1. Product description

Lucobit® 1210A is a mixture of ethylene copolymers and special bitumen. The resulting formulation is a concentrate or „masterbatch".

2. Properties

Lucobit® 1210A consists of thermoplastic polyolefins. Addition of Lucobit® to bitumen increases its viscosity and broadens the range of plasticity. Although the minimum value of the Fraass breaking point of Lucobit® is as low as for unmodified standard bitumen, the ring and ball softening point increases considerably, depending on the proportion of Lucobit® that 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 usually more favourable than those for standard bitumen without addition of Lucobit.

3. Product advantages

Compared with other standard binder Lucobit® 1210A displays significant advantages in improving resistance to deformation. Rut formation tests at high temperatures demonstrated that asphalt can bear a two to three-fold load when modifying it with thermoplastics or altering binder viscosity by adding Lucobit. This does not impair the low-temperature performance of Lucobit® 1210A, but rather improves it.

4. Applications

Even relatively small amounts of Lucobit® 1210A in asphalt mixtures improve:

- 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 laying)

5. Processing into PmB

Bitumen is mixed homogeneously with Lucobit® 1210A at the temperatures range 165 °C to 195 °C and is then ready for use. 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. The proportion of bitumen already contained in Lucobit® 1210A greatly facilitates the incorporation into bitumen.

6. Direct addition of Lucobit® granules into asphalt mixes

The required amount of granules (3 to 7.5 % based on the binder content while simultaneously reducing the bitumen as to the percent by weight of the polymer added) corresponding to the desired proportion of Lucobit® 1210A is added batchwise to the asphalt mixer either before or after adding the binder as usual. The mixing time of any asphalt mixtures has to be adjusted to the volume of the mixing unit. Using a mixing unit of 1 t recommend to increase the mixing time by at least 10 sec. Please note the producers manual when adding fibrous material!

7. Enironmental compatibility

Lucobit® 1210A is environmentally sound in manufacture and processing, free of plasticizers and chlorine, and not harmful to health, water, soils, or plants.

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Lucobit® 1210A

8. Packaging and storage

Granules: 10 kg or 25 kg bags
Lucobit® should be stored under dry conditions
at a temperature below 40 °C and protected
from UV-light, otherwise the packaging should be
damaged
Storage time longer than 6 months may have a negative
influence on the processability of the product. We strongly
recommend to convert the material latest within 6
months after delivery.
Use beyond the recommended shelf-life should be
inspected according to quality assurance measures to
ensure product performance.

Typical Properties

	Unit	Lucobit® 1210A
Density (23 °C)	g/cm^3	0.97
Apparent Density	g/l	~ 500
Elongation at Break (23 °C)	%	700 - 800
Modules of Elasticity	MPa	17
Softening Range	°C	80 - 100
Embrittlement Range	°C	< - 30
	Unit	Mixture of Bitumen B50/70 and 5 % Lucobit® 1210A
Density (23 °C)	g/cm^3	1.1 - 1.0
Penetration	mm	25 - 55
Softening Point R&B	°C	≥ 55
Fraaß Breaking Point (25 °C)	°C	< - 10
Ductility	cm	> 15

These standard values are typical values and should not be regarded as specifications.