ABS Material Safety Data Sheet

1. PRODUCT AND COMPANY IDENTIFICATION

MakerGeeks Manufacturing, Inc.
810 N Dickerson Ct.
Springfield, MO 65803 USA
joshua@makergeeks.com

2. COMPOSITION

Chemical name: Acrylonitrile butadiene styrene Common names: Acrylonitrile butadiene styrene, ABS. Chemical formula: (C8H8)x·(C4H6)y·(C3H3N)z

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Weight</th>
<th>OSHA Exposure Limits:</th>
<th>ACGIH Exposure Limits:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acrylonitrile butadiene styrene (ABS)</td>
<td>&gt;90%</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>N,N Ethylene bis stearamide</td>
<td>&lt;5%</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Typical Antioxidant</td>
<td>&lt;5%</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Typical Pigment</td>
<td>&lt;5%</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

3. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Solid filament
Density: 1.05g/cc
Melt temperature: 210~250 °C
Appearance: Clear, translucent, opaque, pellets. Physical state: Solid
Odor: Sweet
pH: Not applicable
Vapor pressure: Not determined  Vapor density: Not determined

Evaporation rate: Not determined  Density: 1.05 g/cc
Boiling point/range: Not applicable  Decomposition temperature: 260°C
Melting point/range: Not determined  Water solubility: Insoluble

Solubility in other solvents: None known

4. HAZARDS IDENTIFICATION

Eye contact: Contact with eyes may cause irritation.
Skin contact: Substance may cause slight skin irritation.
Ingestion: Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.
Inhalation: Inhalation of dust may cause shortness of breath, tightness of the chest, a sore throat and cough.
Target organ effects: There were no target organ effects noted following ingestion or dermal exposure in animal studies.
Sensitization: Did not cause sensitization on laboratory animals. Considered low hazard under normal industrial or commercial handling.

5. FIRST AID MEASURES

Eye contact: Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Call a physician immediately.
Skin contact: Rinse immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician. Cool skin rapidly with cold water after contact with hot polymer.

Inhalation: Move to fresh air. Call a physician immediately.
Ingestion: Drink water as a precaution. Never give anything by mouth to an unconscious person. Do not induce vomiting without medical advice. Call a physician immediately.
Notes to physician: Treat symptomatically.

6. FIRE FIGHTING MEASURES
**Suitable extinguishing media:** Foam, Water, Carbon dioxide (C02), Dry chemical. Alcohol resistant foams are preferred if available. General-purpose synthetic foams (including AFFF) or protein foams may function, but much less effectively.

**Extinguishing media which must not be used for safety reasons:** No information available

**Hazardous decomposition products:** Burning produces obnoxious and toxic fumes – aldehydes, carbon monoxide (CO), carbon dioxide (C02).

**Special protective equipment for firefighters:** As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

**Under fire conditions:** Cool containers I tanks with spray water. Water mist may be used to cool closed containers.

**Other information:** Fine dust dispersed in air may ignite. Risks of ignition followed by flame propagation or secondary explosions shall be prevented by avoiding accumulation of dust e.g. on floors and ledges.

### 7. ACCIDENTAL RELEASE MEASURES

**Personal precautions:** Use personal protective equipment. See Section 8. Remove all sources of ignition. Avoid dust formation. Avoid contact with skin and eyes. Sweep up to prevent slipping hazard. **Environmental precautions:** Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system.

**Methods for cleaning up:** Shovel into suitable container for disposal.

### 8. HANDLING AND STORAGE

**Safe handling advice:** Avoid contact with skin and eyes. Avoid dust formation. Workers should be protected from the possibility of contact with molten material during fabrication. Considered a low hazard under normal industrial or commercial handling. Use personal protective equipment.

**Storage:** Store in cool place. Keep at temperatures below 88 °C. No special restrictions on storage with other products.
9. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Engineering measures:** Where reasonably practicable this should be achieved by the use of local exhaust ventilation and good general extraction. Provide appropriate exhaust ventilation at places where dust is formed.

**Control parameters:** None

**Personal protective equipment:** Eye protection - safety glasses with side-shields, goggles. **Skin and body protection:** Impervious clothing.

10. STABILITY AND REACTIVITY

**Stability:** Stable under recommended storage conditions

**Conditions to avoid:** Temperatures above 446°F (230°C).

**Materials to avoid:** Oxidizing agents. Strong bases.

**Hazardous decomposition products:** Burning produces obnoxious and toxic fumes - aldehydes, carbon monoxide (CO), carbon dioxide (CO2).

11. TOXICOLOGICAL INFORMATION

**Reproductive toxicity:** No data is available on the product itself.

**Carcinogenic effects:** No data is available on the product itself. **Mutagenic effects:** Not mutagenic in AMES Test.

12. ECOLOGICAL INFORMATION

**Shipping Containers:** Samples bottles. Moisture proof laminated pouches. Not regarded as hazardous by DOT or IMO.

13. DISPOSAL CONSIDERATIONS

**Waste from residues / unused products:** In accordance with local and national regulations.

**Spillage or release:** Collect for disposal. Use appropriate personal protective equipment during clean-up. **Waste disposal:** Bury in a landfill in compliance with all federal, state and local regulations. Material is biodegradable and non-hazardous.
14. TRANSPORTING REGULATIONS

Not regulated.

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