LIFE20 GIE FR 282 - RE-PLAN CITY LIFE

RElevant Audience Plan Leading to Awareness Network for CIrcular Economy Use of Recycled TYre materials in city LIFE

Innovative use of Recycled Materials in Road Pavements: A Spotlight on the Warsaw Conference "Modern road pavements 2023"

The RE-PLAN city life project attended a conference on Modern road pavements, and we are ready to share the experience with you. "MODERN ROAD PAVEMENTS - Recycling in road pavement structures" 2023 was held on the 18th of October in Poland, in Warsaw.

The Conference is an excellent opportunity for all manufacturers and professionals in the field of road infrastructure, that's why it was attended by more than 100 participants from industry, Universities, Research Organisations, and Public Bodies. Among the discussed topics were asphalt mixtures with recycled materials, road pavement structures, pavement rehabilitation, and how to make components more ecological.

Why is recycling becoming a necessity for infrastructure projects in the construction industry? The circular economy forces manufacturers to reduce the consumption of natural resources, and recycling in road construction is a game-changer in this case. It's not only eco-friendly but also a smart way to save materials and energy. The consumption of materials (e.g., aggregates) is significant, and the production, transportation, and construction processes require a lot of energy.
The application of recycling is highly beneficial in constructing new roads and in repairs and reconstruction. It even helps repurpose waste from other industries. Moreover, recycling can potentially be applied to the subbase and lower and upper pavement structural layers.
However, making it happen depends on regulations and technical requirements. Researchers and construction companies must get creative, research, and assess the economic and environmental aspects. That's why disseminating knowledge to all participants in the construction process is the key to success.

RE-PLAN CITY LIFE project aims to raise awareness about the Circular Economy opportunities for tyre recycling materials on roads, especially in rubberised asphalts. That's why ETRA was kindly invited to attend, make a presentation, and share many years of experience with the RE-PLAN CITY LIFE project.

Why is this profitable method still rare among contractors?
Rubberised asphalt has been demonstrated as technically viable and more sustainable through experiences and demonstrations in many countries, confirming their feasibility and benefits. Recycled rubber plays a crucial role in enhancing the performance and durability of road asphalts. It can be incorporated in two primary methods: the wet method, involving adding powdered recycled rubber to hot bitumen, and the dry method, where rubber granulate is directly mixed with aggregates. The specific approach chosen depends on the process and mix design, allowing for the optimization of various performance aspects.
The first documented application of this technique dates back to the 1950s in the United States. This pioneering method has continued to gain momentum due to its significant success in enhancing performance. In contrast, Europe has slowly embraced these innovations and moved beyond demonstration projects. Nevertheless, initial efforts to introduce this technology in the 1980s have played a pivotal role in raising awareness and cultivating technical expertise in various European countries.

Collaborating with RECYKL
Despite the promising potential of these applications, they have not yet gained widespread implementation as they should, mainly due to persistent resistance and various obstacles.
RE-PLAN CITY LIFE conducted an analysis to identify the main obstacles to using Recycled Tyre Materials (RTMs) in Roads and Transport Infrastructures as well as solutions to be promoted and implemented through the project. We described them in detail, clearly showing the current situation and future scenarios. The presentation also included recent innovation developments by the company RECYKL about using recycled textile in road applications in Poland.

For the first time, waste textile resulting from tire recycling has transformed into a professional-grade product for road construction as a stabilizer and dispersed reinforcing additive. This development marks the completion of the ELT recycling cycle, enabling nearly 100% tyre recycling.
Large-scale production has started in Chełm, Poland, with support from the Engineering Procurement Contracting and Commissioning (EPCC) company Zeppelin. Any player worldwide has the opportunity to establish such a factory and provide standardized products to road construction companies.

The product enhances resistance to rutting, fatigue, and cracking, as well as water and temperature effects. During the event, the poster session was held, where Ir. Zaprzalski from RECYKL elaborated on the advantages of incorporating textiles in road construction.
In this context, the diverse opportunities and innovations already developed and tried within the sector were observed. However, these advancements often appear fresh and unverified because of limited information and networking among key market participants. RE-PLAN CITY LIFE is committed to breaking this cycle by disseminating valuable insights and increased awareness about recycled tyre materials.