



Foster Heat & Light Stabilized (HLS™) Polyether Block Amide Copolymers

Polyether Block Amide (PEBA) copolymers like all organic molecules degrade due to the effect of environmental stress agents such as oxygen, moisture, heat and light over time. Foster Corporation has developed a targeted heat and light stabilizer system (HLS™) which can both decompose and neutralize the free radicals created by exposure to environmental conditions. Foster HLS™ helps maintain the integrity of the base resin and extend polymer shelf life, by minimizing unanticipated changes in chemistry (oxidation) and molecular weight (scission). HLS™ formulations have passed USP Class VI testing for biocompatibility.

Test Method & Results

In a study conducted by Foster Corporation, the effect of heat and light aging was evaluated on Pebax® polyether block amide copolymers. The heat study was conducted using ASTM F1980, the standard guide for aging sterile medical devices. In this evaluation, the samples were exposed in an environmental chamber for 6.5 weeks and 32.5 weeks at 55°C to simulate a 1 year and 5 year shelf life at 25°C⁽¹⁾. UV aging samples were fully enclosed in a light booth for six months, with physical property evaluations conducted every 30 days. The results of the study concluded that Pebax® samples containing Foster HLS™ retained on average more than 99% of original tensile strength and 90% of tensile elongation after 5 years of heat aging. Similarly, HLS™ samples exposed to light aging retained more than 99% of tensile strength and 96% tensile elongation after 6 months, a significant improvement over the unmodified Pebax® samples.

Simulated Heat Aging - Pebax® Grades

Resin	Tensile Strength (psi)			Tensile Elongation (%)		
	Initial	5 Years ⁽¹⁾	% Retained	Initial	5 Years ⁽¹⁾	% Retained
Pebax® 2533 SA 01 MED	5,154	4,004	71%	926	601	46%
Foster HLS™ 2533 MED	4,815	4,781	99%	882	835	95%
Pebax® 7233 SA 01 MED	7,669	5,988	72%	190	127	50%
Foster HLS™ 7233 MED	6,639	6,874	104%	169	144	85%

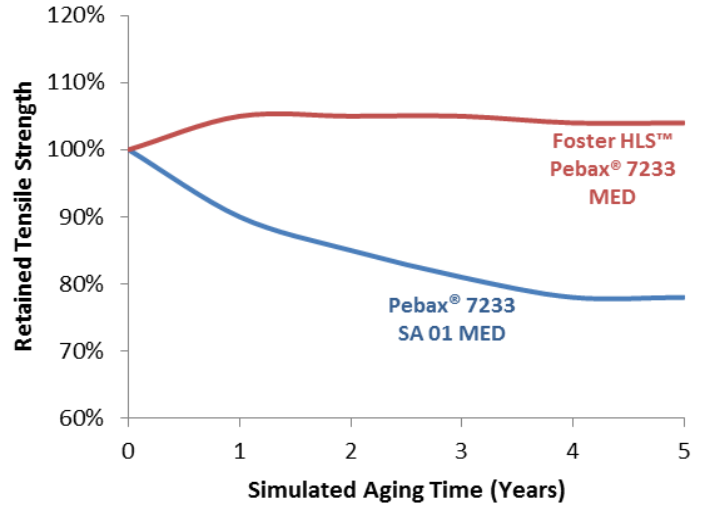
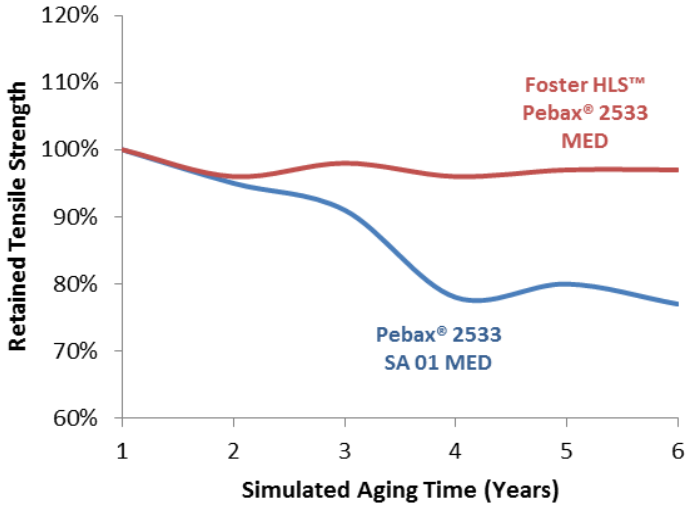
Light Aging - Pebax® Grades

Resin	Tensile Strength (psi)			Tensile Elongation (%)		
	Initial	6 months ⁽¹⁾	% Retained	Initial	6 months ⁽¹⁾	% Retained
Pebax® 2533 SA 01 MED	5,154	0	0%	902	0	0%
Foster HLS™ 2533 MED	5,059	4,997	99%	860	833	97%
Pebax® 7233 SA 01 MED	7,669	6,710	87%	190	163	86%
Foster HLS™ 7233 MED	6,639	6,979	105%	169	160	95%

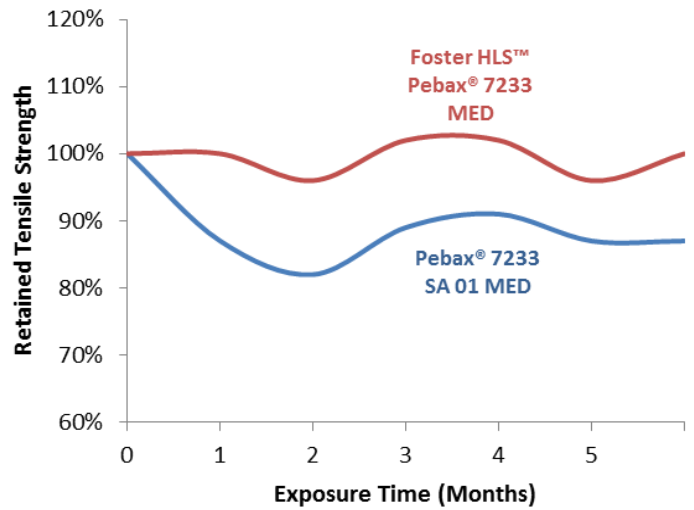
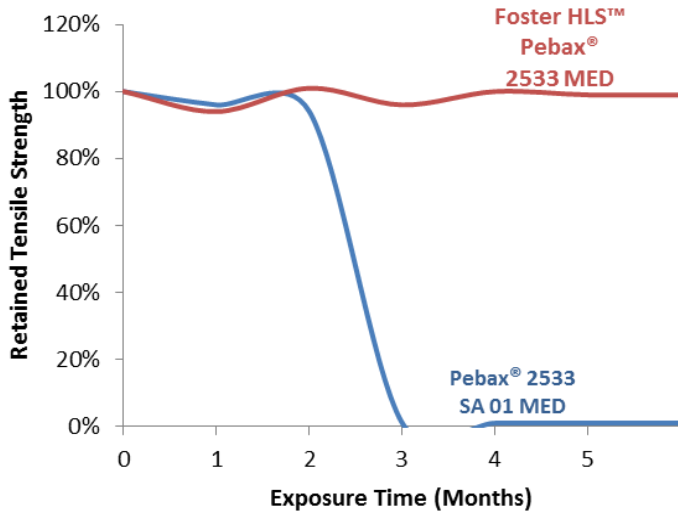
(1) Foster is in no way certifying the use of Pebax products after 5 years. As authorized by Arkema Inc. the shelf life of Pebax is two years from date of delivery, assuming proper containment and storage conditions are met. Material will need to be re-certified by the manufacturer after two years, prior to continued use. Use of material beyond the 2 year shelf life without recertification is the sole liability of the user.

**Pebax is a registered trademark of Arkema Inc.*

Tensile Strength after Simulated Heat Aging - Pebax® Polyether Block Amides



Tensile Strength after Light Aging - Pebax® Polyether Block Amides



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