# Industrial Summit Technology

## SAFETY DATA SHEET

Date Updated: June 01, 2015

Product Name: Pyre-M.L RK 692 Insulating Varnish

### Section 1: Identification

**Chemical Product Name/Identifier:** Pyre-M.L RK 692 Insulating Varnish

**CAS Number:** Mixture

**Trade Names and Synonyms:** ML-104

**Recommended Use and Restrictions on Use:** Insulation of magnet wire

**Company Information:** Industrial Summit Technology Corporation
250 Cheesequake Road
Parlin, NJ 08859

**Telephone:** Product and Sales Information: 732-238-2211

**Emergency Phone:** CHEMTREC: 1-800-424-9300

### Section 2: Hazards Identification

**OSHA HCS Status:** This product is a hazardous chemical, as defined by OSHA at 29 CFR 1910.1200. Hazards identified are based on hazards of the ingredients.

**Relevant Route of Exposure/Target Organs:** Dermal, Eyes, Inhalation, Respiratory System

**OSHA/GHS Signal Word and Hazard Statements:**

DANGER: Flammable liquid and vapor. Causes skin irritation. Causes serious eye irritation. May be fatal if swallowed and enters airways. May cause cancer. May damage fertility or the unborn child. May cause genetic defects. May cause damage to respiratory system. Harmful to aquatic life with long lasting effects.

**OSHA/GHS Classification and Pictograms:**

Flammable liquid (Category 3) H226
Skin irritation (Category 2) H315
Eye irritation (Category 2A) H319
Aspiration hazard (Category 1), H304
Carcinogenicity (Category 1B) H351
Reproductive toxicity (Category 1B) H360
Germ cell mutagenicity (Category 1B) H340
Specific target organ toxicity - single exposure (Category 3, respiratory system) H335
Acute aquatic toxicity (Category 3) H402
Chronic aquatic toxicity (Category 3) H412

For the full text of the H-Statements mentioned in this Section, see Section 16

**OSHA/GHS Precautionary Statements:**

**Prevention**

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat/sparks/open flames/hot surfaces.– No smoking. Keep container tightly closed. Ground/Bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge.

Wear protective gloves/eye protection/face protection specified in Section 8.

Wash hands and exposed skin thoroughly after handling. Wear protective gloves, eye and face protection.

Do not breathe mist, vapors, or spray. Use only outdoors or in well-ventilated area. Wear respiratory protection. Do not eat, drink, or smoke when using this product.

Avoid release to the environment.

**Response**

In case of fire: Use water spray, foam, dry chemical, carbon dioxide, or any Class B extinguishing agent.

If exposed or concerned: get medical advice/attention.

If on skin: Wash with plenty of water. Take off immediately all contaminated clothing and wash it before reuse. Specific treatment: see Section 4 for First Aid instructions.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

If swallowed: Immediately call a poison center/doctor. Do NOT induce vomiting.

If inhaled: Remove person to fresh air and keep comfortable for breathing. Immediately call a poison center/doctor. Specific treatment: see First Aid instructions in Section 4 of Safety Data Sheet.

**Storage**
Store in a well-ventilated place. Store locked up.

**Disposal**
Dispose of contents/container in accordance with local/regional/national/international regulations.

**GHS Hazard and Precautionary Statement Codes:** See Section 16.

## Section 3: Composition/Information on Ingredients

**Chemical Product Name:** Pyre-M.L RK 692

| Component | CAS # | Weight % |
|---|---|---|
| N-methyl-2-pyrrolidone | 872-50-4 | 61 - 65 |
| Polyamic Acid of Pyromellitic Dianhydride/4, 4- Oxydianiline (Polymer) | 25038-81-7 | 11- 13 |
| Xylene | 1330-20-7 | 21 - 25 |

## Section 4: First-Aid Measures

**Skin Contact:** Immediately was skin with soap and water. Remove contaminated clothing. Get medical attention. Wash contaminated clothing before reuse.

**Eye Contact:** Immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.

**Inhalation:** Remove person to fresh air. If not breathing, give artificial respiration. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Remove material from eyes, skin, and clothing.

**Ingestion:** Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Immediately give 2 glasses of water. Consult a physician.

**Most Important Symptoms/Effects:** Skin and eye irritation. May cause respiratory irritation or distress. May cause cancer and damage fertility or the unborn child.

**Indication of Immediate Medical Attention and Special Treatment Needed:** Get medical attention immediately any of the symptoms noted above occur.

## Section 5: Fire-Fighting Measures

**Extinguishing Media:** water fog, foam, dry chemical, C02..

**Hazardous Combustion Products:** Oxides of carbon produced when burned. Vapor forms explosive mixture with air.

**Protective Equipment:** Firefighters and others who may be exposed to products of combustion (see Hazardous Decomposition Products in Section 10) should be equipped with self-contained breathing apparatus and full protective gear. Equipment should be thoroughly decontaminated after use.

**Fire Fighting Procedures/Precautions:** Keep away from heat/sparks/open flames/hot surfaces. Keep personnel removed and upwind of fire. Closed containers exposed to heat may build up pressure. Use water spray to keep exposed containers and equipment cool. Use water spray to cool containers and tanks.

## Section 6: Accidental Release Measures

**Personal Precautions:** Review Firefighting Measures and Handling sections before proceeding with clean up. Take precautions to avoid eye, skin, and respiratory exposure. Should exposure occur, see Section 4 for first aid measures. Flammable vapors can accumulate in low areas and form explosive concentrations.

**Protective Equipment:** Use appropriate personal protective equipment during clean up. See Section 8.

**Emergency Procedures:** Maintain adequate ventilation. Shut off all sources of ignition. No heat, sparks, or flame in the area.

**Methods/Materials for Containment and Cleaning Up:** Dike spill. Remove sources of sparks, flame, or hot surfaces. Absorb spill with commercial absorbent material and place in suitable containers for disposal. See section 13 for disposal instructions. Do not discharge into waterways or sewer systems without proper authority. Dispose of in accordance with government regulations.

## Section 7: Handling and Storage

**Precautions:** Avoid breathing vapors or mist. Avoid contact with eyes, skin, or clothing. Wash thoroughly after handling. Do not store or consume food, drink or tobacco in areas where they may become contaminated with this material. Keep away from heat, sparks and flames.

**Storage:** Keep container in a cool place. Store below 50 C (122 F). Keep container tightly closed. Store in accordance with National Fire Protection Association recommendations.

## Section 8: Exposure Controls/Personal Protection

**Exposure Limits:**

| Component | OSHA PEL | ACGIH TLV | OARS/WEEL** | I.S.T/AEL* |
|---|---|---|---|---|
| N-methyl-2-pyrrolidone | NA | NA | 10 ppm 8 hr TWA | 25 ppm 8 hr TWA |
| Xylene | 100 ppm 435 mg/m$^3$ | 100 ppm 150 ppm STEL | NA | NA |
| Polyamic Acid of Pyromellitic Dianhydride/4, 4-Oxydianiline (Polymer) | NA | NA | NA | 25 ppm TWA |

* AEL is I.S.T's acceptable limit. Where governmentally imposed occupational exposure limits, which are lower than the AEL are in effect, such shall take precedence.

** Occupational Alliance for Risk Science, workplace environmental exposure level.

**Engineering Controls:** Use ventilation that is adequate to keep employee exposure to airborne concentrations below recommended exposure limits. Provide natural or mechanical ventilation to control exposure levels below airborne exposure limits. If practical use, use local mechanical exhaust ventilation at sources of air contamination such as open process equipment. Consult NFPA Standard 91 for design of exhaust system.

**Personal Protection Measures/Equipment:**

**Skin Protection**: Wear appropriate chemical resistant gloves and clothing to prevent skin contact. Consult glove manufacturer to determine appropriate type of glove for given application. Wear chemical safety goggles, a face shield and a chemical resistant apron when splashing is likely. Wash immediately if skin is contaminated. Remove contaminated clothing promptly and launder before reuse. Clean protective

equipment before reuse. Provide a safety shower at any location where skin contact can occur. Wash hands and exposed skin thoroughly after handling. Repeated or prolonged contact may cause allergic skin reaction in some people.

**Eye Protection –** Wear eye and face protection. Wear safety glasses with side shields or chemical goggles that meet ANSI Z87 standards and/or are tested and approved under appropriate government standards. Eyewash stations should be easily accessible.

**Respiratory Protection –** Avoid breathing vapor and/or mist. Use NIOSH/MSHA approved respiratory protection equipment (full face piece recommended) when airborne exposure limits (see below) are exceeded. If used, full face piece replaces need for face shield and chemical goggles. Consult respirator manufacturer to determine the appropriate type of equipment for given application. Observe respirator use limitations specified by NIOSH/MSHA or the manufacturer. Respiratory protection programs must comply with 29 CFR 1910.134.

## Section 9: Physical and Chemical Properties

**Appearance (physical state, color, etc.):** Light yellow viscous liquid

**Odor:** Aromatic hydrocarbon

**Odor Threshold:** Not known

**pH:** Not known

**Melting Point/Freezing Point:** Not known

**Initial Boiling Point:** Not known

**Flash Point:** 29 - 37°C (84 - 99°F)

**Evaporation Rate:** Not known

**Flammability:** Flammable liquid

**Upper/Lower Flammability or Explosive Limits:** Not known

**Vapor Pressure:** Not known

**Vapor Density:** Not known

**Relative Density/Specific Gravity:** 1.03 @ 25°C

**Solubility:** Not known

**Partition Coefficient:** Not known

**Auto-ignition Temperature:** Not known

**Decomposition Temperature:** Not known

**Viscosity:** 6 – 10 Poise

**% Volatiles:** 87 - 89

NOTE: This physical data are typical values based on material tested by may vary from sample to sample. Typical values should not be considered as a guaranteed analysis of any specific lot or as a specification for the product.

## Section 10: Stability and Reactivity

**Reactivity:** Not known

**Chemical Stability:** Not known.

**Hazardous Reactions:** Not known

**Conditions to Avoid:** All sources of ignition – heat, sparks, and open flames.

**Incompatible Materials:** Strong oxidizing agents, strong alkali

**Hazardous Decomposition Products:** Oxides of carbon.

**Hazardous Polymerization:** Does not occur

## Section 11: Toxicological Information

**Relevant Route of Exposure/Target Organs:** Dermal, Eyes, Inhalation, Respiratory System

**Symptoms:** Causes skin irritation. Causes serious eye irritation. May cause respiratory tract irritation. May damage fertility or the unborn child.

**Delayed and Immediate Effects:**

N-methyl-2-pyrrolidone
Inhalation 4 hour LC50: 3,914 mg/kg in rats
Dermal LD50: 8000 mg/kg in rabbits
Oral LD50: 4320 mg/kg in rats

Eye contact with the liquid or vapor may initially result in irritation with discomfort, tearing, or blurring of vision. Low vapor concentrations caused eye irritation in some individuals.

Skin effects: Skin contact may initially result in irritation with discomfort or rash.

Inhalation may initially include: irritation of the upper respiratory passages, with coughing, discomfort, and headache.

N-methyl-2-pyrrolidone: Human experience has demonstrated severe dermatitis (blistering, cracking, edema, redness) upon prolonged or repeated skin contact. There are inconclusive or unverified reports of human sensitization.

Polyamic Acid of Pyromellitic Dianhydride/4, 4- Oxydianiline (Polymer)
Inhalation 4 hour LC50: 15,600 $mg/m^3$ in rats

The polymer resin is a slight skin irritant, and is not a sensitizer in animals.
Inhalation: Effects of a single exposure include discomfort and difficult respiration.
Ingestion: Effects of repeated exposure included reduced food consumption and reduced rate of weight gain.

Skin contact may initially include: skin irritation with discomfort or rash.

Inhalation may initially include irritation of the upper respiratory passages with coughing and discomfort.

Significant skin permeation and systemic toxicity after contact appears unlikely.

Xylene
Inhalation 4 hour LC50: 6700 ppm in rats
Dermal LD50: 4320 mg/kg in rabbits
Oral LD50: 4500 mg/kg in rats

Skin: Skin contact may initially include: repeated or prolonged contact with the liquid will

cause defatting of the skin, redness, blisters, dehydration, or irritation. Dermal exposure of rabbits resulted in narcosis.
Eye contact may initially include: eye irritation with discomfort, tearing, or blurring of vision.

Inhalation: Inhalation may initially include: nonspecific discomfort, such as nausea, headache, or weakness; and temporary nervous system depression with anesthetic effects such as dizziness, headache. confusion, lack of coordination, and loss of consciousness,

Ingestion may initially include: gastrointestinal irritation; non-specific discomfort, such as nausea, headache, or weakness; and temporary nervous system depression. Higher exposures may lead to cardiac stress, anemia and other blood changes, respiratory difficulties, mucosal hemorrhage, possible liver and kidney damage; or fatality from gross overexposure. Evidence suggests that skin permeation can occur j-n amounts capable of producing the effects of systemic toxicity. There are no reports of human sensitization.

**Health Effects Summary**

**Chronic Effects (Following Short and Long Term Exposure):**

Toxicological Data

n-Methyl Pyrrolidone (NMP)

Human experience indicates that continued or gross skin contact with NMP produces irritation, redness, and defatting of the skin. Inhalation of very high concentrations of NMP may result in headache, giddiness, nausea, and mental confusion. Repeated dosing of laboratory animals with NMP has been reported to cause changes in organ weights and blood composition, reduced response to sound, and breathing difficulty at a dosage which produced death. No skin allergy was observed in guinea pigs following repeat skin exposure. Long-term inhalation (2 years) of NMP produced no increase in tumors in rats and NMP did not show Tumor initiating activity in a mouse skin painting study. Birth defects were reported following dermal application of NMP to rats at amounts which produced adverse effects on the mother and following intraperitoneal injection in two strains of mice. No birth effects were reported in rats exposed to NMP by inhalation. No effects were seen on the ability of rats to reproduce when exposed to NMP for two successive generations, although toxic

effects were reported in offspring at levels which produced adverse effects on the mother. NMP has produced no genetic changes in standard tests using animal and bacterial cells.

Toxicity described in animals from single exposures includes irregular and rapid respiration/ hyperemia, salivation and weight loss. Repeated exposures caused lethargy and irregular respiration at concentrations of 0.1 and 0.5 mg/L, and at 1.0 mg/L, bone marrow hypoplasia, thymus, spleen and lymph node changes occurred (reversible after 14 days post-exposure), and mortality. There were no observed effects from a study in which rats were exposed to 370 ppm for two weeks. Changes in rats exposed for two years to 10 or 100 ppm included reduced weight gain in male rats at the 100 ppm concentration level. No other significant changes occurred in this study.

Repeated exposure of dogs to 25, 79 or 250 mg/kg/day of the compound in the diet caused lower serum cholesterol, and increased platelet counts. Rats fed 800, 2000 or 5000 ppm exhibited minor effects which included increased thyroid weights in males, and increased urine pH and enzymatic changes in males and females.

Xylene

Swallowing of xylene may cause digestive tract irritation. Although xylene exists in different structural forms, single-dose studies using a mixture of these forms indicate that xylene is slightly toxic orally (rats) and after skin application (rabbit). It is slightly irritating to the eyes of rabbits and severely irritating to the skin of rabbits. No mortality occurred in rats exposed to mixed xylene at a concentration of 21 .2 mg/L for 6 hours. Repeated application of xylene to the skin of rabbits produced irritation and skin damage.

Various laboratory animals exposed to xylene by repeat inhalation at high atmospheric concentrations showed slight blood changes. Guinea pigs exposed to xylene at lower concentration showed liver damage and lung inflammation. Rats and dogs exposed to xylene by inhalation at similar levels showed no adverse effects. Rats and mice repeatedly administered xylene orally showed no evidence of toxicity or tumor development.

Toxicity described in animals from single exposures by inhalation includes upper respiratory irritation, central nervous system and behavioral effects including disrupted motor coordination and narcosis, decreased blood pressure/ and blood changes. Repeated exposures caused central nervous system effects such as lack of coordination, hearing loss, histological changes in liver, kidneys, adrenals, heart,

spleen, lungs and bone marrow, blood changes and decreased growth. Long-term exposure caused increased liver enzymes and liver weights.
Ingestion: Animals administered the mixture in the diet resulted in central nervous system effects including lack of coordination, tremors and loss of hind leg movement. Animals administered repeated doses of the mixture in the diet resulted in central nervous system effects including lack of coordination and narcosis, and increased liver enzyme levels. Animal-s fed the mixture long-term in the diet had decreased body weight, and liver changes.

Individuals with preexisting diseases of the central nervous system, kidneys, liver, cardiovascular system, lungs, or bone marrow may have increased susceptibility to the toxicity of excessive exposures.

One published study reports limited data suggesting high oral doses caused an increase in malignant tumors in rats. However, other more extensive animal studies have demonstrated no evidence of carcinogenicity. Developmental toxicity was observed but only at concentrations that were maternally toxic.

The mixture does not produce heritable genetic damage in animals or genetic damage in bacterial or mammalian cell cultures. Although abnormal sperm were observed after an i.p. injection in rats, xylene did not produce heritable genetic damage in rats or mice or reproductive effects in rats.

**Carcinogenicity:**

Xylene: IARC Group 3: Not classifiable as to its carcinogenicity in humans

Other components of this product are not classified by NTP, IARC, or OSHA as carcinogens.

## Section 12: Ecological Information

N-methyl-2-pyrrolidone

96-hr LC50 Bluegill: 382 mg/l

96-LC 50 Fathead minnow: 1072 mg/l

Xylene

96-hr LC 50 Fathead minnow: 27 - 42 mg/l

**Persistence and Degradability:** Not known

**Bioaccumulative Potential:** Not known

**Mobility in Soil:** Not known

## Section 13: Disposal Information

Do not discharge into waterways or sewer systems. Dispose of in accordance with government regulations.

## Section 14: Transport Information

UN Number: 1263

Proper shipping name: Paint

Hazard class: 3

Packing group: III

## Section 15: Regulatory Information

**TSCA Inventory Status:** All ingredients are on the TSCA inventory.

**SARA Title III Section 311/312 Hazard Categories:** Immediate (acute), Delayed (chronic), Fire

**SARA Title III Section:** The component listed below is subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right to Know Act of 1986 (EPCRA or SARA Title III) and 40 CFR 372.

| Component | CAS # | 313 Listed | % | RQ (lb) |
|---|---|---|---|---|
| N-methyl-2-pyrrolidone | 872-50-4 | Yes | 61 - 65 | -- |
| Xylene | 1330-20-7 | Yes | 11 - 13 | 100 |

**CERCLA RQ:** See table above.

**California Proposition 65:**

This product contains N-methyl-2-Pyrrolidone, a chemical known to the State of California to cause birth defects or other reproductive harm (developmental).

## Section 16: Other Information

**Date of Preparation or Revision:** June 01, 2015

**GHS Label Hazard Statement Codes**

Signal Word: DANGER

H226: Flammable liquid and vapor

H315: Causes skin irritation

H319: Causes serious eye irritation

H304: Aspiration hazard

H335: May cause respiratory irritation

H351: Suspected of causing cancer

H360: May damage fertility or the unborn child

H340: Germ cell mutagen

H335: Specific target organ toxicity - single exposure (Category 3, respiratory system)

H402: Harmful to aquatic life

H412: Harmful to aquatic life with long lasting effects

**GHS Label Precautionary Statement Codes**

P201: Obtain special instructions before use.

P202: Do not handle until all safety precautions have been read and understood.

P210: Keep away from flames and hot surfaces. – No smoking.

P233: Keep container tightly closed.

P241: Use explosion-proof equipment.

P242: Use non-sparking tools.

P343: Take action to prevent static discharges.

P260: Do not breathe dust/ fume/ gas/ mist/ vapors/ spray

P264: Wash hands thoroughly after handling.

P271: Use only outdoors or in a well-ventilated area.

P273: Avoid release to the environment.

P280: Wear protective gloves, eye and face protection.

P281: Use personal protective equipment as required.

P301+310: IF SWALLOWED: Immediately call a poison center/doctor.

P302+P352: IF ON SKIN: Wash with plenty of soap and water.

P303+313: If exposed or concerned: Get medical advice/attention.

P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P305+P251+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P307+P313: If exposed: Call a POISON CENTER or doctor/ physician.

P312: Call a POISON CENTER or doctor/physician if you feel unwell.

P321: Specific treatment: In case of skin contact, immediately wash skin with soap and water. Remove and wash contaminated clothing before reuse.

P331: Do NOT induce vomiting.

P332+P313: If skin irritation occurs: Get medical advice.

P337+P313: If eye irritation persists: Get medical advice.

P361+P364: Take off immediately all contaminated clothing and wash it before reuse.

P370+P378: In case of fire: Use water fog, dry chemical, foam, or $CO_2$ for extinction.

P403+P233+P235: Store in a well-ventilated place. Keep container tightly closed. Keep cool.

P405: Store locked up.

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

**Abbreviations**

| | |
|---|---|
| ALC | Approximate Lethal Concentration |
| ANSI | American National Standards Institute |
| C | Ceiling |
| CAS | Chemical Abstracts Service |
| CERCLA | Comprehensive Environmental Response Compensation and Liability Act |
| CFR | US Code of Federal Regulations |

| | |
|---|---|
| $CO_2$ | Carbon dioxide |
| DOT | US Department of Transportation |
| EPCRA | Emergency Planning and Community Right to Know Act |
| GHS | UN Globally Harmonized System of Classification and Labeling of Chemicals |
| HCS | Hazard Communication Standard |
| IARC | International Agency for Research on Cancer |
| ICAO/IATA | International Civil Aviation Organization/International Air Transport Association |
| IMO/IMDG | International Maritime Organization/International Maritime Dangerous Goods Code |
| $LC_{50}$ | Lethal concentration to 50% of exposed laboratory animals |
| $LD_{50}$ | Lethal dose to 50% of exposed laboratory animals |
| MSHA | US Mine Safety and Health Administration |
| NIOSH | US National Institute of Occupational Safety and Health |
| NA | Not available |
| NMP | N-methyl-2-pyrrolidone |
| NTP | National Toxicology Program |
| OARS | Occupational Alliance for Risk Science |
| OSHA | US Occupational Safety Health Administration |
| RQ | Reportable quantity |
| SARA | Superfund Amendments and Reauthorization Act |
| SDS | Safety data sheet |
| TSCA | Toxic Substances Control Act |
| UN | United Nations |
| US/USA | United States |
| WEEL | Workplace Environmental Exposure Levels |

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