Section 1. Product and Company Identification

Product Name: Mattes
Trade Name: Film-Stamped ABS
Recommended Use: Signage, Other
Restrictions on Use: None

Manufacture: Rowmark
5409 Hamlet Drive
Findlay, OH 45840

In Case of Emergency:
Medical: 911
Poison Control: 800-589-3897

Information:
Call: 1-877-ROWMARK
Email: techhelp@rowmark.com

Section 2. Hazard Identification

GHS Classification: Not Classified
GHS Label Elements: Not Applicable

Emergency Overview:
APPEARANCE: Various colors; Characteristic odor

Potential Health Effects:
EYE: Solid or dust may cause irritation or corneal injury due to mechanical action.

SKIN: Essentially non-irritating to the skin. Mechanical injury only. Under normal processing conditions, material is heated to elevated temperatures; contact with the material may cause thermal burns. No adverse effects anticipated by skin absorption.

INGESTION: Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts.

INHALATION: Dust may cause irritation to upper respiratory tract (nose and throat).

GHS Rating

<table>
<thead>
<tr>
<th>Category</th>
<th>Value</th>
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<tbody>
<tr>
<td>Health</td>
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<td>Flammability</td>
<td>4</td>
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<tr>
<td>Instability</td>
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<td>Other</td>
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HMIS Rating

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<th>Value</th>
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</thead>
<tbody>
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<td>Health</td>
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</tr>
<tr>
<td>Flammability</td>
<td>1</td>
</tr>
<tr>
<td>Physical Hazard</td>
<td>0</td>
</tr>
</tbody>
</table>

0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

Other Hazards: Not Applicable

Section 3. Composition / Information on Ingredients
Section 4. First Aid Measures

Inhalation: Dust and process vapors may be irritation to the nose, throat and respiratory tract. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get Medical attention.

Eyes: Dust, fines and process vapors may irritate the eyes. Immediately flush eyes with water for at least 15 minutes. Get medical attention.

Skin: Exposure to molten plastic may cause thermal burns. If molten material comes in contact with the skin, cool under ice water or a running stream.

Ingestion: No adverse health effects expected from ingestion.

Section 5. Fire-Fighting Measures

Suitable Extinguishing Methods: Dry Chemical, Water Spray, Foam Carbon Dioxide. Avoid using direct streams of water on molten burning material.

Unsuitable Extinguishing Methods: NONE known.

Hazards During Fire-fighting: Carbon monoxide, carbon dioxide, original monomer other hydrocarbon oxidation products.

Protective Equipment: Wear self-contained breathing apparatus and protective suit.

Section 6. Accidental Release Measures

Personal Precautions: See Section 8 - Exposure Controls / Personal Protection.

Environmental Precautions: No Special environmental precautions required.

Methods and Materials for Containment and Cleaning Up

Spill / Leak: Containment of this material should not be necessary. Sweep up or gather material and place in appropriate container for disposal.

If Molten: Allow material to cool and place into an appropriate marked container for disposal.

Section 7. Handling and Storage

Handling: Keep away from heat, flame and strong oxidizing agents. Good housekeeping and controlling dusts are necessary for safe handling of product. Workers should be protected from the possibility of contact with molten resin during fabrication. Large masses of molten polymer held at elevated temperatures for extended periods of time may auto-ignite.

Storage: Keep away from heat, sparks, and flame. Store horizontally in cool, dry place in original container and protect from sunlight.

Section 8. Exposure Control and Personal Protection

Exposure Limits:

1) Effects of Acute Exposure: See section 11, Toxicological Information

2) Effects of Chronic Over Exposure: See section 11, Toxicological Information

3) OSHA Permissible Exposure Limits:

<table>
<thead>
<tr>
<th>Chemical</th>
<th>OSHA PEL</th>
<th>ACGIH TLV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corn Oil</td>
<td>5 mg/m3 (respirable)</td>
<td>None Established</td>
</tr>
<tr>
<td></td>
<td>15 mg/m3 (total) TWA</td>
<td></td>
</tr>
<tr>
<td>Styrene</td>
<td>100 ppm TWA</td>
<td>20 ppm TWA</td>
</tr>
<tr>
<td></td>
<td>200 ppm Ceiling</td>
<td>20 ppm STEL</td>
</tr>
<tr>
<td></td>
<td>600 ppm Max concentration</td>
<td>(5 min in any 3 hrs)</td>
</tr>
</tbody>
</table>
Engineering Controls:

Use recommended safe handling practices to minimize unnecessary exposure.

General room ventilation is adequate for storage and ordinary handling.

Use local exhaust at points of fume generation or if dusty conditions prevail.

Personal Protective Equipment:

Wear safety glasses with side shields or chemical goggles to prevent eye contact.

Have eye-washing facilities readily available where eye contact can occur.

Wear impervious gloves and protective clothing to prevent skin contact.

Section 9. Physical and Chemical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Various colors</td>
</tr>
<tr>
<td>Odor</td>
<td>Slight, sweet, aromatic</td>
</tr>
<tr>
<td>pH</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Melting Point / Freezing Point</td>
<td>Not established</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Flash Point</td>
<td>388-400°C (730-752°F)</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Dust and molten material are flammable</td>
</tr>
<tr>
<td>Upper Explosive Limit</td>
<td>Not established</td>
</tr>
<tr>
<td>Lower Explosive Limit</td>
<td>Not established</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>3.6 (styrene)</td>
</tr>
<tr>
<td>Relative Density</td>
<td>Approx. 1.05</td>
</tr>
<tr>
<td>Solubility (ies)</td>
<td>Insoluble in water</td>
</tr>
<tr>
<td>Partition Coefficient (N-Octanol/Water):</td>
<td>Not applicable</td>
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<tr>
<td>Decomposition Temperature</td>
<td>Approx. 260°C (500°F)</td>
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<tr>
<td>Viscosity</td>
<td>Not applicable</td>
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<tr>
<td>Specific Gravity</td>
<td>1.05-1.12</td>
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<tr>
<td>Percent Volatile</td>
<td>388-400°C (730-752°F)</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>Not Applicable</td>
</tr>
</tbody>
</table>

Section 10. Stability Reactivity

Reactivity: Hazardous polymerization does not occur

Chemical Stability: Stable

Possibility of Hazardous Reactions: None known

Conditions to Avoid: Avoid temperatures above 300°C (572°F). Such exposure can cause product to decompose.

Incompatible Materials: None known

Hazardous Decomposition Products: Thermal decomposition will generate carbon dioxide, carbon monoxide, styrene, acrylonitrile, hydrogen cyanide, hydrocarbons.

Combustion Products:

Section 11. Toxicological Information

Irritation Effects

Eye Irritation: Solid particles may cause transient irritation from mechanical abrasion.

Skin Irritation: Not expected to cause skin irritation. Molten material may cause thermal burns.

Inhalation: Not a likely route of exposure. Process fumes may cause irritation.

Ingestion: May cause a choking hazard if swallowed.

General Effects of Exposure

Acute Effects of Exposure: Gases and fumes evolved during thermal processing or decomposition of this material may irritate the eyes, skin or respiratory tract and cause nausea, drowsiness and headache.

Chronic (non-cancer) Effects of Exposure: Not expected to cause any adverse chronic health effects.

Carcinogenicity: See section 11, Toxicological Information.
None of the components present at 0.1% or greater have been classified as a carcinogen.

The Agency for Toxic Substances & Disease Registry concluded in their 2007 Toxicological Profile for Styrene that styrene may possibly be a weak human carcinogen. The EPA has not given a formal carcinogen classification to styrene stating "Several epidemiologic studies suggest there may be an association between styrene exposure and an increased risk of leukemia and lymphoma. However, the evidence is inconclusive due to confounding factors." In 2011 the National Toxicology Program listed styrene as reasonably anticipated to be a human carcinogen based on limited evidence from studies in humans, sufficient evidence from studies in experimental animals, and supporting data on mechanisms of carcinogenesis.

Styrene

- IARC - Overall evaluation: 2B Possible carcinogen
- IARC - Evidence of carcinogenicity in animals: Limited data
- IARC - Evidence of carcinogenicity in humans: Limited data
- NTP - Reasonably anticipated to be a human carcinogen
- ACGIH - A4: Not classifiable as a Human Carcinogen

Product Toxicity Data

Toxicity Note: Toxicity data is based on similar to ABS resins.

Skin Irritation: rabbit - non-irritating.
Eye Irritation: rabbit - Draize - slightly irritating.

Other Relevant Toxicity Information: Styrene is slightly toxic to practically non-toxic in oral feeding studies (rats) and skin application studies (rabbits). Repeated inhalation studies in rats for 3 weeks reported effects suggestive of a hearing impairment. Repeated inhalation exposures produced lung irritation in guinea pigs and organ weight changes in rats. Styrene caused lung tumors in several strains of mice by inhalation and oral exposure. The evidence in rats is insufficient for reaching a conclusion concerning the carcinogenicity of styrene. There is limited evidence for the carcinogenicity of styrene in humans based on studies of workers that showed an increased mortality from or incidence of cancer of the lymphohematopoietic system and increased levels of DNA adducts and genetic damage in lymphocytes from exposed workers. However, the types of lymphohematopoietic cancer observed in excess varied across different studies and excess risk was not found in all cohorts. In standard mutagenicity tests, both positive and negative results were reported. No birth defects occurred in rats given styrene orally. Some toxic effects on the fetus were noted in a limited inhalation study using repeated high doses.

Toxicity Data for Acrylonitrile/Butadiene/Styrene Terpolymer

Acute Oral Toxicity: LD50 > 5000 mg/kg (rat)
Acute Dermal Toxicity: LD50 >2,000 mg/kg (rabbit) estimated
Skin Irritation: rabbit – Draize – No skin irritation
Eye Irritation: rabbit – Slightly irritating
Sensitization: Dermal – non-sensitizer (guinea pig Buehler Test)

Toxicity Data for Styrene

Acute Oral Toxicity: LD50 1000 mg/kg (rat)
Acute Inhalation Toxicity: LC50 11.8 mg/L/4 hr (rat)
Acute Dermal Toxicity: LD50 >20,000 mg/kg (rabbit)
Skin Irritation: rabbit – Draize – moderately irritating
Eye Irritation: rabbit – Draize – severely irritating
Sensitization: Dermal – non-sensitizer (guinea pig maximization test (GPMT))

Repeated Dose Toxicity
6 months, inhalation NOAEL 6.3 mg/kg (monkey, male/female, daily)
28 Days, dermal NOAEL <500 mg/kg (rat, male daily)
13 weeks, inhalation NOAEL 0.565 mg/L (rat, male/female, daily)
**Mutagenicity**
Genetic Toxicity in Vitro:
Ames: negative (Salmonella typhimurium, metabolic activation with and without)
Sister Chromatid Exchange: positive (human lymphocytes, metabolic activation with and without)

Genetic Toxicity in Vivo:
Cyto-genic assay positive (rat)
Drosophila SLRL test: positive (Drosophila melanogaster)

**Carcinogenicity**
Styrene was tested for carcinogenicity in rats in four gavage studies, one drinking water study and two inhalation studies. Overall, there was no reliable evidence for an increase in tumor incidence in rats in any of these studies. Inhalation exposure caused benign lung tumors (alveolar/bronchiolar adenoma) and increased the combined incidence of benign and malignant lung tumors (alveolar/bronchiolar adenoma and carcinoma) in CD-1 mice of both sexes; in females, it also increased the separate incidence of malignant lung tumors. In male B6C3F1 mice, oral exposure to styrene increased the combined incidence of benign and malignant lung tumors (alveolar/bronchiolar adenoma and carcinoma), and a positive dose-response trend was observed (NCI 1979). These findings are supported by findings of lung tumors in both sexes of O20 mice exposed to styrene (Ponomarkov and Tomatis 1978). In O20 mice, a single dose of styrene was administered to pregnant dams on gestational day 17, and pups were exposed orally once a week for 16 weeks after weaning. A significantly increased incidence and earlier onset of benign and malignant lung tumors combined (adenoma and carcinoma) occurred in mice of both sexes as early as 16 weeks after weaning. In a similar study with C57Bl mice administered a much lower dose of styrene, lung-tumor incidence was not significantly increased. A screening study by intraperitoneal administration did not find an increase in tumor incidence or multiplicity in mice. The increased risks for lymphatic and hematopoietic neoplasms observed in some human epidemiological studies are generally small, statistically unstable and are not very robust.

**Toxicity to Reproduction/Fertility**
Three generation study, oral, daily (rat, male/female) NOAEL (parental): 250 ppm, NOAEL (F1): 125 ppm, NOAEL (F2): 125 ppm
No effects on reproductive parameters observed at doses tested.
Other method, inhalation, daily, (rabbit female) NOAEL parental 2.6 mg/L, NOAEL (F1) 2.6 mg/L

**Developmental Toxicity/Teratogenicity**
Rat, female inhalation, gestation NOAEL (teratogenicity): >600 ppm, NOAEL (maternal) : <300 ppm. No teratogenic effects observed at doses tested.
Rabbit, female, inhalation, daily, gestation, NOAEL (teratogenicity): >600 ppm, NOAEL (maternal) : >600 ppm. Fetotoxicity seen only with maternal toxicity.

**Additional Toxicological Information**
When used and handled according to specifications, the product does not have any harmful effects according to research and information provided by suppliers.

**Carcinogenic Effect**
International Agency for Research on Cancer (IARC) : Group3 NOT classifiable as to its carcinogenicity to humans.

**Section 12. Ecological Information**

| Eco-toxicity: | Toxicity to fish - No relevant studies identified. |
| Persistence and Degradability: | This material is not expected to be readily biodegradable. |
| Bio-accumulate Potential: | Product is not likely to accumulate in biological organisms. |
| Mobility in Soil: | This Product has not been found to migrate through soils. |
| Other Adverse Effects: | This Substance is not in Annex I of Regulation (EC) 2037/2000 on substances that deplete the ozone layer. |

**Ecological Data for Acrylonitrile/Butadiene/Styrene Terpolymer**

| Biodegradation: | Not readily biodegradable |
| Bioaccumulation: | Does not bioaccumulate |
Acute and Chronic Toxicity to Fish: LC50: 18 mg/L/96 hr common carp (Cyprinus carpio)

Ecological Data for Styrene

Biodegradation:
- Biological Oxygen Demand (BOD): 5 days, 2.46 mg/L
- Chemical Oxygen Demand: 2800-2880 mg/g
- Theoretical Biological Oxygen Demand (ThBOD): 3.07 mg/L
- Bioaccumulation: Carp 13.5 BCF

Acute and Chronic Toxicity to Fish
- LC50 9 mg/L/96 hr sheepshead minnow (Cyprinodon variegatus)
- LC50 29 – 59.3 mg/L/96 hr fathead minnow (Pimephales promelas)
- LC50 25 mg/L/96 hr bluegill (Lepomis macrochirus)
- LC50 2.4 – 4.1 mg/L/96 hr rainbow trout (Salmo gairdneri)

Acute Toxicity to Aquatic Invertebrates
- EC50 4.7 – 23 mg/L/48 hr water flea (Daphnia magna)

Toxicity to Aquatic Plants
- EC50 1.4 mg/L/72 hr green algae (Selenastrum capricornutum)

Toxicity to Microorganisms
- EC50 approx. 500 mg/L/30 min activated sludge microorganisms
- EC50 5.5 mg/L/5 min Photobacterium phosphoreum
- EC50 72 mg/L/16 hr Pseudomonas putida

Section 13. Disposal Considerations

Disposal Methods
- Product Recommendation:
  1. Recycle (Reprocess) if product has not been contaminated so as to make it unsuitable for its intended use.
  2. Disposal through controlled incineration or authorized waste dump in accordance with Local, State or Federal Regulations.

Uncleaned Packaging Recommendation:
- Disposal must be done in accordance with Local, State, or Federal Regulation.

Section 14. Transportation Information

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<td>ICAO/IATA:</td>
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</tr>
<tr>
<td>Special Precautions for User:</td>
<td>No special precautions</td>
</tr>
</tbody>
</table>

Section 15. Regulatory Information
United States Federal Regulations

US OSHA Hazard Communication Classification: This product is hazardous under the criteria of the Federal OSHA Hazard Communication Standard.

US Toxic Substance Control Act: All the components of this product are listed on the TSCA Inventory.

US EPA CERCLA Hazardous Substances (40 CFR 302):
Components
Styrene 100-42-5 < 0.1% RQ = 1000 lbs

SARA Section 311/312 Hazard Categories: Not Hazardous.

US EPA Emergency Planning and Community Right to Know Act (EPCRA) SARA Title III
Section 302 Extremely Hazardous Substance (40 CFR 355, Appendix A):
Components
None

Section 313 Toxic Chemicals (40 CFR 372.65) – Supplier Notification Required:
Components
Styrene 100-42-5 < 0.1%

If discarded in purchased form, this product would not be a hazardous waste either by listing or by characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste (40 CFR 261.20-24).

State Right-to-Know Information
The following chemicals are specifically listed by individual states; other product specific data in other sections of the SDS may also be applicable for state requirements. For details on your regulatory requirements you should contact the appropriate agency in your state.

Massachusetts, New Jersey or Pennsylvania Right to Know Substance Lists

<table>
<thead>
<tr>
<th>Weight%</th>
<th>Components</th>
<th>CAS-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;=1%</td>
<td>Acrylonitrile/Butadiene/Styrene Terpolymer</td>
<td>9003-56-9</td>
</tr>
</tbody>
</table>

Canadian Regulations

Canadian CEPA Status: All of the components of this product are listed on the DSL.

OSHA HazCom: This Material is not Hazardous. b OSHA Hazardous Communication Standard 29 CFR 1910.1200

SARA 313:
Immediate Hazard: NO
Fire Hazard: NO
Reactivity Hazard: NO
Delayed Hazard: NO
Pressure Hazard: NO

No Additional Information
NOTICE: The information presented in this Safety Data Sheet is based on data considered to be accurate as of the date this Safety Data Sheet was prepared. However, no warranty or representation, expressed or implied, is made as to the accuracy or completeness of the preceding data and safety information, nor is any authorization given or implied to practice any patented invention without a license. In additional, no responsibility can be assumed by vendor for any damage or injury resulting from abnormal use, from any failure to adhere to recommended practices, or from any hazards inherent in the nature of the product.

Revision Date: March 7, 2017