



APPLICATION BULLETIN

Thermal And Light Stabilization Of Poly BD® Resin Formulations

Resin Solutions produces Poly BD® Resins, a family of low molecular weight hydroxyl terminated polybutadienes. Because these resins contain a high concentration of unsaturated (carbon double bond) groups, formulations often contain stabilizers to improve the thermal and light (weatherability) stability properties and final products.

General recommendations include:

1. Fillers should be added to Poly BD®-derived polyurethanes used in outdoor applications because they add to the stabilization of mechanical and physical properties. Carbon black is the most effective filler but asphalt, oils and alumina or silica powders are effective as well. The level of filler will depend upon the specific application but a minimum of 5 weight percent based on Poly BD® resin is typical.
2. Antioxidant/ultraviolet radiation absorber (UVA) combinations should be added along with fillers, especially carbon black, to Poly BD®-derived polyurethanes to obtain the highest retention of mechanical and physical properties. The level of antioxidant/UVA combination will depend on the specific application but a minimum of 0.5 weight percent based on Poly BD® resin is typical.
3. Antioxidants from the class of hindered phenols and UV radiation absorbers from the class of triazoles are most effective. The antioxidant Ralox 46 from Raschig Corporation at 1% based on Poly BD® resin or the antioxidant Irganox 1076 from Ciba Specialty Chemicals Corporation at 0.5% based on Poly BD® resin has been shown effective. Tinuvin P, a UVA, from Ciba Specialty Chemicals Corporation at 0.5% based on Poly BD® resin has also been shown to be effective.
4. Other stabilizers include:
Thermal Stabilization: 0.2% Irganox 565 or 0.2% Irganox 1010 + 0.4% DLTDP (dilauryl thiopropionate)
Light Stabilization: 0.5 to 1% of Tinuvin 327 or 0.5% Tinuvin 327 + 0.5% Tinuvin 765.



About Resin Solutions

Resin Solutions is the premier global supplier of specialty chemical additives, hydrocarbon specialty chemical, and liquid and powder tackifying resins used as ingredients in adhesives, rubbers, polymers, coatings and other materials. Resin Solutions has pioneered the development of these advanced technologies, introducing products that enhance the performance of products in energy, printing, packaging, construction, tire manufacture, electronics, and other demanding applications.

For more information, please visit **www.resinsolutions.com**.

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