

# The Tyre Collective.

Tyres: The stealthy source of microplastic pollution you never thought about.



🌐 [www.thetyrecollective.com](http://www.thetyrecollective.com)

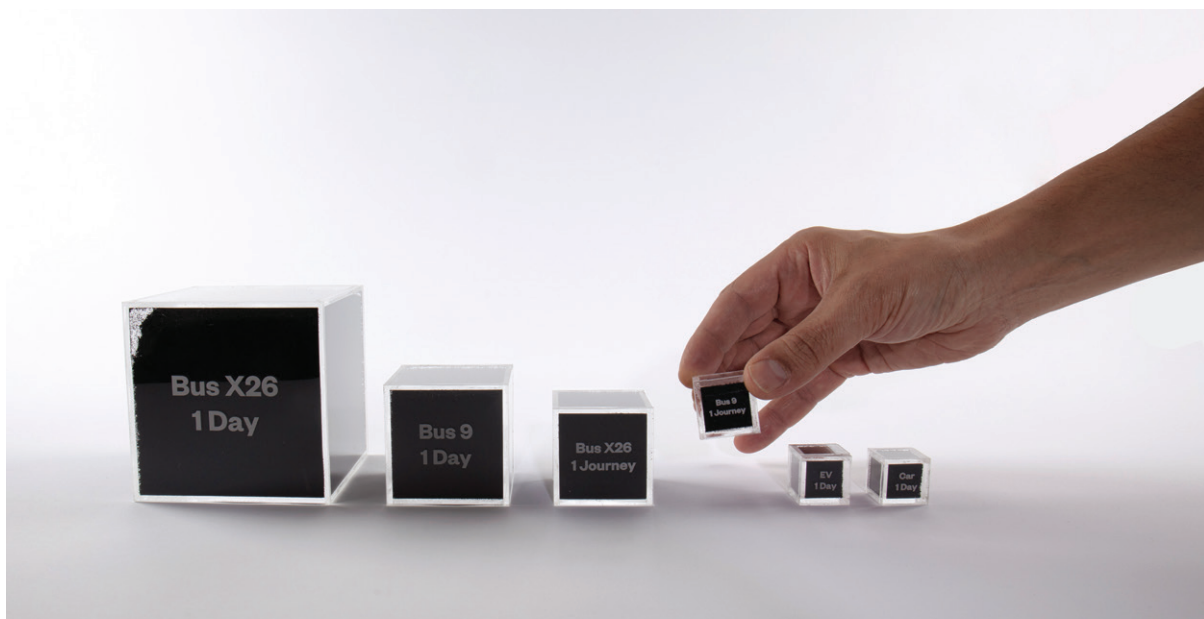
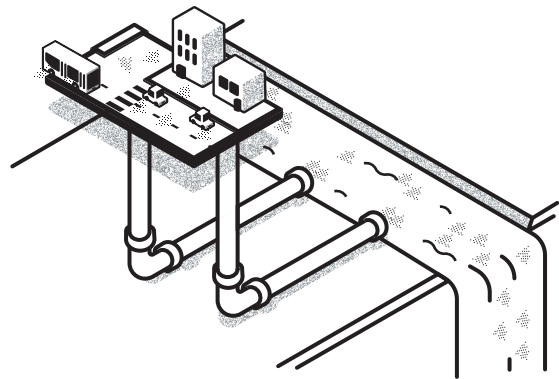
📷 [@thetyrecollective](https://www.instagram.com/thetyrecollective)

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# What happens when tyres wear down?

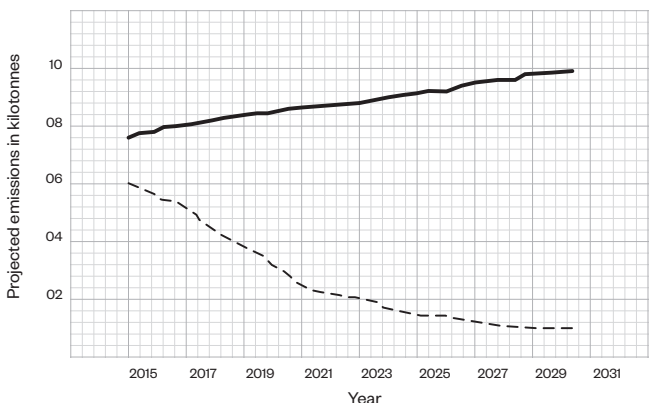
## 01 The stealthy source of pollution

Tyres wear out from friction every time we brake, accelerate or turn a corner. The particles become airborne affecting our lungs. More are swept into our waterways and oceans eventually entering our food chain. In fact, tyre wear emissions account for nearly half of PM 2.5 emission from road transport and are the second-largest microplastic pollutant in our ocean after single-use plastic.



The amount of tyre wear produced by London Buses, EVs, and cars. The No. 9 London bus, on average releases 4.65g per journey and a total of 65g a day. Car and EV quantities based on a 16km UK average commute per day

### Projected PM2.5 Emissions from Road Transport



UK Report to the UN Convention on Long-range Transboundary Air Pollution

— Tyre & road surface wear  
 - - Petrol & diesel exhaust

## 02 An electric future

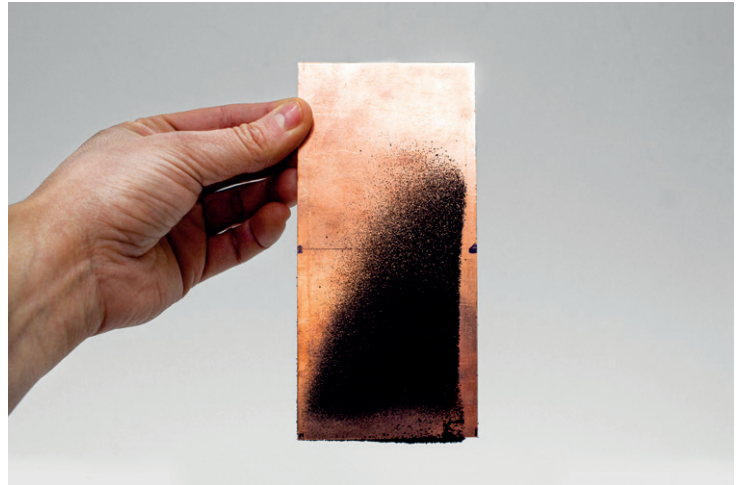
Electric vehicles (EV's) and stringent regulations will lower tailpipe emissions in the future. As EV's are heavier than gas vehicles because of their battery, studies have shown that tyres would wear at a faster rate, increasing tyre wear emissions from 7 kilotonnes in 2015 to nearly 10 kilotonnes by 2030 in the UK.

# Our device captures tyre wear.

## 03 Electrostatics

Carbon in rubber particles are positively charged as they fly off of the tyre. What started off with rubbing a balloon against a sweater, eventually led to our device that directs and collects charged particles with electrostatics as a guiding principle.

Currently, our device collects 60% of all airborne particles.



## 04 Aerodynamics

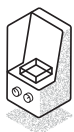
Our device is positioned close to where the tyre meets the road. Consulting with the Imperial Department of Aeronautics we identified this position, to take advantage of airflow and Magnus effect of the spinning wheel.

## 05 Closing the loop

With an aim to create a closed-loop model after collection, these fragments are separated using simple techniques. Particles under 50 microns are small enough to be reused in new tyre walls, and other exciting applications.



Tyre Walls



3D Printing



Soundproofing



Dyes & inks

