

Essemplex™ Thermoplastic Shape Memory Polymer Resin

Description:

Essemplex is an easy to use, fully formable, thermoplastic shape memory polymer (SMP) resin.

Temperature	Properties
>Melt Temperature	<ul style="list-style-type: none"> • Mold and cool to hold nearly any memory shape • Melt and remold into a new memory shape
>Activation Temperature	<ul style="list-style-type: none"> • Shape and cool into a new form if constrained • Return to original memory shape if unconstrained
<Activation Temperature	<ul style="list-style-type: none"> • Remains rigid in the desired shape

CRG Industries LLC offers Essemplex with activation temperatures of 34 °C and 43 °C. The SMP heating and reshaping process can be repeated without loss of the memory shape or degradation of the material.

Features & Benefits:

- Reconfigurable
- Formable
- Versatile Design Options
- Compatible with Conventional Processing Methods
 - Injection molding
 - Thermoforming
 - Extrusion

Applications:

- Custom Molds
- Toys
- Furniture
- Architectural Elements
- Smart Fasteners
- Switchable Mounting Brackets
- Mass-produced Consumer Goods
- Custom Grips and Handles
- Auto Body Parts

Material Properties:

Property	Essexplex AF34*	Essexplex AB43	Test Method
Thermal			
Glass Transition Temperature (T_g)	93 °F (34 °C)	109 °F (43 °C)	DSC
Melting Point (T_m)	297 °F (147 °C)	437 °F (225 °C)	DSC
Mechanical (at room temperature)			
Tensile Strength	1300 psi (9 MPa)*	7700 psi (53 MPa)	ASTM D638
Tensile Modulus	—	350,000 psi (2400 MPa)	ASTM D638
Tensile Elongation to Break	210%*	85%	ASTM D638
Unless otherwise noted, all measurements were taken below the T_g of Essexplex.			
*Results for AF34 from modified ASTM method			

For More Information:

CRG Industries is a manufacturer and supplier of various high-tech, high-performance materials:

- Syntactic Foams
- Shape Memory Composites
- Shape Memory Patch Systems
- Shape Memory Mandrels for Custom Tooling
- Thermoset Shape Memory Resins
- Thermoplastic Shape Memory Polymers

For quotes, orders and product information please call toll-free at 866-341-2744 or email huelskampsr@crg-industries.com

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