



WORLD WIDE WEAVE

Fighting microplastics

GKD: partner of a research project focusing on the environmental impact of tire wear

Microplastics are a global environmental problem that travels through the food chain and ends up on our plates. Around a third of the tiny particles are caused by tire wear that is washed into the sewers by rainwater. Because sewage treatment plants currently cannot filter out the microscopic plastic particles, they enter the sea via canals and rivers. There they are consumed by fishes, mussels or birds with their food. Therefore, protagonists in science and industry worldwide are urgently working on researching solutions that would prevent the particles from entering waters. GKD – Gebr. Kufferath AG (GKD) is also contributing toward these efforts: the Parliamentary State Secretary for the German Federal Ministry of Education and Research (BMBF), Thomas Rachel, has now presented the technical weavers in Düren with funding of approximately €185,000 for the research project *Tire debris in the environment*.

The figures are alarming: almost 46 million cars are registered in Germany. Each one of them creates almost two pounds of wear debris per tire for every 31,000 miles driven. This equates to over 110,000 tons of tire wear debris per year, consisting of rubber, soot, mineral oils, additives and metallic substances. The polymers in the natural and synthetic rubber mixture are swept with the rainwater into the sewers as microplastic particles. From there they flow virtually unhindered toward the sea, which the latest studies suggest they are polluting on an unprecedented scale. The tiny plastic particles have now been found at ocean depths of 16,000 feet and even in the Arctic. This carries grave consequences: for instance, all examined fish



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and mussel species have these plastic microparticles in their stomachs. Marine birds then also eat them.

Wanted: micro filtration with a maximum throughput

In order to develop effective preventive strategies, it is necessary to investigate wear factors, entry paths, spreading channels and effects in detail. The objective of the *Tire debris in the environment* research project sponsored by the BMBF is to record the quantity of microplastics from tire wear debris in the water that drains off roads. For this purpose, the quantities of wear debris are to be determined by means of wear tests and on-site sampling. Factors such as driving situations and tire, vehicle and road types will be taken into account. A key task of this project is the development of baskets for taking samples. These must be able to withstand high water volumes while also reliably holding back the microplastic particles. As a filtration expert with many years of experience in water treatment and preparation, GKD is playing a key role in this pilot project. The leading expertise of the mesh specialist is in demand for the design and development of a suitable mesh for the filter bowls with multiple filtration rates – from very coarse-meshed structures with apertures of one to two centimeters, all the way up to meshes with apertures of absolute 6 µm. On the basis of simulations and extensive laboratory analyses, GKD will develop suitable mesh structures that will then be manufactured on high-tech looms in its own weaving facility. Moreover, the Düren company's engineering expertise will be invaluable for setting up the test.

Proven solution partner

The Technical University (TU) of Berlin, which is coordinating the project, chose GKD as a partner for a good reason: the company had already successfully demonstrated its performance as a solution partner as project leader in the previous research program. Like its predecessor, *Tire debris in*



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the environment will also run for three years. The other partners are the Wessling test laboratory, the Prof. Dr. Sieker engineering company, which specializes in services and products relating to rainwater, and Continental Reifen Deutschland GmbH. At the start of the project on August 1, 2017, the Parliamentary State Secretary Thomas Rachel handed over a check for approximately €185,000. As a native of Düren, the politician was particularly pleased to welcome the internationally renowned technical weaver GKD to this program, which is sponsored by the German federal government.

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The owner-run technical weaver GKD – Gebr. Kufferath AG is the global market leader for metal and plastic woven solutions as well as spiral fabrics. Four independent business divisions bundle their expertise under one roof: Industrial Mesh (woven metal mesh and filter solutions), Process Belts (belts made of mesh and spirals), Metalfabrics (façades, safety and interior design made of metal fabrics) and Mediamesh® (transparent media façades). With its headquarter in Germany and five other facilities in the US, South Africa, China, India and Chile – as well as its branches in France, Great Britain, Spain, Dubai, Qatar and worldwide representatives, GKD is close to markets anywhere in the world.

For more information:
GKD – GEBR. KUFFERATH AG
Metallweberstraße 46
D-52353 Düren
Tel.: +49 (0) 2421 / 803-0
Fax: +49 (0) 2421 / 803-233
E-mail: solidweave@gkd.de
www.gkd.de

Please send a reprint to:
impetus.PR
Ursula Herrling-Tusch
Charlottenburger Allee 27-29
D-52068 Aachen
Tel.: +49 (0) 241 / 189 25-10
Fax: +49 (0) 241 / 189 25-29
E-mail: herrling-tusch@impetus-pr.de

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Picture 1: In the research project *Tire debris in the environment*, GKD as a leading mesh specialist, is in demand for the design and development of a suitable mesh for the filter bowls.



Picture 2: Over 110,000 tons of tire wear debris per year are created in Germany. In cooperation with well-known project partners, GKD investigates effective preventive strategies in the framework of the research project *Tire debris in the environment*.



Picture 3: At the start of the project, the Parliamentary State Secretary Thomas Rachel handed over a check for approximately €185,000 to Dr. Stephan Kufferath, CEO of GKD.

Picture 1 © GKD

Picture 2 © GKD/Bluesky60

Picture 3 © GKD/Rudi Böhmer

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Agentur für Corporate Communications GmbH

Ursula Herrling-Tusch
Charlottenburger Allee 27-29
D-52068 Aachen
Tel: +49 [0] 241 / 1 89 25-10
Fax: +49 [0] 241 / 1 89 25-29
E-Mail: herrling-tusch@impetus-pr.de