



– CUSTOMER SUCCESS STORY –

**Interview: Dipl.-Ing. (FH) Ekkbert Ehmig (GF),
Chemnitzer Baustoff-Prüfgesellschaft mbH**

Quick, Precise, Flawless Bitumen Testing with the MCR Rheometer

Chemnitzer Baustoff-Prüfgesellschaft is an accredited testing laboratory for construction materials and construction material mixtures in road construction (RAP Stra) and offers a wide range of services. The company specializes in the fields of asphalt with noise-reduced and rubber-modified wearing courses, semi-rigid wearing courses, cold recycled base courses, bitumen investigations, preparation of subsoil reports and investigations of engineering structures. Their areas of work include asphalt and asphalt construction, bitumen, aggregates, ashlar, armourstone and RC construction materials, concrete, earthworks, and environmental analysis.

Q: How many employees does Chemnitzer Baustoff-Prüfgesellschaft mbH have?

A: At the moment we are eight people, but it always depends on the market situation. At the moment, unfortunately, we are struggling with a shortage of skilled workers, but we're handling that too and so far we have managed very well.

Q: How long have you been managing the audit company and how did you end up in the position?

A: I have been managing director of the Chemnitzer Baustoff-Prüfgesellschaft mbH since 2008. I previously worked for various large corporations and traveled throughout Germany. Most recently, I founded and managed the branch office of a corporation in Berlin and Brandenburg. The trigger to settle down in Chemnitz was my family. Through my previous activities, I was already in regular contact with the auditing company, so the transition went well.

Q: What was your personal motivation to get involved with the testing of “roads”?

A: My desire had always been to work in construction. I started at the mixing plant in Dresden in 1992 as a lateral hire in a corporate group. From there, I established a quality assurance system for asphalt from the very bottom, systematically expanded and extended it within the Group, and ultimately looked after the whole of Saxony and Saxony-Anhalt in this respect. I originally wanted to study geology, and asphalt has a lot to do with geology, with rocks. Asphalt is a very good building material that is flexible compared to concrete, and in my opinion still the best building material for road construction.

Q: Your laboratory, founded in 1991, has always collaborated with universities. What was your motivation for doing this and what are the most exciting projects or insights that have come out of it for you?

A: Even within the Group, we have always tried to participate in the know-how of universities and colleges. If you want to run a company economically in this industry, you cannot invest much in research and development yourself, but you can very well follow and use what is generated in the research institutions. In the companies where I worked, there was always a certain spirit of innovation, and so they tried to establish new construction methods together with universities, e.g., how to modify asphalt and bitumen with additives. To do this, you need a partner who has measurement techniques available that we didn't have at the time.

“

We value the MCR as a highly scientific instrument that is sensitive to changes in temperature and shear stress, providing highly accurate results.

”

Q: Which of your services can you cover with Anton Paar instruments and which ones do you have?

A: We work with the MCR rheometer and can thus cover an enormously wide range of investigations. At the moment, we mainly use it to perform the basal tests, such as temperature sweeps, the bitumen typing rapid procedure (BTSV), and multiple stress creep and recovery (MSCR) tests. So everything you can do with a plate-plate measurement system, but there would be a lot more, and we also want to dive into prismatic testing in the future to determine the fillers in the bitumen. However, this is still a vision for the future and not part of day-to-day business. In our day-to-day business, we are mainly concerned with carrying out measurements in accordance with regulations. This is done quickly, precisely and flawlessly with the MCR rheometer, but of course we know that it could do much more. In the future, our goal is also to carry out prism tests in order to determine and characterize the behavior between filler and bitumen.

Q: Why did you choose the high-end MCR 502 TwinDrive rheometer and not the routine SmartPave 102 rheometer?

A: One of the reasons for this is the good connection to the university of TU Dresden with Prof. Wellner and his assistants, who are leaders in the field. We hope that the bending beam rheometer (BBR), which is THE measuring device to be used in all standards, will soon be replaced by the DSR (dynamic shear rheometer), which is what the MCR is. The goal is, and we are working on this together with the universities, that the DSR is now finally adopted as the daily use test by recreating the results of the BBR using DSR and showing that they are also better. The research results available so far are promising.

Q: What do you like about working with the MCR?

A: We value the MCR as a highly scientific instrument that is sensitive to changes in temperature and shear stress, providing highly accurate results. Also important for us are the good handling as well as the support and training. All in all, this combination is unique for us on the market.

Q: How does the MCR help you address specific challenges?

A: In order to be able to use the device optimally, the individual product training from Anton Paar as well as the comparative measurements with the TU Dresden helped us a lot. Crucial for us is the opportunity to gain deeper insight into various claims. An example would be the characterization of additives, such as glass fiber, temperature reduction (additives that ensure bitumen can be processed at lower temperatures) and rubber. Conventional methods, such as the softening point according to ring and ball, are absolutely insufficient here. For initial tests for mixing plants in the low-temperature range, e.g., temperature differences of 0 °C to approx. 15 °C can occur between the conventional method mentioned and the measurement with a rheometer. The ring-and-ball method cannot be used to properly determine and record the additives in the asphalt in these areas.

“

Service, handling, versatility of the device and also reliability were very decisive criteria for me. In all these respects, Anton Paar was number one.

”

Q: What is your company's relationship with Anton Paar? Why did you initially choose an Anton Paar device?

A: When you buy a new device, the first thing you do is listen around thoroughly, and that's how we did it. I asked some of my former colleagues across Germany for their recommendations. Service, handling, versatility of the device and also reliability were very decisive criteria for me. In all these respects, Anton Paar was number one, the Mercedes of rheometers, so to speak.

Q: How satisfied are you with AP's application and technical support?

A: Very much so, because even when questions and problems arise, someone is immediately on site to help us solve them.

Q: Your company is constantly expanding the scope of testing and services. What strategy do you follow here?

A: Part of my philosophy is to look ahead and learn about measurements and methods before they are incorporated into sets of rules. In my experience, the specifications in the regulations always lag a bit behind reality, the state of the art and science, and if you don't deal with them until the regulations are published, it's actually already too late. A big issue at the moment is also, once again, the recycling of road material without knowing what is in the material and how it has been thermally stressed. We are currently experiencing strong stiffening and changes in the whole processability and this cannot be captured by conventional methods. Here we want to help our partners to produce good mixes as a result. Due to my former activities with a construction group, a building materials manufacturer and in an engineering office, I always take the point of view of the different partners in order to be able to find out the causes in their complexity in case of damage. Our goal is to keep improving the final asphalt product.

Main points at a glance

INSTRUMENT: MCR 502 TwinDrive

SAMPLES: Asphalt and bitumen

MEASUREMENT PRINCIPLE: Plate-plate measurement system

TEST METHODS: Temperature sweeps, the bitumen typing rapid procedure (BTSV), and multiple stress creep and recovery (MSCR) tests