



FLAME LAMINATION GUIDEBOOK

ALWAYS ONE
STEP AHEAD



A LEADER IN POLYURETHANE ADDITIVES

Momentive offers a distinct portfolio of high-performance Niax™ flame lamination additives for the manufacturing of flame laminated flexible polyurethane foam-based materials, equipped to respond to ever evolving industry needs.

The manufacturing of high-end flame laminated polyether foam requires the right choice of both silicone surfactant and flame lamination additive. Momentive has designed a wide variety of high performing and innovative, low fogging solutions able to meet a range of customer needs and industry requirements.

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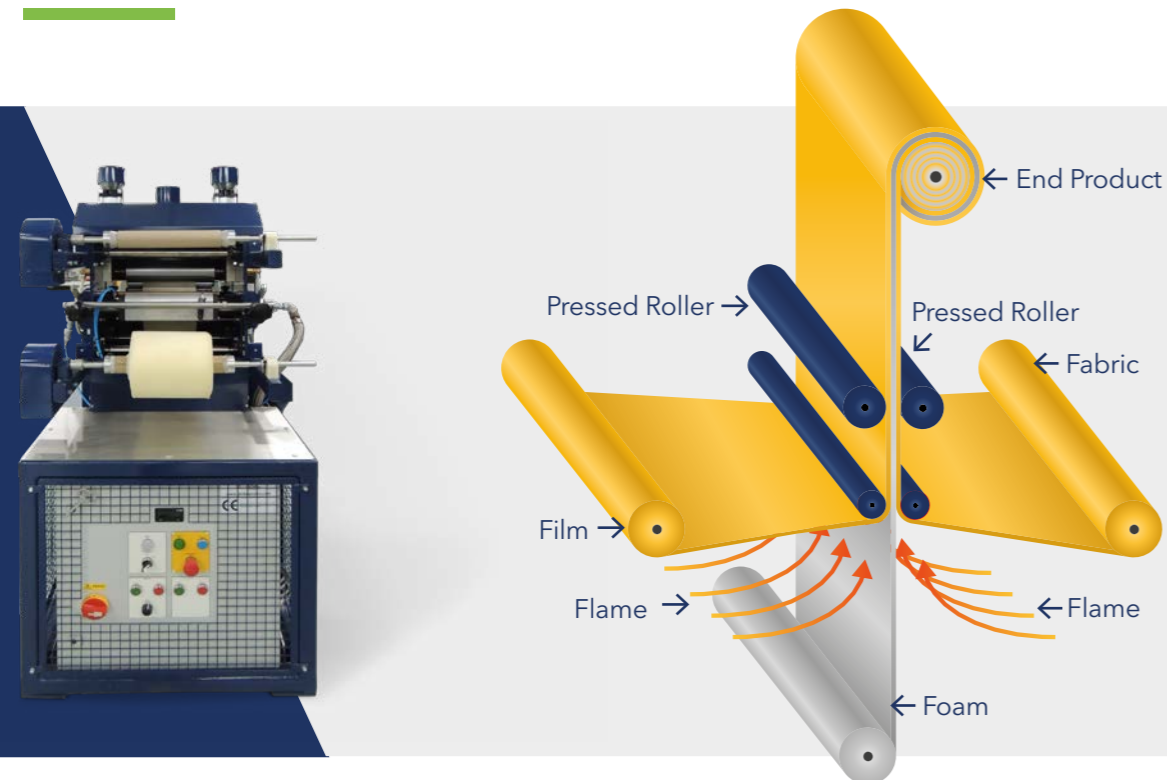


INDUSTRY EXPERTS

MAIN APPLICATIONS



FLAME LAMINATION PROCESS



FLAME LAMINATION ADDITIVES

KEY FEATURES & TYPICAL BENEFITS

- Reduced emission* and formulated without phenols
- Low viscosity and low use level
- Increased bonding strength in flame lamination process
- UV-light foam yellowing delay
- Wide density range

*Reduced volatile emissions as compared to standard industry materials.



FLAME LAMINATION ADDITIVES

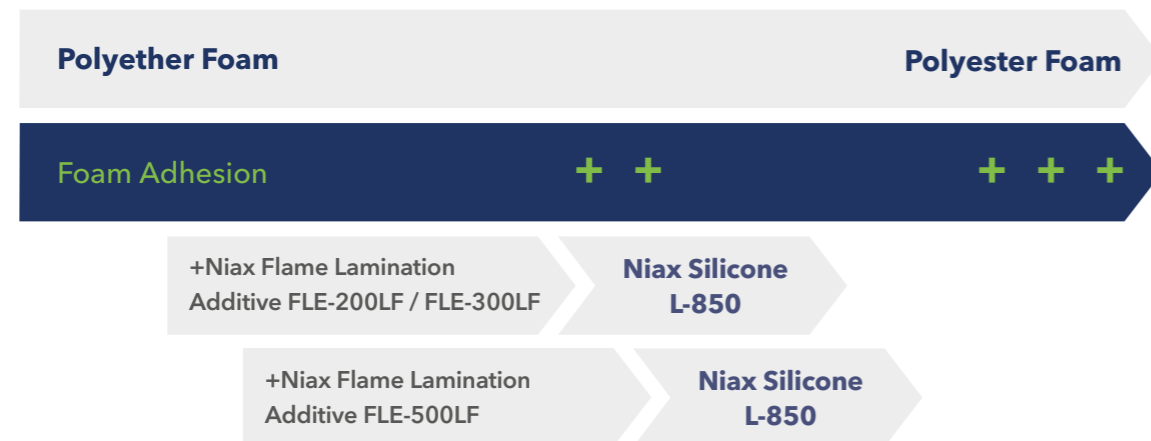
MAIN ROLE

During Flame Lamination (FL) process a flame causes thermal oxidation of the polymer network and bonding occurs upon re-solidification of melted polymer layers.

Polyester-based polyurethane foam generally exhibits rapid re-solidification and excellent flame bonding properties, but demonstrates poor hydrolytic stability.

Unmodified ether foam does not generally exhibit rapid solidification of the melted foam layer, resulting in poor adhesive properties.

The incorporation of CS/FLE additives into ether foams has consistently shown to aid in the acceleration of foam polymer decomposition and rapid re-solidification of melted foam layers, providing enhanced flame bonding characteristics and final peel strength.



Grade	Low Fogging	Flame Retardant*	Processing Latitude	Bonding Strength
CS-22LF	√	++		Initial
FLE-200LF	√	+++	++	Initial / Final
FLE-300LF	√	+++	+++	Initial / Final
FLE-500LF	√	+++	+	Initial / Final

*FMVSS302 Method

NIAX SILICONE L-850

Reduced emission, medium potency FR silicone* offering optimum foam stabilization and cell structure control. Allows the reduction of flame retardant requirement in foam formulations and may help improve flame lamination properties.

NIAX CS-22LF

Reduced emission additive used for flame and heat lamination of polyether foams able to fulfill the most demanding automotive specifications, such as those pertaining to fogging and emissions, while improving the direct light stability of both polyether and polyester foams.

NIAX FLE-200LF

Low viscosity, reduced emission additive used to improve adhesion properties of polyether flame bonding foams. Its rapid build-up of tack time adhesion allows for a unique new approach to FL foams. Can be used in conjunction with L-850 additive to optimize FL properties.

NIAX FLE-300LF

Reduced emission additive with improved processing window and reduced isocyanate demand, used to improve adhesion properties of polyether flame bonding foams. It is easy to handle and particularly suitable for applications where softness, excellent breathability, and improved compression set performance are required. Can be used in conjunction with L-850 additive to optimize FL properties.

NIAX FLE-500LF

Used to improve adhesion properties and enhance flame bonding characteristics of polyether flame laminated foams. Can be used in conjunction with L-850 additive to optimize FL properties.

FLAME LAMINATION PERFORMANCE



*FR silicone is an industry-standard term for silicone surfactants engineered to minimize impact on Flame-Retardancy (FR) testing in finished foam.

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