



Keynote – Light Duty Applications

„Exhaust Aftertreatment of Gasoline Engines for Euro 7 Legislation and Bharat Stage 7“

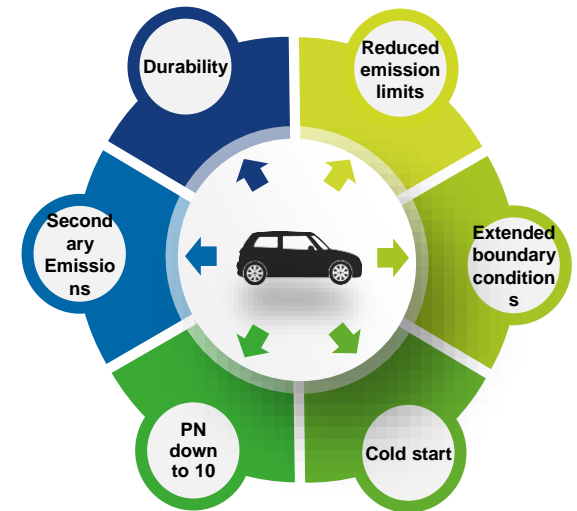
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Presentation outline

- **Introduction Umicore**
 - Clean Mobility
 - Sustainability
- **Mobility Transformation**
 - More Stringent Emission Legislation
 - Catalyst Technologies for Near Zero Emissions
- **Concluding remarks**



Mobility transformation accelerating

Umicore is uniquely positioned to help the world transition to cleaner mobility

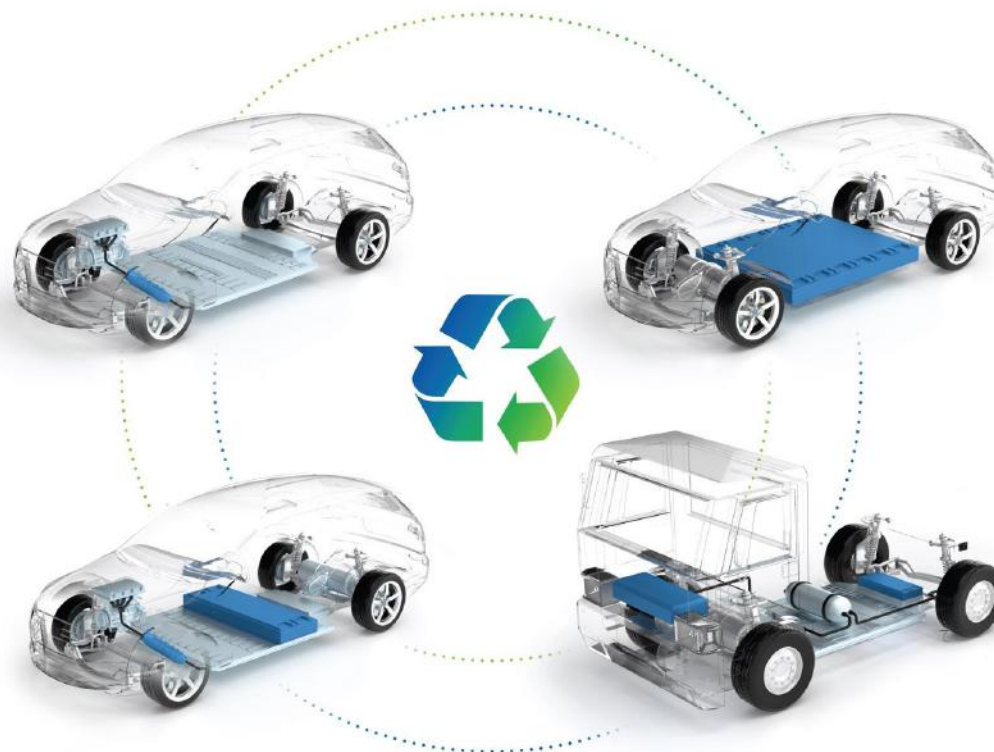
ICE equipped vehicles will remain the dominant clean mobility drive train for the next 10+ years

Internal Combustion Engine

Emission control Catalyst

Plug-in Hybrid Electric Vehicle

Battery active materials and emission control catalysts



Full Electric Vehicle

Battery active materials

Fuel Cells Vehicle

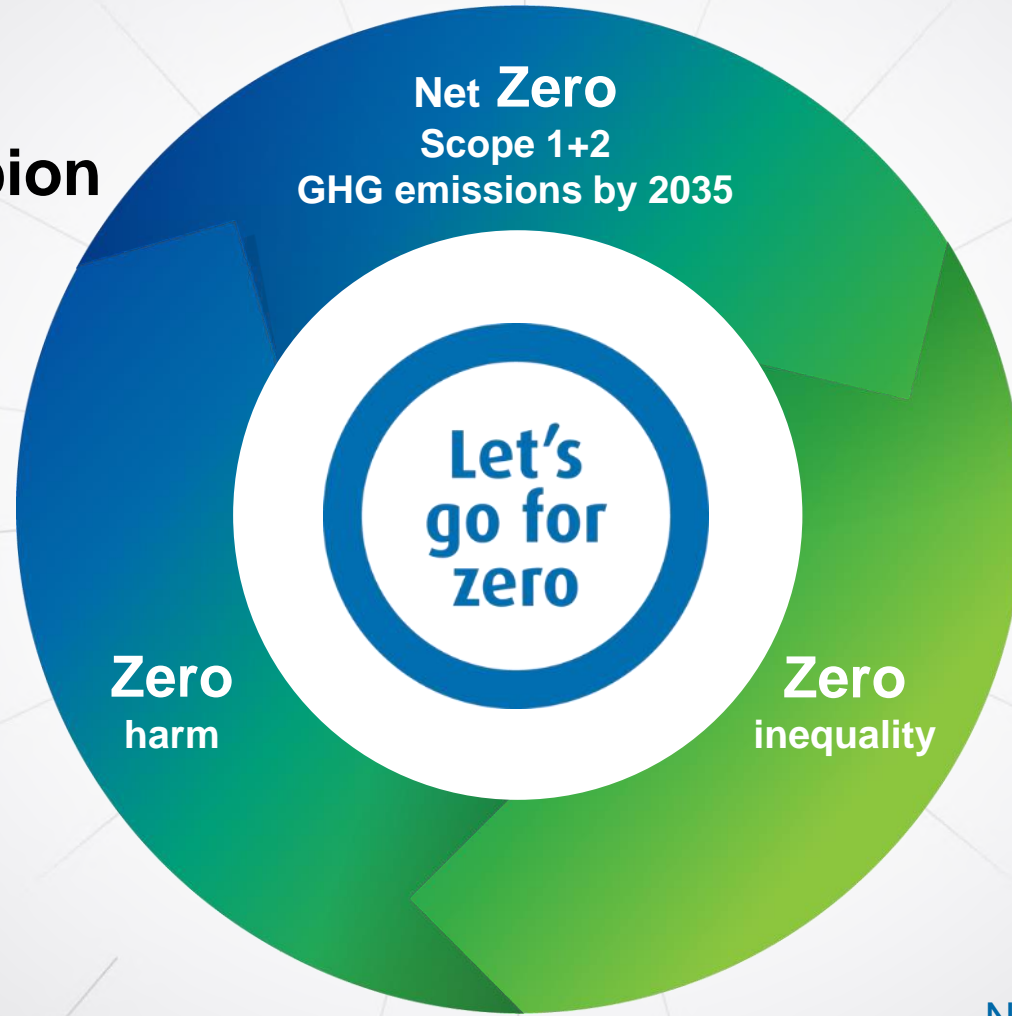
Electro-catalyst and battery active materials

Prime electrification path for light transportation

Prime electrification path for heavy transportation

Let's Go for Zero

Umicore ambitions
behind being a
Sustainability Champion



Net Zero GHG. Zero regrets.
Endless possibilities.

Mobility Transformation

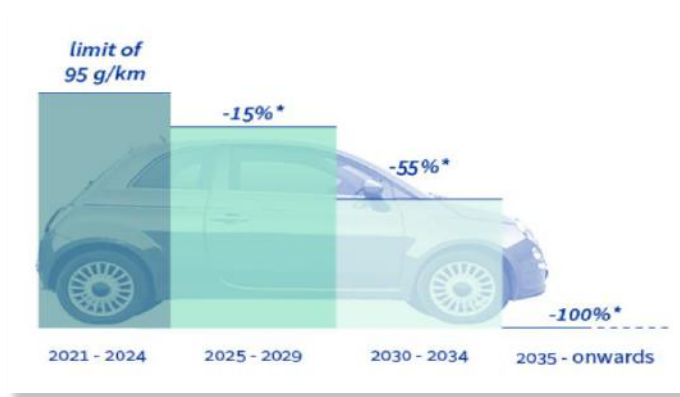
Circularity for critical metals

Producing Umicore for the public

Three legislative ratings influence the choice of powertrain

- Climate targets, CO₂ targets globally defined

[Fit for 55: why the EU is toughening CO2 emission standards for cars and vans - Consilium \(europa.eu\)](#)



- Further tightening of global emission legislation
=>EU7 legislation and Bharat Stage 7

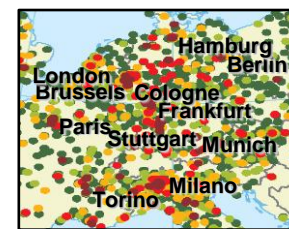
[Commission proposes new Euro 7 standards \(europa.eu\)](#)



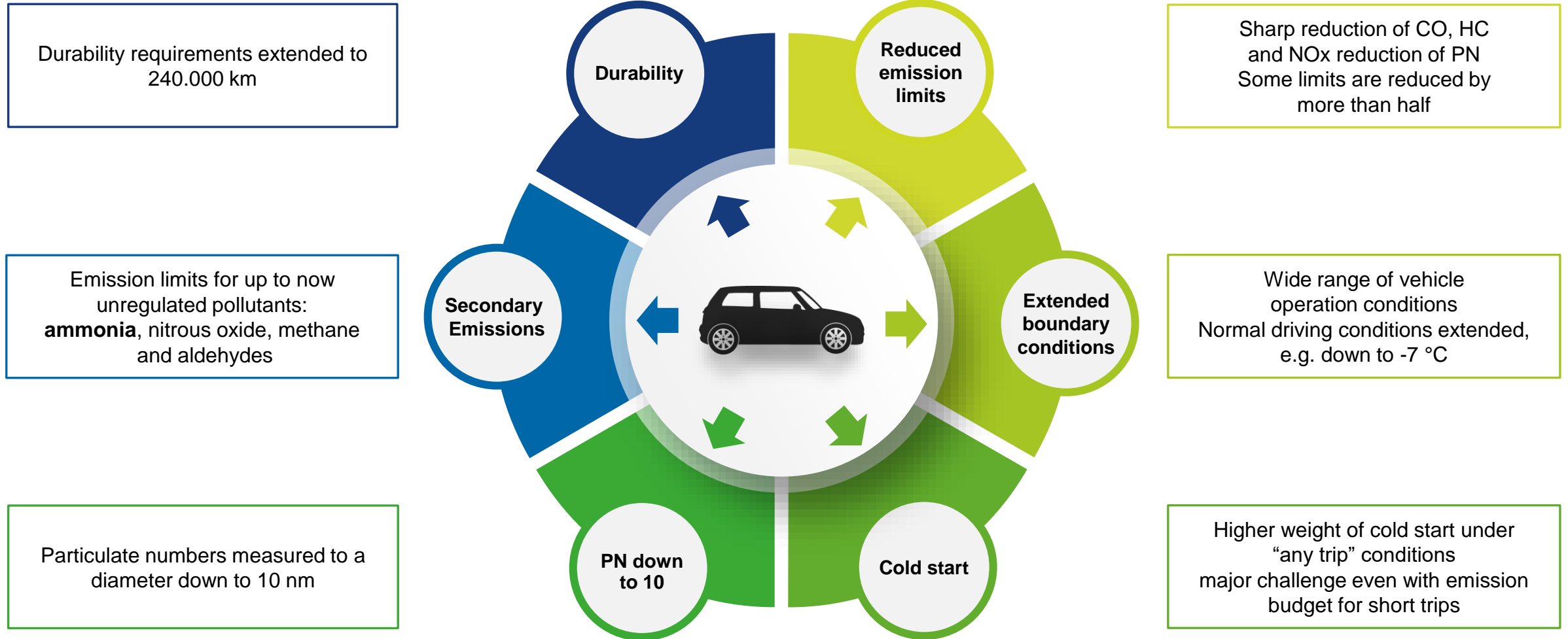
Commission proposes new Euro 7 standards to reduce pollutant emissions from vehicles and improve air quality
Brussels, 10 November 2022

- Air Quality Standards for cities (Europe), WHO revises air quality guidelines

[New WHO Global Air Quality Guidelines aim to save millions of lives from air pollution](#)



New challenges for Euro 7 stringent scenario



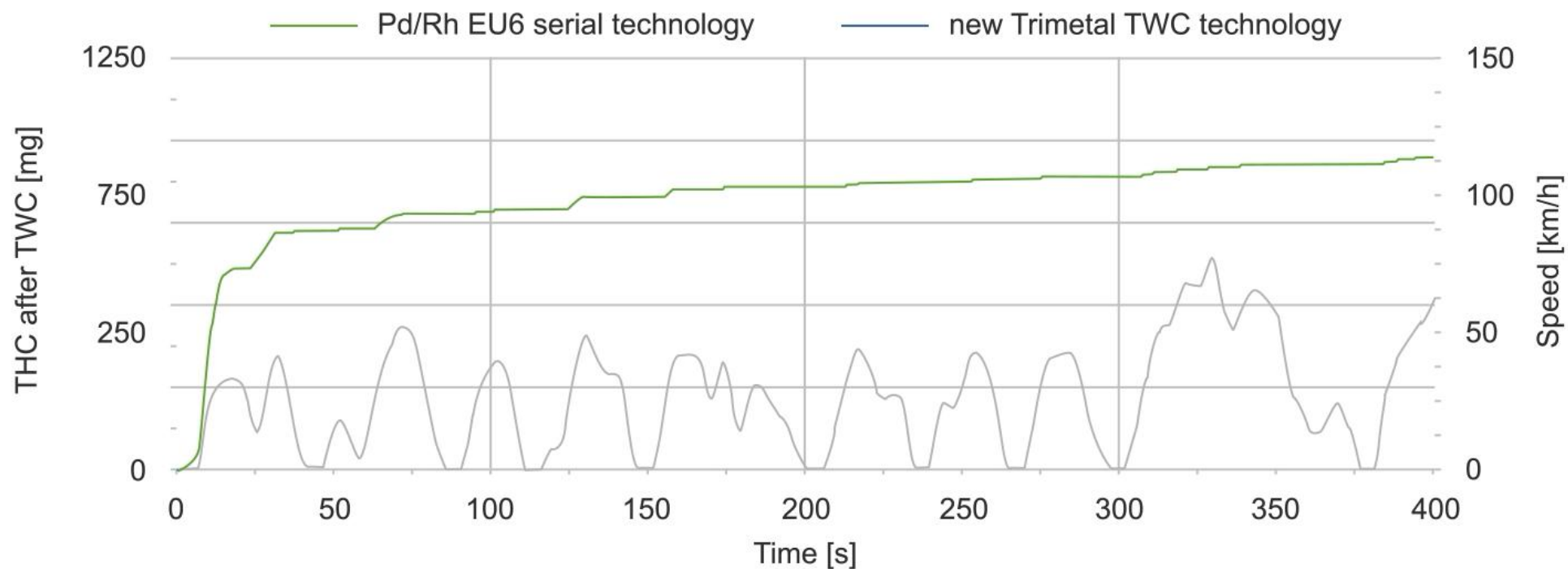
The stringent scenarios for Euro 7 pose new challenges for the exhaust aftertreatment

All citizens will benefit: High-performance aftertreatment concepts for Euro 7 and Bharat 7 reduce health risks caused by vehicle traffic



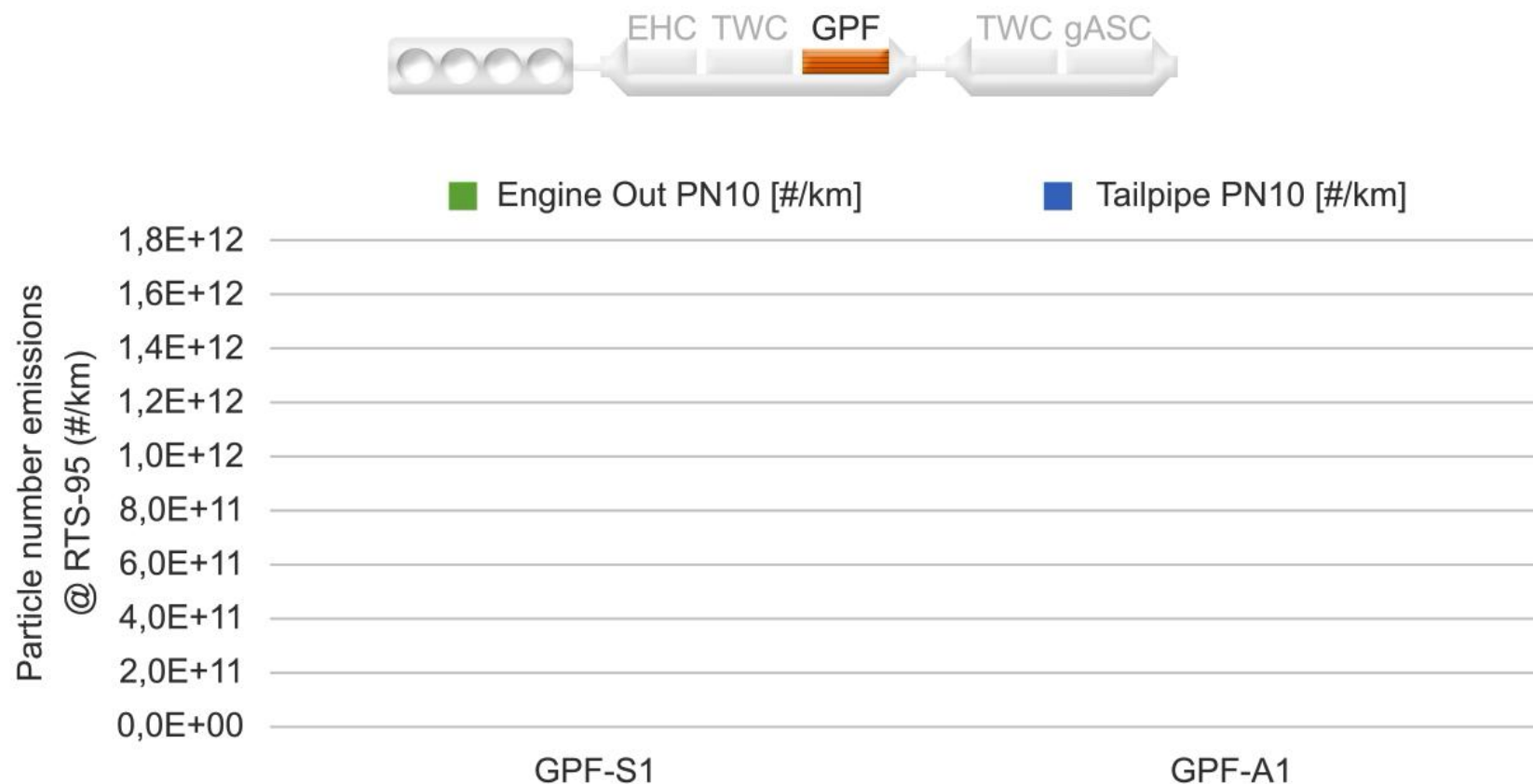
To comply with the stringent Euro 7 legislation scenario improved or new catalyst technologies are needed

Superior TWC technology with lower light off at reduced PGM costs as enabler for better cold start emissions



New Tri metal technology offers better light-off at reduced PGM costs

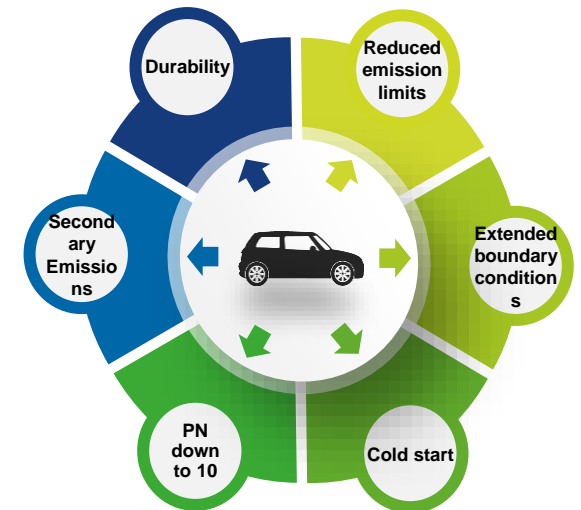
New GPF technology is superior in filtration efficiency



With GPF technology with FE enhancement the EU6d vehicle complies with the stringest Euro 7 PN limits discussed

Concluding remarks

- Upcoming stringent scenarios for Euro 7 and Bharat 7 legislation poses new challenges for the exhaust aftertreatment of combustion engines
- High-performance aftertreatment concepts for Euro 7 and Bharat 7 reduce health risks caused by vehicle traffic.
Each € invested in Euro 7 and Bharat 7 will result in a reduction on healthcare and environment costs
- Umicore provides innovative technologies to improve exhaust systems and help the OEMs to meet the more stringent norms
- We will continue inventing and developing new tailor-made solutions together with our partners in the automotive industry for a cleaner environment
- Umicore Technologies are Fuel-Agnostic complying to OEM Powertrain strategies
- Umicore is well positioned for the upcoming mobility transformation
 - Automotive Catalysts for ICE and Hybrid
 - Battery Materials for BEV
 - Fuel Cell Catalysts
 - Recycling





Thank You!



materials for a better life