

Product Data Sheet

Lucolast®7010AC

1. Product description

Lucolast®7010AC is a reactive terpolymer of ethylene, acrylic ester and glycidyl methacrylate with low crystallinity produced by high pressure polymerization process. It is intended for use in Polymer modified Bitumen (PmB).

2. Product properties

Addition of Lucolast®7010AC to bitumen increases its viscosity and broadens the range of plasticity. Although the minimum value of the Fraass breaking point of Lucolast®7010AC is as low as for unmodified standard bitumen, the ring and ball softening point increases considerably, depending of the amount of Lucolast®7010AC which was added. Penetration values decline accordingly. Ductility determined according to DIN EN 12591 decreases; however, the values ascertained for the so-called ductility at low temperatures are more favorable than those for standard bitumen without addition of Lucolast®7010AC.

Lucolast®7010AC is

- reactive with –OH, COOH, NH₂ and SH
- compatible with PET, PBT, PPS, PT.
- Lucolast®7010AC adheres very good to metallic surfaces and
- possesses a good thermal stability

3. Product advantages

Compared to standard bitumen Lucolast® 7010AC displays enormous advantages in improving resistance to deformation. Rut formation test at high temperatures demonstrated that asphalt can bear a three-fold and more load when modifying with it Lucolast®7010AC. This does not impair the low-temperature performance of Lucolast® 7010AC, but rather improves it.

4. Applications

Even relatively small amounts of PmB based on Lucolast® 7010AC in asphalt mixtures improves:

- Impact modification of thermoplastic polyesters
- resistance to mechanical stress, in particular deformation and wear
- stability/rigidity and reduce the tendency to flow, when hot and under load
- low temperature flexibility
- ageing behavior

Examples for application:

- s-wearing courses to ZTV-Asphalt - StB
- poured asphalt, also on sloping surfaces (ramps)
- stone mastic asphalt
- special asphalt surfaces, e.g. porous asphalt thin
- bituminous wearing courses (hot paving)

5. Processing into PmB

Bitumen is mixed homogeneously with Lucolast® 7010AC at the temperatures range 165 °C to 195°C and is then ready for use. Heat stability of Lucolast®7010AC allows processing temperatures as high as needed for bitumen modification.

Depending on mixing intensity, the time required to mix large quantities (approx. 20 t) is 1 - 3 h. The usage of a high-speed shear mixing unit leads to a higher quantity of mixture. In order to avoid a possible phase separation a continuous mixing process is required.

6. Environmental compatibility

Lucolast®7010AC is environmentally friendly in manufacture and processing, free of plasticizers and chlorine, and not harmful to health, water, soils, or plants.

Caution

Lucolast®7010AC reacts with polymers containing maleic anhydride and acid. The reaction may generate gels or can block the extruder.

7. Packaging

- Granules: 25 kg bags
- 1000 kg BigBags

8. Storage

Lucolast® should be stored under dry conditions at a temperature below 40°C and protected from UV-light.

Otherwise the packaging could be damaged or degradation may occur resulting in odor generation and color changes. We strongly recommend to use the material latest within 2 years after delivery. Storage time in excess of 2 years may have a negative impact on the processability and should be inspected according to quality assurance measures to ensure product's performance.

Due to the physical properties, it may be possible Lucolast® 7010AC granules show some caking.

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Typical Properties				
	Standard	Unit	Lucolast® 7010 AC	
Acrylate comonomer content	FTIR	wt.-%	20	
Glycidyl Methacrylate content	FTIR	%	4	
Melt index	ISO 1133	g / 10 min	2 – 6	
Glass transition temperature	ISO 11357-3	°C	< -50	
Melting point	ISO 11357-3	°C	62	
Vicat softening temperature	ISO 306	°C	< -40	
Modules of Elasticity	ISO 527	MPa	62	
Tensile Strength at Break (23°C)	ISO 527	MPa	>5	
Elongation at Break (23 °C)	ISO 527	%	800	
Density (23 °C)	ISO 1183	g/cm ³	0.930	
Apparent Density	Acc. to ISO 60	g/l	~ 500	
Hardness Shore A/D	ISO 868	g/cm ³	66 / 20	
Softening Range		°C	70 - 100	
Embrittlement Range		°C	< - 40	
	Standard	Unit	Bitumen 50/70	Mixture of Bitumen B50/70 and 2,5-3,0% Lucolast®7010 AC-Bitumen
Density (23 °C)	ISO 1183	g/cm ³	1.1. - 1.0	1.1 - 1.0
Penetration	DIN EN 1426	mm	50-70	25 - 55
Softening Point R&B	DIN EN 1427	°C	46 - 54	≥ 55
Fraaß Breaking Point (25 °C)	DIN EN 12593	°C	≤ -8	< - 20
Elastic Recovery	DIN EN 13398	%	≥ 50	≥ 50

These standard values are typical values and should not be regarded as specifications.
 Please be aware that the provided data are related to the given Mixture and may deviate e.g. by the use of different bitumen grades.

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