

Colzuphalt®



Additive for optimisation of asphalt

Use

Colzuphalt® is an additive for optimising asphalt when the adhesion between mineral and binder as well as the processing properties of the asphalt mixture are to be improved.

At the same time, Colzuphalt® serves to lower the laying temperature of asphalt mix.

Properties

Colzuphalt® is a liquid, surface-active wetting agent. The use of Colzuphalt® has been tried and tested since the end of the 1960s on many exposed traffic routes, especially bridge decks.

This is also demonstrated by the fact that Colzuphalt® is listed by the 'Bundesanstalt für Straßenwesen (BAST)' as a proven product for reducing the temperature of asphalt (see collection of experience on the use of finished products and additives for temperature reduction of Asphalt, BAST).

Colzuphalt® is characterised by the following features and properties:

- Temperature reduction of the mix up to 30 °C possible
- Adhesive to enhance the adhesion of the binders to the mineral
- Improvement of the processing properties
- Very good compaction of the mix at reduced processing temperature
- No "displacement" of the mix during the rolling process

Mode of action

Colzuphalt® is a reactive additive with multiple effects. First, it acts as a wetting agent, i.e. the surfaces of the minerals, especially in the filler area, are coated with the additive in such a way that the surface tensions change in favour of a better coating with the binder (lipophilic). Colzuphalt® then reacts under thermal influence to form a highly effective bonding agent. The adhesion between bitumen and mineral is permanently improved in the asphalt mixture. The minerals thereby acquire hydrophobic and oleophilic properties, which also lead to an increase in cohesion in the asphalt.

Both reaction phases simultaneously trigger the temperature reduction with better workability.

Application instructions

Colzuphalt® is a slightly viscous liquid at room temperature, which can be added to the mixer in portions either via a dosing pump or via individual easily meltable plastic bags. The amount to be added is 0.5 to 1.0 % of the binder. In order to ensure efficient distribution of Colzuphalt® with a constant mixing time, the following mixing sequence has proven successful. If this is technically possible, Colzuphalt® should be added to the bitumen weigher via a dosing pump. If addition via the bitumen weigher is not possible, Colzuphalt® can be added to the asphalt mix during the mixing process. In this case, it may be advisable to extend the usual post-mixing time. It must be ensured that sufficient spreading of the additive in the mix is guaranteed. When producing mastic asphalt, Colzuphalt® can also be added directly to the mixer in addition to the methods described above. With this method, a sufficient dwell time in the boiler before processing must also be taken into account.

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Storage, reaction time

Colzuphalt® is a reactive additive which requires a certain residence time in the hot mix to act as an adhesive. This reaction time is approx. 2 hours at a mix temperature above 120 °C. This already includes the deadlines from the throughput mixer, ensiling, transport to the construction site and processing on site. The Colzuphalt® optimised mix retains its special properties even when stored in the silo for several hours.

Material consumption

The dosage of Colzuphalt® is 0.5 to 1.0 % of the binder.

Storage

The product has a useful life of at least 24 months when stored in a cool and dry place.

Form of supply

Colzuphalt® can be individually packaged for the mix requirement at the mixing system. For dosing with a dosing pump, Colzuphalt® is supplied in 900 kg containers or 182 kg disposable drums. For manual addition or via a conveyor belt, Colzuphalt® can be supplied packed in easily meltable plastic bags according to the mixer size (batch).

Packaging:	900 kg IBC container
	182 kg disposable drum
	2 kg bag/ 13 pieces per pack

Colzuphalt® can also be supplied as a prefabricated bitumen-additive mixture for special projects on request.

Dosing via the filler

Colzuphalt® can be "applied" directly on a filler. The additive is sprayed onto the filler in the appropriate quantity. Colzuphalt® is then dosed at the asphalt mixing system via the filler.

Cleaning agent

Equipment:	BIGUMA®- SWS, benzines or common solvents
In case of skin contact:	Hand cleansing paste
Dosing equipment:	Mineral and vegetable oils

Suitability and control tests

In the case of laboratory mixtures, the mix must also have a storage period of 2 hours at a temperature above 120 °C before testing. The positive influence of Colzuphalt® can be tested on drill cores and support pieces. The improved processing properties of the mix (e.g. better compaction behaviour at rolled asphalt, reduced stirring resistance at mastic asphalt) can only be proven to a lesser extent at reheated mix samples.

Technical data

The viscosity of Colzuphalt® is temperature dependent. For effective utilisation of the delivery capacity of dosing pumps, the additive should have a temperature of at least 20 °C. Before use, check the compatibility of Colzuphalt® with other additives that are conveyed via the dosing equipment (pumps, pipes). If necessary, rinse the dosing equipment with mineral or vegetable oils before or after use.

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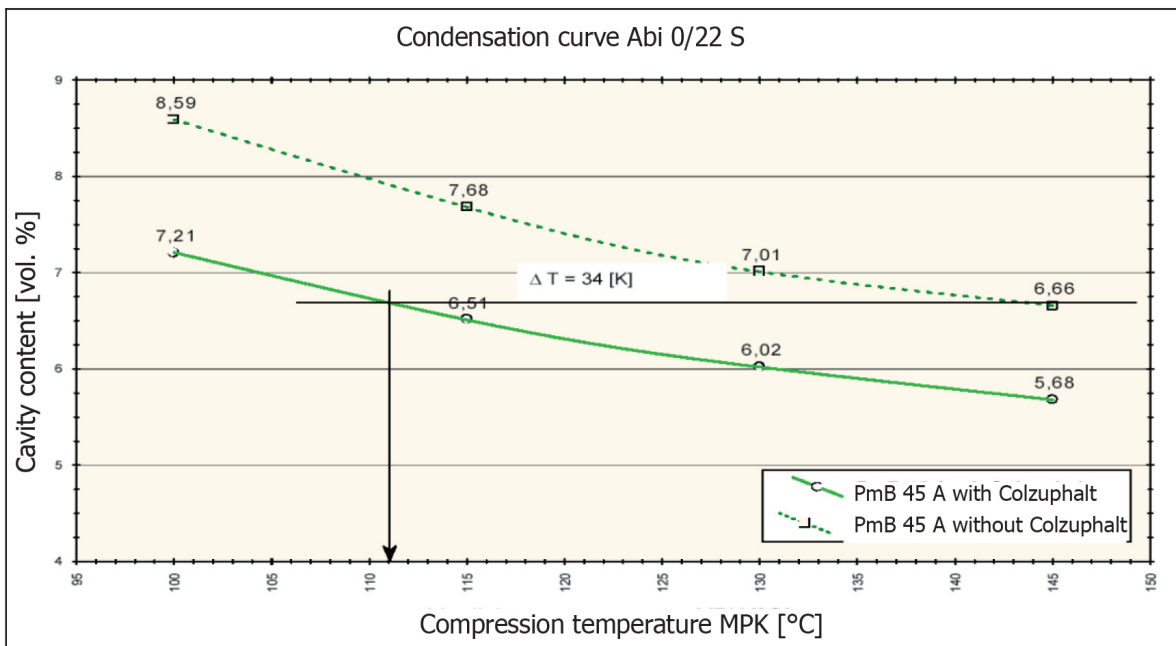
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Viscosity:	5 °C	approx. 3000 mPa s
	10 °C	approx. 1500 mPa s
	20 °C	approx. 1000 mPa s
Density:		0.9 g/cm ³ (23 °C)

**Example of two compaction curves of asphalt binder
(Source: Ingenieurbüro Nies, Cologne)**



References: (excerpt from older buildings, Ing Büro Nies)

- Rheinkniebrücke Düsseldorf, in original condition since 1968 without maintenance measures
- Bridge over the Neuss marshalling yard 1972
- Rheinkniebrücke Düsseldorf Oberkassel 1972
- Europa Bridge Innsbruck 1974, over 13 years until bridge widening
- Rhine Bridge Frankenthal 1971
- Motorways, mains roads and country lanes in the NRW region
- Test track B106, Ludwigslust 2004 (see collection of experience on the use of finished products and additives for temperature reduction of Asphalt from the „der Bundesanstalt für Straßenwesen“)

This product information corresponds to our latest available information. The processor is obliged to test the suitability and application options for the intended purpose. We shall be pleased to advise if you have any questions about our product. Our Terms and Conditions of Business apply, which can be found at www.dga.de.

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