

Stay on Track

Hybit[®]

the modern additive for asphalt mixes

www.hywax.com

Hybit® is a synthetic hard wax, free from sulphur and other impurities.

The use of Hybit® takes the asphalt applications to the next, new level. It can be used as an additive in many different asphalt mixtures which have a broad application band. From the lightest sidewalks to cargo runways.

Increase the performance while decreasing the price!

Why Hybit®?

With the help of Hybit® the mixture and paving temperature can be decreased up to 30 K. Hybit® is not only reducing its processing temperature but also reduces its viscosity.

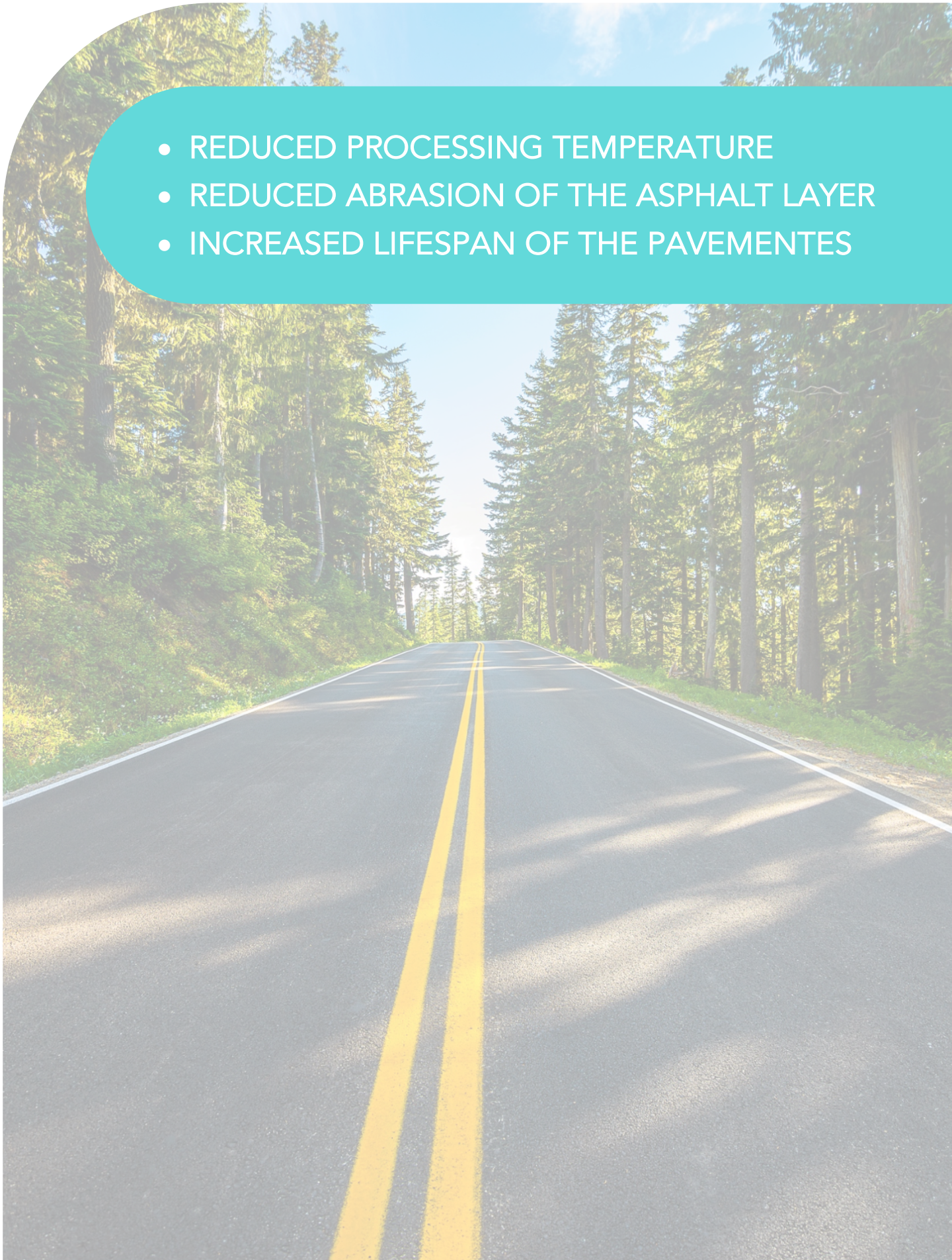
Reduced viscosity at standard temperatures enhances the workability of the asphalt mixtures which are used in typical applications. Hybit® increases process reliability and significantly reduces the risk of expensive and inferior materials.

During the cooling phase Hybit® starts to crystallize at 90 °C and forms a lattice structure in the bitumen which has a stiffening effect to turn up the durability.

Deformation resistance increases significantly when adding the a given quantity of Hybit®, without impairing low-temperature performance.



- REDUCED PROCESSING TEMPERATURE
- REDUCED ABRASION OF THE ASPHALT LAYER
- INCREASED LIFESPAN OF THE PAVEMENTES



Process reliability at all times

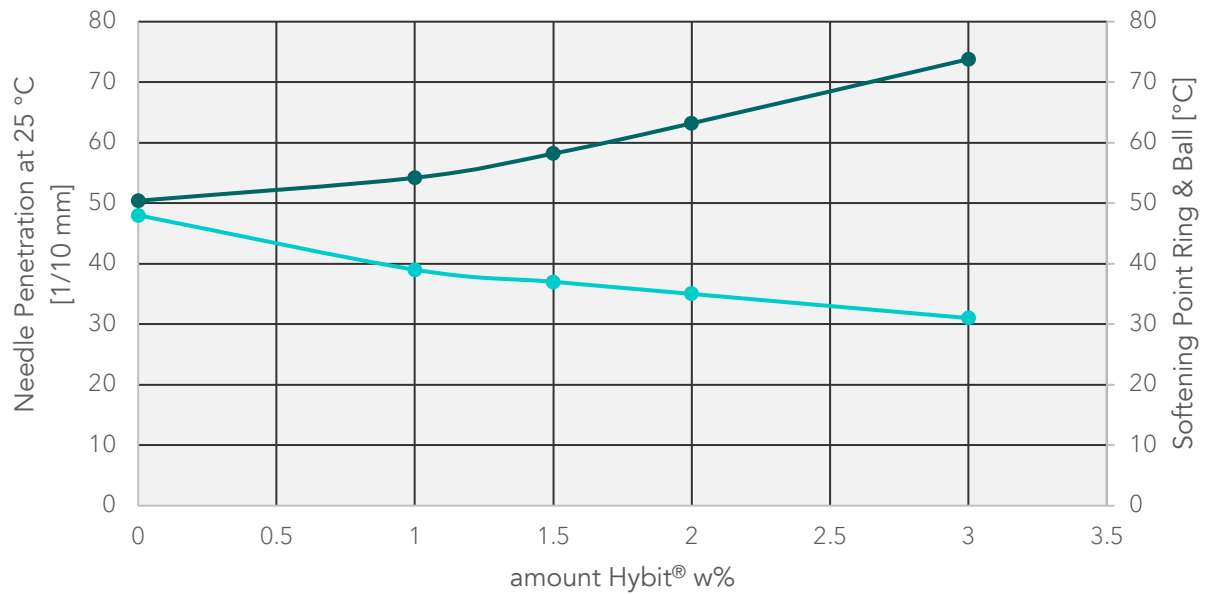
Process reliability increases from the production to the extended period of use and eventual reuse. Hybit® improves workability, and this has the following benefits:

- Reduced risk of compaction failures especially when using very hard and highly viscous bitumen
- Good workability even during poor weather conditions without any additional compaction/without increasing mixing temperatures
- More effective compaction down to the critical paving temperature range
- Extended construction season because weather conditions matter less
- Easier manual application

What is under the hood?

		amount Hybit [w%]				
		-	1,0 w%	1,5 w%	2,0 w%	3,0 w%
Needle Penetration [1/10 mm]		48	39	37	35	31
Softening Point Ring & Ball [°C]		50,4	54,2	58,2	63,2	73,8
Dyn. Viscosity (135 °C) [Pa*s]		0,45	0,40	0,38	0,38	-
BBR	T _{300MPa} [°C]	-19,0	-17,4	-17,8	-17,2	-16,6
	T _{0,3} [°C]	-19,6	-19,2	-20,8	-18,8	-16,6

By adding different amounts of Hybit® the properties of a bitumen 50/70 can be tuned to deliver a better performance which is more appropriate to the targeted applications.



With increasing amount of Hybit® the needle penetration drops to lower values and the Softening Point ascends. In fact you get a more durable asphalt which is more resistant to daily stress cause through traffic and different weather conditions.

The decreasing of the viscosity leads to a more feasible handling at lower temperatures.

Resistent asphalt mixes

Due to its properties asphalt is ideal for impermeable paved areas like airfield runways. These areas are also including storage facilities for liquid and solid manure, as well as silage effluents; facilities which store, bottle, or process substances, hazardous to water and facilities which produce, treat or use substances hazardous to water.

Specimen after testing with Kerosene for 19 days



AC 14 + common 40/60 binder

loss of mass 17 %



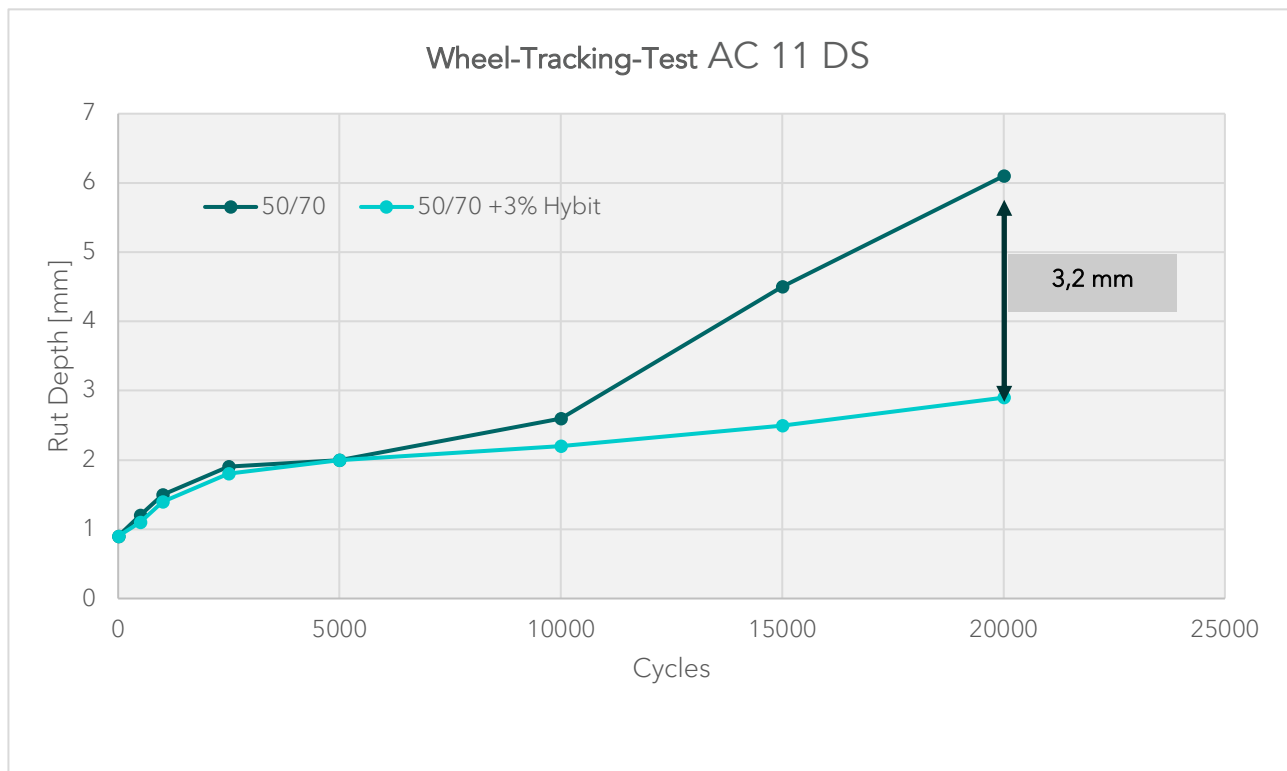
AC 14 + common 40/60 binder + Hybit

loss of mass 12 %

Good workability for asphalt mixes

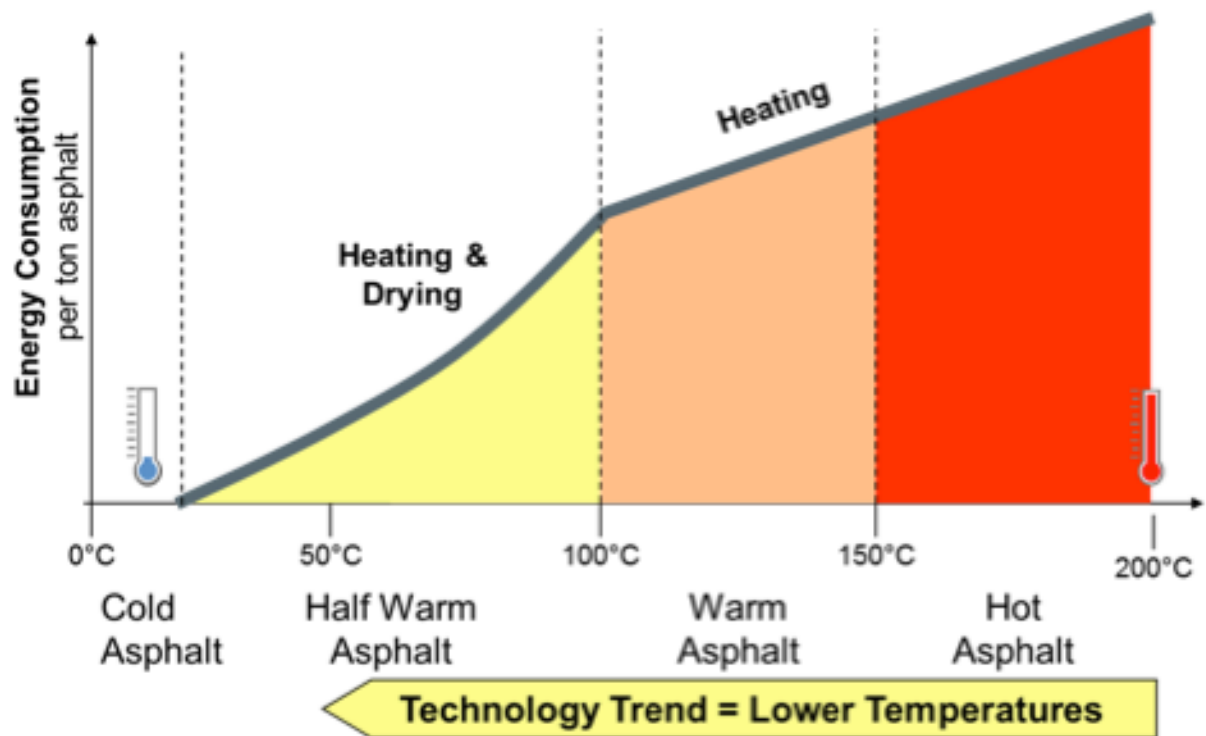
Asphalt mix performance is usually defined as deformation resistance as well as cold-crack and fatigue-crack resistance. Optimal compaction enhances performance. A 3 % modification with Hybit® increases process reliability and ensures optimal compaction.

In combination with the stiffening effect in the service temperature range Hybit® greatly improves pavement performance – road durability increases in line with pavement performance. This means significantly lower maintenance costs and ensures sustainable and resource-saving road construction projects.



Warm mix asphalt (WMA) with Hybit®

- Less CO2 emissions
- Less energy consumption
- Less fumes and aerosols
- Less bitumen ageing
- Less wear on machines and resources



Source: European Asphalt Pavement Association, eapa.org

As described above the improvement of the asphalt mixtures with Hybit® leads to an overall better performance and what is more you can fulfill the most modern industrial standards by reducing the processing temperature. By using different amounts of Hybit the materials can be tuned tailormade for the desired applications.

Advantage	Recommended dosage for Hybit® [w% of bitumen]							
	1,0	1,5	2,0	2,5	3,0	3,5	4,0	
Simplified Workability								
Temperature Reduction								
Higher process safety								
Stability								
Heavy Loaded Asphalt Mixes								



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