



Ask the Spectar Team

The *Ask the Spectar Team* email series allows us to share practical information about Eastman Spectar™ copolyester with people like you. If you have a question that isn't answered by one of our current topics or would just like to share your experiences with Spectar, email us at AskTheSpectarTeam@eastman.com.

We would be glad to hear from you!



Q How do you bond Spectar sheet?

A There are many different ways to bond Eastman Spectar™ copolyester depending on the needs of the application. Solvent bonding is generally preferred when the components to be joined are made from Spectar sheet. However, adhesives, mechanical fasteners, or plastic welding may be needed when joining dissimilar materials or when considerations such as part size, bond flexibility, or bond appearance prevail.

Solvent bonding

The excellent chemical resistance of Eastman Spectar™ copolyester allows its use in certain applications where other plastic materials might be unsuitable. Using a proper solvent, applying good technique, and allowing adequate cure time should result in a clear haze-free joint that is strong and durable. Whether using the capillary action technique commonly employed for smaller parts and bonds of fairly short length or some other method, the parts must fit together well without forcing, leaving no visible gaps. For the best bonding results, allow the solvent to fully penetrate the edges to be bonded.



There are several options for solvent bonding Eastman Spectar™ copolyester to itself. These include commercial products as well as custom blends of MEK and methylene chloride. MEK is a fast-acting solvent that gives quicker setup but with more likelihood of setting up before the joint is filled. Methylene chloride, on the other hand, is a slower solvent and offers more time for handling. In some locations, a 50:50 mix of methylene chloride and MEK is used as a starting point to formulate custom solvent blends. A small amount of acetic acid can be added when bonding in humid environments.

Adhesive bonding

When joining dissimilar materials, solvent bonds are rarely strong and durable, so the use of adhesives is often recommended for this purpose. The adhesive selected must be compatible with each material involved. Unlike solvents which evaporate, an adhesive layer becomes part of the final product and the performance and appearance may depend on the characteristics of the adhesive layer. For example, the selection of a brittle adhesive, or one that contains aggressive chemicals, may lower the impact strength of sheet made with Eastman Spectar™ copolyester. There are many adhesive options to consider based on the application of the final product. Table 1 shows an adhesive system with relevant material.

Table 1

Adhesive system	Spectar to Spectar	Spectar to acrylic	Spectar to PC
Weld-ON™ 42	X	X	
Weld-ON™ 58	X		X
Weld-ON™ 55	X		X
Scotch-Weld™ DP-100	X		
Durabond™ 105CL	X	X	X
Light-Cure™ 3104	X	X	X
Light-Cure™ 3105	X	X	X
Ultra-Light Weld™ 3072	X	X	X
Ultra-Light Weld™ 3072		X	X
Plastic Welder™ II	X	X	X

Mechanical fastening



Because of its outstanding toughness, sheet made from Eastman Spectar™ copolyester can be mechanically fastened more readily than other materials. This method is useful when assembling or installing large or heavy parts, or when a suitable solvent or adhesive is not available. Always use screws specifically designed for plastics. If bolting parts together, allow for thermal expansion and contraction by drilling oversized holes and make sure the holes have smooth edges. Use of washers is also suggested when bolting to better distribute the load across the part.

Plastic welding

There are a variety of ways Eastman Spectar™ copolyesters can be welded together. A list of these techniques would include hot gas, heat sealing, freehand, speed tip, extrusion, contact, hot plate, high frequency, injection, ultrasonic, spin, and laser welding. These techniques often require specialized equipment and provide a variety of ways to create strong, plastic-to-plastic bonds.



For additional Fabrication Tips, [click here](#).

For further inspiration and information, visit www.eastman.com/spectar.

Did you miss a past issue of *Ask the Spectar Team*? Access previous topics [here](#).

Ask the Spectar Team is a monthly series of emails designed to share practical information about Eastman Spectar™ copolyester. If you have a question, email us at AsktheSpectarTeam@eastman.com. We'd also love to hear your experiences with Spectar.