

CASE STUDY:

ASPHA-MIN® BREAKS NEW GROUND IN URBAN ROAD CONSTRUCTION

Road construction in Germany's major cities is subject to its own laws, as a glance at the Bavarian capital show. Four-lane streets, crossed by suburban railway tracks as well as footpaths and cycle paths run through the Munich cityscape. Often these junctions are highly stressed by dense traffic 24 hours a day. Therefore, not only are special demands placed on the layer structure and type selection, but also on local traffic management, which is responsible for the closure periods and extensive diversions through narrow residential roads. Traffic jams and associated delays must be avoided.

Guidelines and regulations do not sufficiently take these special conditions into account if cooling times of 24 or 36 hours are still required and warm mix asphalt can only be used as a special construction method via various acts of force. Just to remind you: Warm mix asphalt describes the processing of asphalt mix at temperatures approx. 30 K lower, e.g. with the aim of speeding up traffic clearance. In view of the scenario described above, the unavoidable premature reopening of such traffic areas would inevitably lead to deformations if conventional asphalt mixes were used.

As a result, there is a need for innovative and responsible people who are willing to use scarce tax resources as sustainably as possible and to keep the burden on road users and residents as low as possible.

The renovation of the intersection of Landshuter Allee and Leonrodstraße with an area of around 7,500 m² provided for the following layer build-up:

9 cm AC B S 22, binder type 25/55-55, warm mix

3 cm SMA 8 S, binder type 25/55-55, warm mix

As an additive for lowering the temperature at the asphalt mixing plant of Bayerische Asphaltmischwerke (BAM) in Munich-Allach, **aspha-min®** was added in self-melting polyethylene bags of 3 kg each.

The contractor, Franz Schelle GmbH & Co. KG of Pfaffenhofen only had the night hours from 10 pm to 6 am available for paving the asphalt mix. The binder layers had to be paved in sections immediately after the milling work. The top layer was executed in less, but larger sections. The weather conditions during the construction period from August to September were already very changeable with outside temperatures of 8 – 21 °C. Sometimes heavy cloudbursts constricted the paving window considerably.

The very first day of paving turned out to be an involuntary example of the imponderables that road construction is subject to, but how innovative technology nevertheless ensures the best paving results.

After the first vehicles with warm mix asphalt had left the asphalt mixing plant around 9.15 pm in dry weather, they reached the construction site 15 minutes later in pouring rain that only ended two hours later. The asphalt mix had therefore already been stored for more than three hours when, at just after midnight, paving of the first 400 m² at a temperature of approx. 130 °C began.



Munich: The crossroad of Landshuter Allee at the corner with Leonrodstraße



Warm mix asphalt for night paving

At the end of the paving, around 2 am, the temperature had just fallen below 100 °C.

At the time of traffic release at 6 am, an extremely homogeneous surface appearance was evident for an asphalt binder with a grain size 0/22, and even unavoidable manual paving was successful. The temperature in the layers was only 10 – 15 °C above the outside temperature. The entire construction project was accompanied by the use of a Troxler probe. Here, as well as at the drill cores, compaction values of 98% and more could be determined. The paving behaviour did not differ from that of the same material at higher temperatures, although the odour and vapour loads were significantly lower. In this way, occupational health and safety could also be taken into account.

The use of the binder-independent **aspha-min®** additive also helped to solve logistical challenges at the asphalt mixing plant. An SMA 5 S 45/80-50 was originally planned for a bus lane only 2 cm thick, which would have resulted in residual quantities in the binder tank in view of the surface area of just 240 m². Therefore, it was decided at short notice to use the PmB 25/55-55 with **aspha-min®** in hot asphalt with reduced viscosity for the remaining measure, which had to be provided anyway. This meant that a higher-quality end product could be produced with the same amount of work without having to pass on special bitumen above the price per ton in the asphalt mix to the customer. Two years after being paved, a homogeneous surface and no trace of deformations or other defects can be seen despite the heaviest traffic load.



The morning after: A homogeneous and even surface as a starting point for the asphalt surface layer

Our conclusion:

This example shows how concrete practical problems that are only insufficiently covered by current regulations can be solved by innovative and trusting cooperation between the client, the contractor and the supplier as well as by using proven special construction methods.

Do you need further information? Do feel free to get in touch.