



Concentrol

Mould release agents



SILICONE SURFACTANTS

FOR POLYURETHANE FOAMS



HR FLEXIBLE POLYURETHANE FOAM

HR MOULDED FOAM

CONCENTROL	HR MDI	HR TDI/MDI	HR TDI	Stabilizing Efficiency	Additional Information
STB PU-1220	+++	++ (co-surf)	+ (co-surf)	Low	Low potency MDI surfactant, very wide processing latitude for open foams.
STB PU-1230	+++	++ (co-surf)	+ (co-surf)	Low	Cell regulation surfactant, open foams with very good crushability and wide processing latitude.
STB PU-1231	+++	++ (co-surf)	+ (co-surf)	Low	Standard silicone surfactant for MDI foam, low VOC and broad processing latitude for open foams.
STB PU-1234	+++	++ (co-surf)	++ (co-surf)	Low-medium	Standard silicone surfactant for MDI foam with very low VOC contribution, wide processing latitude for open foams.
STB PU-1235	+++	+++ (co-surf)	++ (co-surf)	Medium	Silicone surfactant for MDI foam with extra low VOC contribution. Cellular regulation with wide processing latitude for open foams.
STB PU-1270	+++	+++ (co-surf)	++ (co-surf)	Medium	Cell regulation with medium stabilizing effect, very wide processing latitude for less stable MDI systems and TDI/MDI foams.
STB PU-1239	+++	+++ (co-surf)	++ (co-surf)	Medium	Cell regulation surfactant with medium stabilizing effect, for seating as well as sound absorbing mats.
STB PU-1240	++ (co-surf)	+++	++	Low-medium	Low medium potency TDI, also used as co-surfactant regulation at lower usage levels.
STB PU-1251	++ (co-surf)	+++	+++	Medium	Medium potency TDI surfactant, also used as co-surfactant at low dosage for MDI/TDI systems.
STB PU-1250	++ (co-surf)	++	+++	Medium	Medium potency surfactant with wide processing latitude for TDI foams.
STB PU-1253	+	++	+++	Medium-high	Medium potency TDI surfactant, with good surface regulation.
STB PU-1254	+	++	+++	High	Low VOC TDI surfactant with broad processing latitude. Foam stabilizer with good surface regulation.
STB PU-1255	+	++	+++	High	Low VOC TDI surfactant, prevents foam defects such as coarse cell structure and voiding beneath the foam surface.
STB PU-1256	-	-	+++	High	Strong TDI stabilizer. Can be used as a sole surfactant (high polymer solids systems), or for more open foams, in combination with a cell regulator (STB PU-1257)
STB PU-1257	-	++	+++ (co-surf)	High	Strongest cell regulator (sub-surface void reduction), with only moderate stabilizing effect.
STB PU-1259	++	+	+++	High	Very broad processing latitude. Lowest VOC TDI silicone surfactant. High stabilizing effect with good cellular regulation.

	Cell regulating surfactant	+++	strongly recommended
	Stabilizing surfactant	++	recommended with adjustment
		+	may be recommended

HR SLABSTOCK FOAM

CONCENTROL	HR MDI	HR TDI/MDI	HR TDI	Stabilizing Efficiency	Additional Information
STB PU-1230			+	Low	TDI foam with slightly coarser cells. Special MDI formulations at low usage levels.
STB PU-1250			+++	Medium	For TDI 80 formulations, wide processing latitude.

CONCENTROL surfactants meet the main requirements of HR polyurethane producers:

- 1. WIDE SELECTION OF ADDITIVES** in order to offer different stabilizing potency for MDI, TDI/MDI and TDI systems, also providing different ratios in cellular regulation.
- 2. CELL REGULATION and INTERNAL STABILIZATION** may be adjusted in order to obtain good quality foams with improved processability.
- 3. LOW EMISSION FOAMS**, regarding VOC and fogging, from the point of view of the surfactant.



SPECIAL APPLICATIONS

Foam type	Surfactant	Additional information
Higher density foams (>100kg/m ³)	2239 2218 2244	Wood imitation systems and structural foams with complex moulds. Defect-free surfaces.
Higher density foams – open celled (>100kg/m ³)	2223 2257	Cell opening with stabilizing properties. Low polarity surfactants
Medium density, open celled foam (30 - 50 kg/m ³)	2223 2257	Cell opening with stabilizing properties. Low polarity surfactants
Low density, water blown foam (<15kg/m ³)	2290 2237	Packaging foams, open celled foam offering excellent dimensional stability
OCF – straw foam	2208 2209	Non reactive surfactants
	2210	Non reactive surfactant for winter formulations. Usable with high amount of blowing agent, polyester polyols and chlorinated paraffins.
OCF – gun foam	2226	Fine, regular open celled foam
	2210	Non reactive surfactant for winter formulations. Usable with high amount of blowing agent, polyester polyols and chlorinated paraffins.

RIGID POLYURETHANE FOAM

Blowing agent	Appliance	Disc. Panel	Cont. flex-faced panel		Cont. metal-faced panel		Block		Spray	
			PUR	PIR	PUR	PIR	PUR	PIR	Conventional	Low density
HC	2274 2266 2265 2242/2241	2276 ³	2252	2213 2239 2271	2244	2244	2266 2265	2276		
water	2254 2255 2264	2254 2255 2264			2264					2226 2290
HFC-365mfc/ HFC-227ea		2266 2265			2266 2265		2266 2265		2206 2264 2267	
HFC-245 fa	2266 ¹ 2265 ¹						2266 ¹ 2265 ¹	2266 ¹ 2265 ¹	2256 2251C ²	
HCFC-141b	2266 2265 2242/2241	2266 2265	2266 2265		2266 2265 2244		2266 2265		2206 2264	
HFO			2214	2214		2214	2214	2214		

1. Suitable for blowing agents with low-boiling point (e.g. HFC-134a)
2. For FR-rated systems
3. Pipe insulation systems

In order to choose the optimal silicone surfactant for any specific polyurethane system, chemical and processing requirements have to be taken into account:

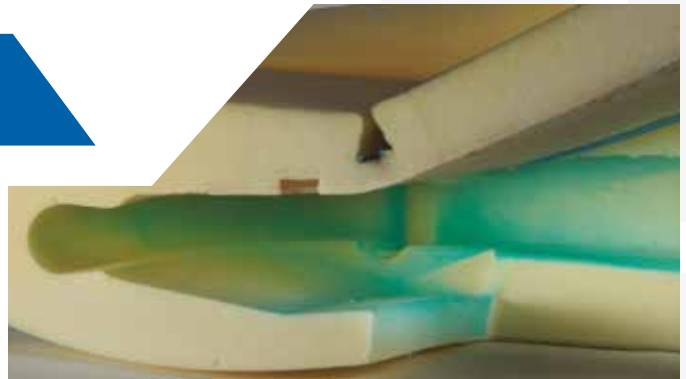
- Chemical requirements are given by the type of polyol, isocyanate and blowing agent used. Other compounds such as catalysts also play an important role.
- For processing requirements, points to consider include mixing efficiency, curing conditions and flow demands.
- Our selection guide shown in the table reviews the recommended products for any specific application, taking into account the blowing agent used, which plays a critical role in any formulation.

Additional products can be recommended, or adjusted to fulfil any specific requirement.



STANDARD FLEXIBLE SLABSTOCK POLYURETHANE FOAM

High active silicone surfactants for standard flexible slabstock foam. They improve the emulsification of the raw materials, providing the sufficient nucleation and stabilising the foam expansion.



SILICONE SURFACTANTS FOR STANDARD FLEXIBLE SLABSTOCK FOAM

CONCENTROL	Application	Activity/foam properties
STB PU-3111	polyether block foam	High efficiency. For formulations with medium and very low density (8-30 kg/m ³) and with a polyol with OH =56 and high amount of blowing agent like methylene chloride.
STB PU-3160	polyether block foam	Medium efficiency, low emanations.
STB PU-3220	polyether block foam	Very high efficiency with wide processing latitude for conventional and FR. All water and methylene chloride formulations.
STB PU-3223 STB PU-3280	polyether block foam	High potency surfactants, excellent cell stabilization with wide-processing latitude and high breathability for low and ultra low densities (5 up to 18 kg/m ³). Specially indicated for CO ₂ or methylene chloride.
STB PU-3228	polyether block foam	High efficiency, low emanations and useful for CO ₂ blown foams. MDI/TDI viscoelastic applications.
STB PU-3230	polyether block foam	Moderate efficiency with wide processing latitude for conventional and FR foam. High methylene chloride formulations.
STB PU-3233	polyether block foam	High potency surfactant, excellent cell stabilization with wide-processing latitude and high breathability for low and ultra low densities (5 up to 18 kg/m ³). Specially indicated for high amount of methylene chloride.
STB PU-3270	polyether block foam	Medium to high efficiency, wide processing latitude for low to medium densities. For most standard formulations with water or methylene chloride.



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