

# Product Data Sheet

## Lucobit®1210AP

### 1. Product description

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

### 2. Properties

Lucobit®1210AP 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 at least as low as for unmodified standard bitumen, the ring and ball softening point increases considerably depending on the proportion of Lucobit®1210AP 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 favorable than those for standard bitumen without addition of Lucobit®1210AP.

### 3. Product advantages

Compared with other standard binder Lucobit®1210AP displays significant advantages in improving resistance to deformation. Rut formation tests 50°C demonstrated that asphalt can bear a two to three-fold load when modifying it with thermoplastics or altering binder viscosity by adding Lucobit.

### 4. Applications

Even relatively small amounts of Lucobit®1210AP 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

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### Examples for application:

- s-wearing courses acc. to ZTV-Asphalt StB<sup>1</sup>
- 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® 1210AP at temperatures ranges between 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 2 hrs. The use of a high-speed shear mixing unit leads to lower required time of mixing. The proportion of bitumen already contained in Lucobit® 1210AP greatly facilitates the incorporation into bitumen.

### 6. Direct addition of Lucobit® granules into asphalt mixes

The required amount of granules (2 to 5 % based on the binder content while simultaneously reducing the bitumen as to the percent by weight of Lucobit®1210AP added) corresponding to the desired proportion of Lucobit®1210AP 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 it is recommended to increase the mixing time from approx.. 1 min by at least 10 sec. Please note the producers manual when adding fibrous material (IFTA)!

### 7. Environmental compatibility

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

<sup>1</sup> ZTV- StB – Zusätzliche Technische Vertragsbedingungen, Straßenbau

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### 8. Packaging and storage

Granules 10 kg or 25 kg bags, pallet standard 500 kg or 1375 kg. Other packaging upon request.

Lucobit® should be stored under dry conditions at a temperature below 40 °C and protected from UV-light otherwise the packaging could be damaged

Storage time in excess of 6 months may have a negative impact on the processability of the product. We strongly recommend to use the material latest within 6 months after delivery.

Use beyond the recommended shelf-life, The product should be inspected according to quality assurance measures to ensure product's performance.

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#### Typical properties of Lucobit®1210AP \*

	Standard	Test temperatur	Einheit	Lucobit®1210AP
Density	ISO 1183	23 °C	g / cm <sup>3</sup>	appr. 0.97
Apparent density	acc. to ISO 60	23 °C	g / cm <sup>3</sup>	~ 0,500
Elongation at break	ISO 527	23 °C	%	>800
E-Modulus	ISO 527	23 °C	MPa	17
Softening range			°C	80 - 100

#### Typical properties of Lucobit®1210AP in bitumen\*

	Standard	Test temperature	Unit	Data of bitumen Binder <b>B50/70</b>	Mixture of Bitumen B50/70 and 5 % Lucobit®1210AP
Density	ISO 1183	23 °C	g/cm <sup>3</sup>		appr. 1,0
Penetration	DIN EN 1426	25 °C	1/10 mm	50 to 70	20 -60
Softening point Ring and ball	DIN EN 1427		°C	46 - 54	≥55
Fraaß breaking point	DIN EN 12593	25 °C	°C	≤ -8	< - 10
Ductility	DIN EN 13589	25 °C	cm		> 15

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

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