PARALOID™ BPMS-250  
Melt Strength Enhancer for Polylactic Acid

Description

PARALOID BPMS-250, Melt Strength Enhancer for PLA, is designed to improve processability of polylactic acid and its alloys. The low melt strength of PLA creates limitations during melt processing, such as web sagging and necking resulting in lower processing rates. The addition of PARALOID BPMS-250 at levels as low as 2% increases the melt elasticity of the blend without affecting clarity thanks to the complete miscibility within the matrix, making PARALOID BPMS-250 suitable for use in transparent packaging applications as well as paper coating and foam. Combining strong expertise in plastic technology and polymer rheology, Rohm and Haas offers another solution to the bioplastics industry in pursuit of more sustainable material choices.

Applications/Uses

PARALOID BPMS-250 is useful in applications where additional melt strength is needed for the processing of polylactic acid via calendering, sheet extrusion, or blown film. PARALOID BPMS-250 is designed for applications where extremely high clarity is needed, as well as increased melt strength.

Melt Strength Enhancement

The entanglement of the chains of the high molecular weight acrylic additive with those of the PLA creates a physical network with a high resistance to break in the melt. Again, use levels as low as 2% impart increased melt strength while evaluations of loadings up to 5% in our laboratories indicate proportionally higher effect on the melt viscosity of the compound.

Figure I: Melt Elongational Viscosity of PLA Containing 2% and 5% PARALOID BPMS-250
While a large effect on extensional melt viscosity and melt strength is observed, PARALOID BPMS-250 only imparts a nominal increase in melt viscosity of the PLA compounds.
Optical Performance

Thanks to the complete miscibility of the PARALOID BPMS-250 with PLA resin, addition up to 5 wt% has minimal effect on the haze of the compound.

![Haze % vs BPMS-250](image)

### Typical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Free flowing white powder</td>
</tr>
<tr>
<td>Bulk density</td>
<td>0.4-0.52</td>
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</tbody>
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Process Information

PARALOID BPMS-250 is supplied in a free flowing powder form. It is easily dispersed into PLA by controlled addition of the additive during melt mixing in a single or twin screw extruder. It is recommended that both the BPMS modifier and PLA resin be thoroughly dried to below 250 ppm moisture before processing.

Regulatory Compliance

PARALOID BPMS-250 complies with EU Directive 2002/72/EC of 6 August 2002 which governs food packaging in the European Union. In compliance to US Food and Drug Administration (FDA) requirements, PARALOID BPMS-250 may be used with all types of food at room temperature and below. It is recommended on an ongoing basis, that customers verify the latest food contact status for PARALOID BPMS-250.

Storage, Handling and Safety

Refer to the MSDS for guidelines.

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