HOME

Self-Regenerating Rubber Pavement Wins Mexican James Dyson Award

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A Mexican student and winner of the James Dyson Award for 2019, Israel Antonio Briseno Carmona came up with an invention for a tire-based pavement that can be repaired with rain, rather than being damaged from it as it's usually the case.

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The student from the Coahuila Autonomous University made the rubber pavement from recycled tires and a combination of additives that enable self-regeneration upon contact with water.

Winner of James Dyson Award Invents Self-Regenerating Pavement

Carmona started his research because he wanted to resolve rainwater damage issue to the streets that often results in cracks and potholes.

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The damage is a result of the rain weakening the pavements' base and causing subsidence. This is when he decided to turn the biggest 'destroyer' into a tool for recovery.

However, this isn't the sole self-regenerating pavement material in the world; however, it's the only one which uses water as a catalyst and recycled tires as a component.

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Usually, concrete and limestone-producing bacteria are mixed together to enable self-repairing process.

In the invention of Carmona, this effect is achieved by putty. This blend is formed by heating the tire rubber and other additives.

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When it touches the rainwater that the pavement absorbs, the putty forms calcium silicates and heals cracks.

In the beginning of the project, Carmona used standard asphalt rather than tire rubber; however, he later saw the opportunity to replace it with a common waste-tires, which turned out to be great.

What Are Carmona's Plans for the Future?

Carmona plans on getting the material certified for use in Mexico and he also hopes to be able to offer it through his own construction company.

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Carmona won the James Dyson 2019 Award that is given to those with best achievements in student engineering and design in Mexico.

Last year, the main awards went to the UK team of Yaseen Noorani and Nicolas Orellana who invented the O-Wind Turbine for urban environments.

Sources:

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