equipment as specified in Section 8.
Environmental Precautions： ・Avoid heat, flames, sparks and other ignition sources. ・Remove sources of ignition.
Methods for Cleaning Up： ・Prevent from entering sewers or confined space. ・If safe to do so, stop or reduce spills. ・Absorb or dike spill with sand or other inert, stable, and non-flammable materials. ・Use pump or vacuum equipment to absorb the substance, and place in closed container. Contaminated absorbents may pose the same hazards as the spilled product. ・Small spills: absorb spill with inert materials. Seal in suitable containers for disposal. Small amounts of residue may be flushed with plenty of water. ・Large spills: contact the fire department, emergency management agency, or the suppliers immediately.

7. Safe Handling and Storage Measures

Handling： ・Avoid contact with personnel. ・Do not breathe vapor or mist. ・Use an appropriate respirator if expose to hazard. ・Store in a cool, well-ventilated area. ・Do not enter confined area unless the air quality has been checked. ・Avoid smoking, naked lights, or ignition sources.

- Stay away from incompatible materials.
- Never eat, drink, or smoke in work areas.
- Keep containers tightly closed when not in use.
- Protect containers against physical damage.
- Wash thoroughly with soap and water after handling.
- Launder contaminated clothing separate from other household laundry.
- Practice good personal hygiene after using this material.
- Check air quality regularly to ensure the safety in work environment.

Storage：

- Make sure all containers are labeled clearly.
- Store in glass, metal, or multi-layer lined containers.
- Avoid contact with oxidizers and incompatible materials.
- Store in original containers.
- Keep containers tightly closed.
- Avoid smoking, naked lights, heat, or ignitions sources in work area.
- Store in a cool, dry, and well-ventilated area.
- Stay away from incompatible materials and food area.
- Protect containers against physical damage, check regularly for spill and leak.
- Store protected from moisture.

8. Exposure Controls / Personal Protection

Control parameters：

・Provide local exhaust ventilation system.

・Exhaust ventilation system shall ensure compliance with the explosion limits of the range available.

Control Parameters

8 hours time weighted average exposure limits TWA	Short-term exposure limits STEL	Maximum exposure limits CEILING	biological standards
-	-	-	-

Personal Protective Equipment：

・Respiratory Protection：If repeated overexposure, appropriate personal respiratory protective equipment is highly recommended.Different equipments are required when expose in different concentration.Wear a full-face organic vapor respirator or chemical cartridge respirator.For emergency and other conditions where the exposure limit may be greatly exceeded,use an approved positive-pressure, self-contained breathing apparatus or positive-pressure airline with auxiliary self-contained air supply.

・Hand Protection：Wear appropriate chemical resistant gloves.

・Eye Protection：Safety glasses should be worn whenever working with chemicals. Goggles or a face shield are required if there is a chance of splashing. Emergency shower and eyewash facility nearby.

・Skin and Body Protection：Protective equipment (Level C).

Specific Hygiene Measures：

・Immediately change contaminated clothing after work. Appropriate warning before cleaning.

・Wash hands thoroughly after handling. ・Smoking and eating are prohibited in the work places. ・Maintain cleanness in the work places.

9. Physical and Chemical Properties

Appearance(physical state, color, etc.)： yellow liquid	Odor：Slight ammonia odor
Odor threshold：-	Melting point：-
pH：＞14	Boiling Point／Boiling Range：＞189℃
Flammability：-	Flash Point：＞60℃
Decompositon temperature：-	Method Used：
Autoignition temperature：-	Explosion limits：-
Vapor pressure：-	Vapor density：-
Density：1.078	Solubility：Soluble in water
Partition coefficient n-octanol/water：-	Evaporation rate：-

10. Stability and Reactivity

Stability：Stable under normal temperature and pressure
Possible Hazardous Reactions Occurring under Specific Conditions： ・Acid：the fierce reaction. ・Strong oxidants：fire or explosion hazard.
Conditions to Avoid：

・Avoid heat, flames, sparks and other ignition sources. ・If heated, the container may rupture or explode. ・Leave the water and sewer.
Materials to Avoid：Flammable substances, acids, metals, oxidizing materials, reducing agents
Hazardous Decomposition Products：Sulfur oxides

11. Toxicological Information

Routes of exposure(inhalation, ingestion, skin and eye contact)：Inhalation, ingestion, skin and eye contact
Symptoms：Cough, vomiting, headache, dizziness, drowsiness, blurred vision, nausea, diarrhea
Acute toxicity： Eye Contact：Vapor may cause irritation. If contact with this liquid, it may cause burn, irritation, tear production, inflammation of the conjunctiva, and transient corneal opacity. Skin Contact：If contact, may cause minor irritation; will be absorbed by skin. Inhalation：Expose to high concentration may cause mucous stimulation, headaches, dizziness, mental confusion, nausea. Ingestion：Ingestion may cause gastrointestinal discomfort. Large ingestion may cause nausea, vomiting, diarrhea, lethargy and drowsiness. ● LD_{50}：- ● LC_{50}：-
Chronic Toxicity or delayed Toxicity： ・Overtime expose to very high concentration will induce headaches, dizziness,

mental confusion, and nausea. · Animal test shows that expose to very high concentration will cause embryo toxicity on mice. · Stimulate long-term or repeated exposure to the eyes may cause conjunctivitis.

12. Ecological Information

Ecotoxicology： LC_{50}(fish)：- EC_{50}(Aquatic Invertebrates)：- Bioconcentration factor (BCF)：-
Persistence and degradability： Half-Life (Air)：- Half-Life (Water surface)：- Half-Life (Groundwater)：- Half-Life (Soil)：-
Bioaccumulative potential：
Mobility in soil：
other adverse effect：-

13. Disposal Considerations

Methods of disposal： · Incineration. · Sanitary Landfill.

・Follow ROC Environmental Laws and Regulations.

14. Transport Information

UN number：1760
UN classification number：Corrosive liquids, n.o.s
Transport hazard class：8
Packing group：III
Marine pollution：No
Specific precautionary transport measures and conditions： Proposed operators should complete a training course.

15. Regulatory Information

Applicable Regulations： ・Regulations for Labor Safety and Health Installations ・Regulations for Chemical Hazard Communication ・Road Traffic Safety Regulations ・Industrial Waste Storage and Disposal Regulations ・Facility Standards

16. Other Information

Literature references	GHS SDS

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Date the GHS was prepared	30 May, 2013	Revision	2.0
Note	・Symbols Explanations: "-"No information is available at this time. "/"Not applicable to this substance.		