SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION
Product name (chemical name, trade name): Methacrylic resin sheet SHINKOLITE™ SHINKOLITE™ FR1, FR2, FR3
Manufacturer: Mitsubishi Chemical Corporation
Address: 1-1, Marunouchi 1-chome, Chiyoda-ku, Tokyo 100-8251, Japan
Department in charge: MMA Planning Dept., Technical Group
Telephone: +81-(0)3-6748-7526
Fax: +81-(0)3-3286-1418
Emergency contact number: Same as the department in charge
Reference number: ALE-031(revision 4)
Recommended use of product and restriction on use:
Please do not adopt this product to a medical product coming in contact with internal body tissue.
Please do not adopt this product for products that may touch the baby's mouth or baby may swallow.
If you will adopt our product as a food-related or drinking water use, please contact to the importer of this product beforehand.

2. HAZARDS IDENTIFICATION
GHS classification: No classification
(This product is a “molded product (article)” and is not applied a classification of chemicals based on "Globally Harmonized System of Classification and Labeling of Chemicals".)
Physical and chemical hazard: This product is a flammable solid and will burn if an ignition source is present. Dust from this product has dust explosiveness. This product may generate static electricity when the plate is rubbed or the protective sheet is peeled off.
Health hazard: The pyrolysis gas may irritate the eyes or the respiratory system or cause symptoms such as dizziness, nausea, and headache. Wear protective equipment, as contact with a heated plate may cause burn injury. Wear protective equipment to prevent hands from being cut by the corner or edge of the plate. Use a safety cover or wear protective equipment to prevent broken or chipped pieces of the plate from entering the eyes or being inhaled.

Reference number: ALE-031(revision 4)
3. INFORMATION ON COMPOSITION AND INGREDIENTS
Single product or mixture: Mixture (Molded product)
General name: Methacrylic resin sheet

<table>
<thead>
<tr>
<th>Component</th>
<th>Content (wt%)</th>
<th>Japan Official Gazette Reference No.</th>
<th>CAS No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methacrylic resin</td>
<td>75 or more</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Residual methyl methacrylate monomer</td>
<td>Less than 1</td>
<td>(2)-1036</td>
<td>80-62-6</td>
</tr>
<tr>
<td>Halogen containing phosphate</td>
<td>Less than 20</td>
<td>Not disclose</td>
<td>Not disclose</td>
</tr>
<tr>
<td>Other components</td>
<td>Less than</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As other components, this product contains performance-enhancing additives, coloring agent, and surface hard-coat layer depending on the type and color.

4. EMERGENCY MEASURES
Inhalation: If the pyrolysis gas, which is generated when this product is heated to an extremely high temperature, is inhaled and the victim feels unwell, immediately remove the victim to fresh air and get medical attention.
Skin contact: If heated resins adhere to the skin, immediately wash the part with clean water and get medical attention. Do not remove clothing if it sticks to the skin.
Eye contact: In case of contact of fine broken, chipped pieces or grinding swarf of the plate with the eyes, do not rub or close the eyes, as doing so may damage the eyes. Wash the eyes with clean water for at least 15 minutes and get medical attention. Remove contact lenses if present and easy to do and keep washing the eyes.
Ingestion: Vomit as much as possible, wash the mouth well, and get medical attention. Give artificial respiration or oxygen if necessary. If vomiting occurs and the victim is breathing, turn the face sideways. If unconscious, do not give anything by mouth.

5. FIRE-FIGHTING MEASURES
Appropriate extinguisher: Water, foam extinguisher, powder extinguisher and carbon dioxide extinguisher
Specific hazard: The burned gas contains pyrolysis gases such as carbon monoxide / methyl methacrylate / phosphate compound / chlorine compound. Take care not to inhale the smoke during fire fighting.
Fire extinguishing method: Remove heat sources from the fire area. This product may produce toxic gas when burned. Extinguish the fire from the windward side or wear an air respirator. Restrict access to the area around the fire. Spray water over equipment around the fire to cool it. In case of surrounding fire, immediately remove the product, if possible to do so, to a safe place. Take appropriate measures to prevent spills of environmentally hazardous substances when water is sprayed to extinguish the fire. Evacuate unnecessary personnel to a safe place.
Protection for persons extinguishing fire: Extinguish the fire from the windward side and avoid inhaling toxic gases. Wear appropriate protective equipment (such as gloves, glasses, a mask, and an air respirator).

6. MEASURES IN CASE OF LEAKAGE
Personal precautions, protective equipment and emergency measures: During fire fighting, wear protective equipment (gloves, glasses, and masks) to avoid dust or gas inhalation. Equip extinguishers in case of ignition.
Environmental precautions: If the product is spilled on a road or floor, immediately collect the spill. Immediately collect the spilled product to prevent release into the environment such as rivers.
Methods for containment and cleanup and methods for removal of equipment: In case of the small

Reference number: ALE-031(revision 4)
spills or dust, vacuum or sweep and collect them using a vacuum cleaner or broom. Use safe tools that do not generate sparks. Sweep and collect the dust in an empty sealable container. Collect the dust using methods that minimize the spread of the dust, such as vacuuming.

Prevention of secondary damage: This product is a flammable solid. Keep away from open flame.

7. WARNING IN HANDLING AND STORAGE

Handling

Technical measures: Handle in an area equipped with local or general ventilation. Provide equipment for washing eyes and body in case of emergency near the handling area. To prevent static electricity, make sure all equipment and devices are properly grounded. Dust from this product has dust explosiveness. If dust is generated when the product is machined, take necessary measures against static electricity. Use an explosion-proof dust collector (with a safe structure). Wear protective equipment, such as protective glasses, protective gloves, and safety shoes. Avoid use near open flame. Do not expose to excessive heat, friction, or shock. Seal the container each time the product is handled.

Safety precautions: Take care that the skin or eye is not cut by the corner or edge of the plate. When machined, use a safety cover, protective equipment, and ventilation equipment to prevent broken, chipped pieces or grinding swarf of the plate or vapor from entering the eyes or inhalation of vapor. Static electricity may be generated when the plate is rubbed, one plate is taken out from stacked plates, or protective film is peeled off. Take care to prevent accidents caused by static electricity.

When handling a heated plate, take care not to get burned. Do not upset, drop, impact, or drag the product. Handle with care.

Storage

Storage conditions: Store at a location away from heat and ignition source and an area not exposed to sunlight. Store in an area where no water leakage occurs and the humidity is low and take necessary measures to prevent the product from getting wet. Store so that the product does not fall, drop, or collapse.

Container and packaging materials: Use paper or plastic film to protect the product surface. To prevent the product from getting wet, seal the product with a packaging material such as polyethylene sheets or craft paper.

8. MEASURES FOR EXPOSURE PREVENTION AND PROTECTION

Facilities: Appropriate local exhauster is necessary when dust is generated by machining and other procedures.

Control concentration: Not established.

Allowable concentration: Methyl methacrylate

| ACGIHA(2015) | TLV-TWA | 50ppm |
|———|———|———|
| TLV-STE L | 100ppm |

Although ACGIH (American Conference of Governmental Industrial Hygienists) do not stipulate allowable concentration for dust, the values below are considered adequate to be applied.

| Average value of time load |
|———|———|
| Inhalable dust | Total dust |
|———|———|
| ACGIH Recommended Levels (2016) General dust (Nuisance Dust) | 3mg/m³ | 10mg/m³ |

Protective equipment

Reference number: ALE-031(revision 4)
Respiratory protection: Wear dust respirator to avoid inhaling of dust.
Hand protection: Wear protective gloves. When carrying a large plate, wear non-slip protective
gloves. When handling a hot plate, wear heat-resistant gloves to prevent burn injury.
Eye protection: Wear protective equipment such as protective gloves, goggles, and a protective mask
(safety masks) to prevent dust from entering the eyes.
Skin and body protection: Wear a cap, safety shoes, and long-sleeved clothing as needed.

9. PHYSICAL AND CHEMICAL PROPERTIES
Appearance:
   Physical state: Solid
   Color and Form: Transparent or colored planar sheet
Odor: None
pH: Not applicable
Melting point: Clear melting point does not exist. Gradually becomes malleable at a variable
temperature of approx. 80ºC or more.
Flash point: Not applicable
Ignition point: 400ºC or more
Flammability: Flammable and burns when exposed to an ignition source.
Explosion limits: Not applicable
Specific gravity: FR1: 1.22, FR2: 1.18, FR3: 1.20
Solubility: Non-soluble in water

10. STABILITY AND REACTIVITY
Stability and reactivity: Stable in normal temperature and normal pressure.
Hazardous reactivity: None in particular
Conditions to be avoided: Storage in an area where the humidity and temperature are high, fire
Materials to be avoided: None in particular
Hazardous substances that may be produced: If the product is heated to 200ºC or more, methyl
methacrylate monomer / phosphate compound / chlorine compound are generated, which may
irritate the eyes and respiratory system and result in dizziness, nausea, headache, and other
symptoms.

11. TOXICOLOGICAL INFORMATION
Biologically inactive and normally has no effect to living organisms.
Acute toxicity: No data available.
Local impact (skin, eyes, etc.): The pyrolysis gas irritates the skin and eyes.
Sensitizer: No data available.
Mutagenicity: No data available.

12. ECOLOGICAL IMPACT INFORMATION
Ecological toxicity: No data available.
Biodegradability: No data available.
Bioaccumulative Potential: No data available.
Mobility in soil: No data available.
Hazardous to the ozone layer: No data available.

13. DISPOSAL CONSIDERATION
Incinerate or bury according to the laws and ordinances of the district.

Reference number: ALE-031(revision 4)
Use incineration system in accordance with the laws when incinerating.
Combustion energy value of polymethylmethacrylate: $2.62 \times 10^4$ kJ/kg

14. TRANSPORT INFORMATION
International regulations:
- UN number: Not applicable
- Product name (UN transport name): Not applicable
- UN classification: Not applicable
- Container grade: Not applicable
- Marine pollutant: Not applicable

15. REGULATORY INFORMATION
Note: The latest regulatory information should be confirmed with the importer.

16. OTHER INFORMATION
This product is in a solid state (molded product, article) and is not a product required to issue SDS.
However, this SDS is created to provide information necessary for safe handling of the product.
Although this SDS is created based on the latest materials, information and data available, the
information given above is subject to revision when new discovery necessitates it.
The safety information contained in this SDS assumes that the product is handled under normal
conditions. Before use, assess risks for the intended application and usage under full responsibility of
the user and provide appropriate safety measures.
If you need more information about the safety of this product, contact, MMA Planning Dept.,
Technical Group, Mitsubishi Chemical Corporation.
The information contained in this SDS is disclosed for information purposes only and no warranty is
expressed or implied.

Reference: GHS ANNEX II, GHS SDS Instruction

Full description of some acronyms:
- GHS: Globally Harmonized System of Classification and Labelling of Chemicals
- CAS: Chemical Abstracts Service
- TWA: Time Weighted Average
- STEL: Short Term Exposure Limit