PARALOID™ KM-606P Acrylic Impact Modifier

High Efficiency Acrylic Impact Modifier for Weatherable Vinyl with Outstanding Impact and Processability Performance

Regional Product Availability

Asia

Description

PARALOID™ KM-606P Modifier from Dow Plastics Additives is a next generation acrylic impact modifier (AIM) designed to outperform existing AIMs on the market today.

PARALOID KM-606P Acrylic Impact Modifier has excellent ambient and low-temperature impact which enables it to provide outstanding performance in both extruded products such as window profiles and pipes as well as injection-molded products allowing it to compete successfully with a variety of impact systems.

PARALOID KM-606P Modifier has been tailored to provide a balance of excellent gelation at lower processing temperatures and shear rates for both extrusion and injection molding applications.

Based on proven Dow technology for core-shell polymerization, PARALOID KM-606P Modifier fully utilizes its proprietary composition and its interaction between the polymer shell and vinyl matrix to effectively achieve both impact strength efficiency and a wider processing latitude.

With its 100% acrylic composition, PARALOID™ KM-606P Modifier displays excellent weatherable characteristics such as color fastness and impact retention in outdoor vinyl applications.

For almost 40 years, acrylic impact modifiers from Dow have contributed to the development and market recognition of rigid vinyl products with applications ranging from window frames and housing cladding to garden furniture and drainage pipes.

Physical Property

| Chemical Description: | Acrylic polymer |
| Appearance:           | Free-flowing white powder |
| Powder Bulk Density:  | 0.35~0.55g/cc |

Impact Performance

Drop Dart Impact Test

Measured through the Drop Dart Impact Test and ASTM D-256 Izod Impact Test, PARALOID™ KM-606P Modifier matched the stringent needs of many vinyl products and bested other acrylic impact modifiers with efficiency gains over current industry standards as high as 15~25%.

The drop-dart impact data below shows that the impact of 5phr of PARALOID KM-606P Modifier behaved at almost 100% ductility with no breakage and is superior to that of 6phr of conventional acrylic modifier.
Measured through the Drop Dart Test

<table>
<thead>
<tr>
<th>Dosage (phr)</th>
<th>Pass</th>
<th>Small Tear</th>
<th>Large Tear</th>
<th>Brittle Break</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conventional AIM</td>
<td>6</td>
<td>9</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>PARALOID™ KM-606P</td>
<td>5</td>
<td>10</td>
<td>11</td>
<td>—</td>
</tr>
</tbody>
</table>

Single V-notched Izod Impact Test

Notched izod impact testing is a good predictor of strength, which provides a significant way to differentiate ductility and crack propagation properties of vinyl products.

Below is Izod testing data at ambient and low temperatures which demonstrate that PARALOID™ KM-606P Modifier delivers excellent impact strength compared to competitive products even at low temperatures.

Again, the efficiency gains obtainable with PARALOID™ KM-606P Modifier can translate into lower cost substrate formulations without sacrificing performance, even at low temperatures.
**Fusion Effect**

PARALOID™ KM-606P Acrylic Impact Modifier exhibits superior fusion rates. Rates of fusion were determined in standard vinyl formulations typical for building and construction.

PARALOID KM-606P Modifier shows substantial improvement in fusion time compared to conventional acrylic impact modifiers. This important property, especially in vinyl applications, helps fabricators to improve processability by lowering processing temperature or allowing higher incorporation of filler for formulation cost management.

<table>
<thead>
<tr>
<th>Haake Rheocord: Set Temp. 180°C, 45 RPM</th>
<th>Conventional AIM (6hr)</th>
<th>PARALOID™ KM-606P (5phr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FUSION TIME (sec)</td>
<td>231</td>
<td>111</td>
</tr>
<tr>
<td>EQUILIBRIUM TORQUE (m-N)</td>
<td>18.3</td>
<td>21.4</td>
</tr>
<tr>
<td>EQUILIBRIUM TEMP (ºC)</td>
<td>196</td>
<td>200</td>
</tr>
</tbody>
</table>

Formulation employed to generate the data above:

PVC (K65)=100phr / Tin Stab=1.3 / Lub one-pack=2.7 / Total PA=1.5 / TiO₂=1.0 / CaCO₃=7.0 / AIM=as shown
Handling Precautions

Before using this product, consult the Material Safety Data Sheet (MSDS)/Safety Data Sheet (SDS) for details on product hazards, recommended handling precautions and product storage.

CAUTION! Keep combustible and/or flammable products and their vapors away from heat, sparks, flames and other sources of ignition including static discharge. Processing or operating at temperatures near or above product flashpoint may pose a fire hazard. Use appropriate grounding and bonding techniques to manage static discharge hazards.

CAUTION! Failure to maintain proper volume level when using immersion heaters can expose tank and solution to excessive heat resulting in a possible combustion hazard, particularly when plastic tanks are used.

Storage

Store products in tightly closed original containers at temperatures recommended on the product label.

Disposal Considerations

Dispose in accordance with all local, state (provincial) and federal regulations. Empty containers may contain hazardous residues. This material and its container must be disposed in a safe and legal manner.

It is the user's responsibility to verify that treatment and disposal procedures comply with local, state (provincial) and federal regulations. Contact your Dow Plastics Additives Technical Representative for more information.

Product Stewardship

Dow has a fundamental concern for all who make, distribute, and use its products, and for the environment in which we live. This concern is the basis for our product stewardship philosophy by which we assess the safety, health, and environmental information on our products and then take appropriate steps to protect employee and public health and our environment. The success of our product stewardship program rests with each and every individual involved with Dow products – from the initial concept and research, to manufacture, use, sale, disposal, and recycle of each product.

Customer Notice

Dow strongly encourages its customers to review both their manufacturing processes and their applications of Dow products from the standpoint of human health and environmental quality to ensure that Dow products are not used in ways for which they are not intended or tested. Dow personnel are available to answer your questions and to provide reasonable technical support. Dow product literature, including safety data sheets, should be consulted prior to use of Dow products. Current safety data sheets are available from Dow.

Contact:

North America: 1-800-441-4369
Asia: +800 7776-7776
Europe: +800-3-694-6367
Latin America: +55-11-5168-9000
http://www.dow.com/additives

Notice: No freedom from any patent owned by Dow or others is to be inferred. Because use conditions and applicable laws may differ from one location to another and may change with time, Customer is responsible for determining whether products and the information in this document are appropriate for Customer’s use and for ensuring that Customer’s workplace and disposal practices are in compliance with applicable laws and other government enactments. The product shown in this literature may not be available for sale and/or available in all geographies where Dow is represented. The claims made may not have been approved for use in all countries. Dow assumes no obligation or liability for the information in this document. References to "Dow" or the "Company" mean the Dow legal entity selling the products to Customer unless otherwise expressly noted. NO WARRANTIES ARE GIVEN; ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY EXCLUDED.