

Première partie de l'épreuve**THIS COMPANY IS USING PLASTIC MILK BOTTLES TO REPAVE
ROADS IN SOUTH AFRICA**

Plastic milk bottles are being recycled to make roads in South Africa, with the hope of helping the country tackle its waste problem and improve the quality of its roads.

Potholes cost the country's road users an estimated \$3.4 billion per year in vehicle repairs and injuries, according to the South African Road Federation, as well as
5 damaging freight.

In August, Shisalanga Construction became the first company in South Africa to lay a section of road that's partly plastic, in KwaZulu-Natal (KZN) province on the east coast.

It has now repaved more than 400 meters of the road in Cliffdale, on the outskirts of
10 Durban, using asphalt made with the equivalent of almost 40,000 recycled two-liter plastic milk bottles.

Road to recycling

Shisalanga uses high-density polyethylene (HDPE), a thick plastic typically used for milk bottles. A local recycling plant turns it into pellets, which are heated to 190
15 degrees Celsius until they dissolve and are mixed with additives. They replace six percent of the asphalt's bitumen binder, so every ton of asphalt contains roughly 118 to 128 bottles.

Shisalanga says fewer toxic emissions are produced than during traditional processes and says its compound is more durable and water resistant than
20 conventional asphalt, withstanding temperatures as high as 70 degrees Celsius and as low as 22 below zero degrees Celsius.

The cost is similar to existing methods, but Shisalanga believes there will be a financial saving as its roads are expected to last longer than the national average of 20 years.

"The results are spectacular," says general manager Deane Koekemoer. "The
25 performance is phenomenal."

Unlike in Europe, for example, where recyclable plastic is often collected directly from homes, in South Africa, 70 percent is sourced from landfill. The plastic will only be taken from landfill if there is somewhere for it to go -- such as into roads. Shisalanga

30 says that by turning bottles into roads it is creating a new market for waste plastic, allowing its recycling plant partner to take more out of the nation's dumps.

India began laying plastic roads 17 years ago, and the concept has been tested in locations across Europe, North America and Australia. But there are concerns over potential carcinogenic gases created during production and the release of microplastics (tiny particles of plastic) as the roads wear away.

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"Such issues have to be ruled out, otherwise we're going to contribute to and not alleviate the national environmental waste problem," says Georges Mturi, senior scientist at CSIR.

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