SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

Product: Altuglas V-grades Korea

SDS No.: 005501-001 (Version 1.0 )

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Generic Safety Data Sheet

Identification of the mixture: Altuglas V-grades Korea
Grades : V-020, V-040, V-060, V-150, V-021C
Use of the Substance/Mixture : Production of pieces by heat-moulding processes, such as injection, extrusion, injection-blow moulding

Company/Undertaking Identification:
Supplier
ALTUGLAS INTERNATIONAL
Immeuble Vision Défense
69 boulevard National
F-92257 La Garenne-Colombes
Tel: +33 (0)1 78 66 23 00
Fax: +33 (0)1 78 66 23 96
http://www.altuglasint.com
E-mail address inforequest@altuglasint.com

2. HAZARDS IDENTIFICATION

Classification (Regulation (EC) No 1272/2008):
This mixture is not classified as dangerous according to Regulation (EC) No 1272/2008.

Classification according to EU Directives 1999/45/EC :
This mixture is not classified as dangerous according to Directive 1999/45/EC.

Label elements (REGULATION (EC) No 1272/2008):
This mixture does not require a label.

Other hazards:

Potential health effects:
Skin contact: Contact with the product, when handled at high temperatures, can cause serious burns.

Physical and chemical hazards:
Thermal decomposition giving flammable and irritating products:
Decomposition products: See chapter 10

Other:
Results of PBT and vPvB assessment : This information is not required.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature of the mixture:
Preparation based on: ACRYLIC AND METHACRYLIC COPOLYMERS
Presence of additives
Hazardous components (according to Regulation (EC) No. 1907/2006):

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Methyl methacrylate (01-2119452498-28)</td>
<td>201-287-1</td>
<td>80-62-6</td>
<td>&lt; 0.2 %</td>
<td>F; Xi; R11</td>
<td>Flam. Liq. 2; H225</td>
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<tr>
<td></td>
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<td></td>
<td></td>
<td>Xi; R37/38 R43</td>
<td>Skin Irrit. 2; H315</td>
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<td>Skin Sens. 1; H317</td>
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<td></td>
<td></td>
<td></td>
<td>STOT SE 3; H335</td>
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<tr>
<td>Methyl acrylate (01-2119459302-44)</td>
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<td>96-33-3</td>
<td>&lt; 0.1 %</td>
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<td>Xi; R20/21/22 R36/37/38 R43</td>
<td>Acute Tox. 3 (Inhalation); H331</td>
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<td>Acute Tox. 4 (Dermal); H312</td>
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<td>Skin Irrit. 2; H315</td>
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<td></td>
<td>Eye Irrit. 2; H319</td>
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<td></td>
<td></td>
<td>Skin Sens. 1; H317</td>
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<td></td>
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<td></td>
<td>STOT SE 3; H335</td>
</tr>
</tbody>
</table>

1: See chapter 14 for Proper Shipping Name
2: See the text of the regulation for applicable exceptions or provisions: The transition time according to REACH Regulation, Article 23, is still not expired.
For the full text of the R, H, EUH-phrases mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

Description of necessary first-aid measures, Most important symptoms/effects, acute and delayed:

Inhalation:
Inhalation of vapours due to thermal decomposition: Move to fresh air. Oxygen or artificial respiration if needed. In case of problems: Consult a physician.

Skin contact:
On contact with hot product: Cool skin rapidly with cold water after contact with molten polymer. Remove product with vegetable oil or paraffin. In case of adhesion, do not try to remove the product. Treat the affected areas as thermal burns. In case of extensive burns, hospitalize.

Eye contact:
Wash well-open eyes immediately, abundantly and thoroughly with water. If irritation persists, consult an ophthalmologist. On contact with hot product: Cool eyes rapidly with cold water after contact with molten polymer. Consult an ophthalmologist immediately.

Ingestion:
In case of problems: Consult a doctor.

Protection of first-aiders:
In case of insufficient ventilation, wear suitable respiratory equipment.

5. FIREFIGHTING MEASURES

Extinguishing media:
Suitable extinguishing media: Water spray, Dry powder, Carbon dioxide (CO2)

Special hazards arising from the substance or mixture:
Thermal decomposition giving flammable and irritating products: Methacrylates, Acrylates, Carbon oxides (by combustion)

Advice for firefighters:
Specific methods:
Ensure a system for the rapid emptying of containers. In case of fire nearby, remove the bags.

Special protective actions for fire-fighters:
Wear self-contained breathing apparatus and protective suit.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:
Avoid contact with the skin and the eyes. Avoid breathing dust.

Environmental precautions:
7. HANDLING AND STORAGE

Precautions for safe handling:

Technical measures/Precautions:
Storage and handling precautions applicable to products: Solid (pellets). Provide appropriate exhaust ventilation at machinery and at places where dust can be generated. Provide showers, eye-baths. Provide handwashing and eye-baths. Provide water supplies near the point of use.

Safe handling advice:
Remove all sources of ignition. Take precautionary measures against static discharges. Avoid the formation and deposition of dust. Only use safety equipment.

Hygiene measures:
Avoid contact with the skin and the eyes. Avoid breathing dust. Product handled when hot: Avoid inhalation of vapours. When using do not eat, drink or smoke.
Wash hands after handling. Remove contaminated clothing and protective equipment before entering eating areas.

Conditions for safe storage, including any incompatibilities:
Remove all sources of ignition. Store away from moisture and heat to maintain the technical properties of the product. Provide earthing and safe electrical equipment.

Incompatible products:
Strong oxidizing agents, Reducing agents, Bases

Packaging material:
Recommended: Polypropylene, Cardboard lined with polyethylene liner, In bulk:, Stainless steel

Specific use(s) (End Use): None.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

CONTROL PARAMETERS:

Exposure Limit Values
Contains no substances with occupational exposure limit values.

Derived No Effect Level (DNEL):
This information is not required.

Predicted No Effect Concentration (PNEC):
This information is not required.

EXPOSURE CONTROLS:

General protective measures:
Ensure ventilation of work areas and extraction of dust or vapours likely to be given off during conversion operations (product handled when hot).

Personal protective equipment:
Respiratory protection: In case of dust formation, wear a dust mask.
In case of insufficient ventilation, wear suitable respiratory equipment. (product handled when hot).

Hand protection: Gloves (product handled when hot)
Eye/face protection: Safety glasses/goggles (product handled in molten state) - Wear face-shield and protective clothing in case of problems during processing
Skin and body protection: Protective clothing (product handled in molten state)

Environmental exposure controls: See chapter 6

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:
Physical state (20°C): solid
Form: granules
Colour: translucent
Odour: slight
Odor/Threshold: No data available
<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
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<tbody>
<tr>
<td>pH</td>
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<td>Melting point/range</td>
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<tr>
<td>Boiling point/boiling range</td>
<td>No data available</td>
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<tr>
<td>Flash point</td>
<td>not applicable</td>
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<tr>
<td>Evaporation rate</td>
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<td>Flammability (solid, gas)</td>
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<td>Vapour pressure</td>
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<td>Vapour density</td>
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<tr>
<td>Density</td>
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<tr>
<td>Water solubility</td>
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<td>Partition coefficient: n-octanol/water</td>
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<tr>
<td>Autoignition temperature</td>
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<tr>
<td>Decomposition temperature</td>
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<tr>
<td>Viscosity</td>
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<td>Explosive properties</td>
<td>Not relevant (due to the chemical structure)</td>
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<td>Explosivity</td>
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<tr>
<td>Oxidizing properties</td>
<td>Not relevant (due to the chemical structure)</td>
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<tr>
<td>Other data</td>
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<tr>
<td>Solubility in other solvents</td>
<td>Soluble in: Chlorinated solvents, Aromatic solvents, Aldehydes, Ketones, Esters</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

Reactivity & Chemical stability:
The product is stable under normal handling and storage conditions.

Possibility of hazardous reactions:
None under normal conditions of use.

Conditions to avoid:
Store away from moisture and heat to maintain the technical properties of the product. Remove all sources of ignition. Protect from light.

Thermal decomposition:
Decomposition temperature: > 280 °C

Hazardous decomposition products:
Thermal decomposition giving flammable and irritating products: Methacrylates, Acrylates, Carbon oxides (by combustion)

11. TOXICOLOGICAL INFORMATION

Toxicological information:

Acute toxicity:

Ingestion: According to its composition, can be considered as: Slightly harmful by ingestion
Dermal: According to its composition, can be considered as: Slightly harmful in contact with skin

Local effects (Corrosion / Irritation / Serious eye damage):

Skin contact: According to its composition, can be considered as: Slightly or not irritating to skin
Contact with the product, when handled at high temperatures, can cause serious burns. At high temperature, products of thermal decomposition can be irritating to skin
Eye contact: According to its composition, can be considered as: Slightly or not irritation to eyes
At high temperature, products of thermal decomposition can be irritating to eyes
Contact with hot product will cause thermal burns.

Respiratory or skin sensitization:

Inhalation: No data available.

Skin contact: According to its structure: Not a skin sensitizer
Presence of: Residual monomers
May be considered as comparable to a similar product for which experimental results are; Not a skin sensitizer

CMR effects:
Polymer: No particular problems for man

Specific target organ toxicity:
Single exposure:
Inhalation:
At high temperature, products of thermal decomposition can be irritating to respiratory system

Repeated exposure:
Polymer No particular problems for man

Aspiration hazard:
Not relevant

12. ECOLOGICAL INFORMATION

Acute toxicity
Aquatic invertebrates:
No data available.

Microorganisms:
No data available.

Persistence and degradability:
Biodegradation (In water):
Inert polymer, Not biodegradable on the basis of its structure

Bioaccumulative potential:
No data available.

Mobility in soil:
No data available.

Results of PBT and vPvB assessment:
This information is not required.

13. DISPOSAL CONSIDERATIONS

Waste treatment:
Disposal of product:
Recycle if possible. or Destroy the product by incineration (in accordance with local and national regulations).

Disposal of packaging:
Recycle or incinerate at an approved waste disposal site. In accordance with local and national regulations.

14. TRANSPORT INFORMATION

Not classified as dangerous in the meaning of transport regulations.

15. REGULATORY INFORMATION
Safety data sheets: according to Regulation (EC) No. 1907/2006

**INVENTORIES:**
- EINECS: Conforms to
- TSCA: Conforms to
- AICS: Conforms to
- DSL: All components of this product are on the Canadian DSL list.
- ENCS (JP): Conforms to
- KECI (KR): Conforms to
- PICCS (PH): Conforms to
- IECSC (CN): Conforms to

**16. OTHER INFORMATION**

Full text of R, H, EUH-phrases referred to under sections 2 and 3

- **H225** Highly flammable liquid and vapour.
- **H302** Harmful if swallowed.
- **H312** Harmful in contact with skin.
- **H315** Causes skin irritation.
- **H317** May cause an allergic skin reaction.
- **H319** Causes serious eye irritation.
- **H331** Toxic if inhaled.
- **H335** May cause respiratory irritation.

**Thesaurus:**
- NOAEL: No Observed Adverse Effect Level (NOAEL)
- LOAEL: Lowest Observed Adverse Effect Level (LOAEL)
- bw: Body weight
- food: oral feed
- dw: Dry weight
- vPvB: very Persistent and very Bioaccumulative
- PBT: Persistent, Bioaccumulative and Toxic

This information applies to the PRODUCT AS SUCH and conforming to specifications of ARKEMA. In case of formulations or mixtures, it is necessary to ascertain that a new danger will not appear. The information contained is based on our knowledge of the product, at the date of publishing and it is given quite sincerely. Users are advised of possible additional hazards when the product is used in applications for which it was not intended. This sheet shall only be used and reproduced for prevention and security purposes. The references to legislative, regulatory and codes of practice documents cannot be considered as exhaustive. It is the responsibility of the person receiving the product to refer to the totality of the official documents concerning the use, the possession and the handling of the product. It is also the responsibility of the handlers of the product to pass on to any subsequent persons who will come into contact with the product (usage, storage, cleaning of containers, other processes) the totality of the information contained within this safety data sheet and necessary for safety at work, the protection of health and the protection of environment.

**NB:** In this document the numerical separator of the thousands is the "." (point), the decimal separator is ",," (comma).