

Think Piece: 2030

Tyres: The Invisible Ocean pollutant you've never heard of!







Introduction



Objectives







Causes

We drive over 330 billion miles per year in the UK

Every car tyre weighs about 1 kilogram less when scrapped

A road with 25k vehicles each day will generate around 9 kgs of TWP per km

UK Tyre wear produces approximately 63k tonnes of TWP p.a.

Tyre wear could account for 65% (18,000 tonnes annually) of all microplastics released to UK surface waters



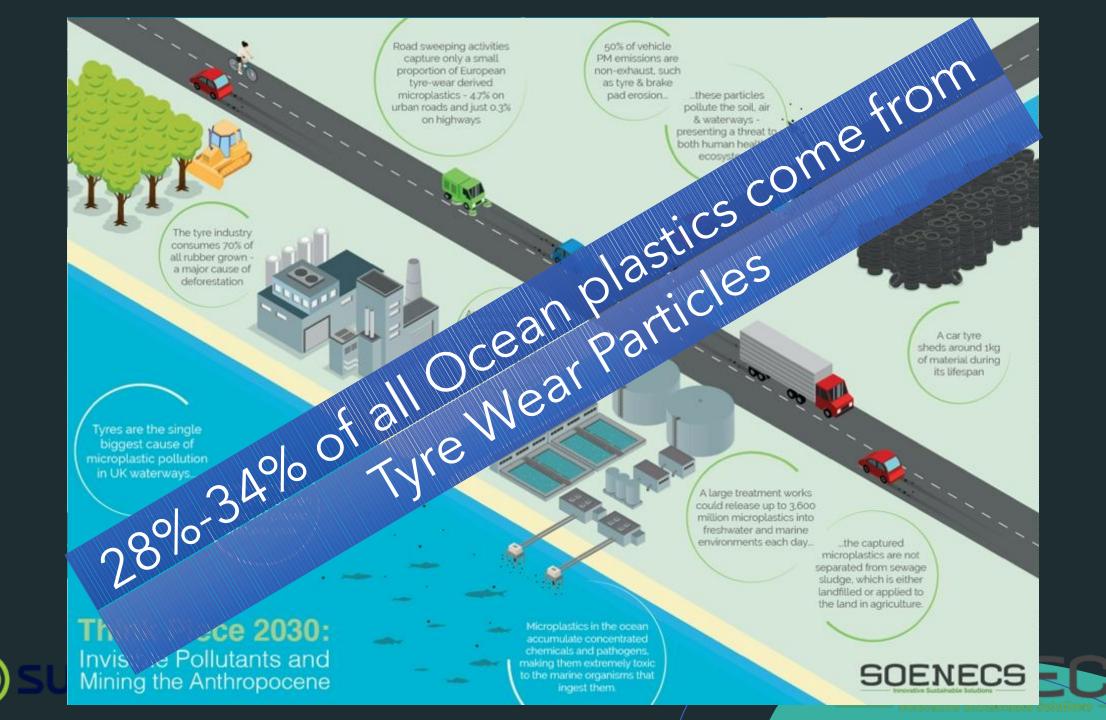


Composition Tyres contain 24-35% natural The remainder is synthetic fibres and metal rubber of tyres Tyre Wear Particles (TWP) will Degradation be deposited on road surface 120 million car tyres in UK as micro particles (under of tyres 0.5mm) Primary TWP Captured during street Micro TWP blown into TWP washed into drainage surrounding environment sweeping Receptor Air blown TWP will be Drainage run off goes directly Secondary Street cleansing waste incorporated into soils, ingested into marine environment or to a separated or enters landfill by animals or blown into water Receptor Waste Water Treatment Plant course Entering the TWP will be suspended in water Marine course and may eventually end in the oceans and fresh water Environment Suspended particles are mistaken Entering the by marine life as food and Fresh water extracted for drinking water food chain ingested Entering the Commercial fishing captures marine life with ingested TWP (and other micro plastics) leading to human human food consumption



chain







Personal impact

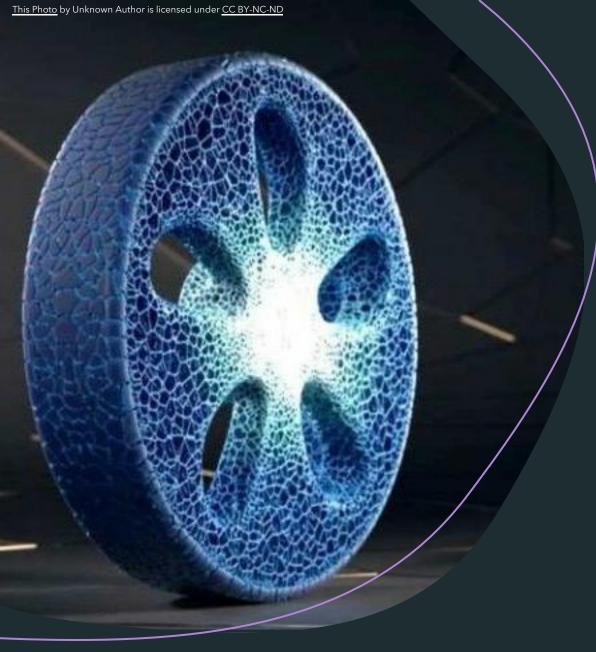
Passengers per vehicle		1	5	25
TWP pollution per 5 KM		mg		
Mode of transport	Moped (1 person max)	65	350	1,625
	Motorcycle (2 people max)	300	1,054	4,569
	Passenger car (5 people max)	660	684	3,418
	Bus (50 people max)	2,075	2,085	2,139





What will happen between now and 2030?





Design of Tyres





Design of cars









Design of roads and their water management

- Planners
- New roads to have combined sewers
- Less abrading road services
- Lower speed limits
- Hard infrastructure; sleeping police-people, chicanes and "green road"



Driving skills and training

The simplest and most effective way of reducing TWP production is to reduce travel using road vehicles and then change to slower and less aggressive driving to reduce degradation of tyres

- Reduce travel, walk or cycle or combine journeys
- 2. Change to a less TWP polluting mode of transport
- 3. Drive slower, less aggressively and avoid hard braking
- 4. Maintain your vehicle, tyre pressures and wheel balance

Greatest Impact





Improved interception at source

- Between 0.1 and 10% of TWP is blown onto surrounding environments.
- Street sweeping currently captures 0.3% to 4.7% of TWP.
- WWTPs have the potential to capture between 72% and 94% of TWP passing through them.
- New Solutions:
 - Do we rebrand Street Sweeping as "Ocean Plastic prevention systems"
 - Wastewater Treatment Plants
 - On Vehicle solutions
 - Smart Drains









Conclusion

Research is limited, the scale of impact is not fully understood:

- What is the actual scale and impact of TWP?
- There is enough momentum of knowledge to act, personally, corporately and at a government level:
 - Design out the problem
 - Intercept the existing pollutants
 - Collectively take personal small actions that will have major impacts
 - Embrace the future
 - Work better together





