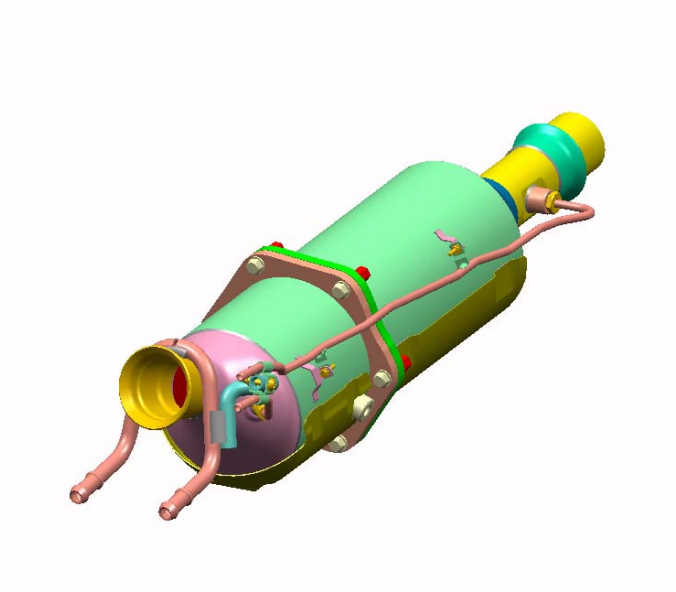
DIESEL PARTICULATE FILTER:

A SUCCESS FOR FAURECIA EXHAUST SYSTEMS



Robert Parmann, Emmanuel Jean, Eric Quemere

Faurecia Exhaust Systems

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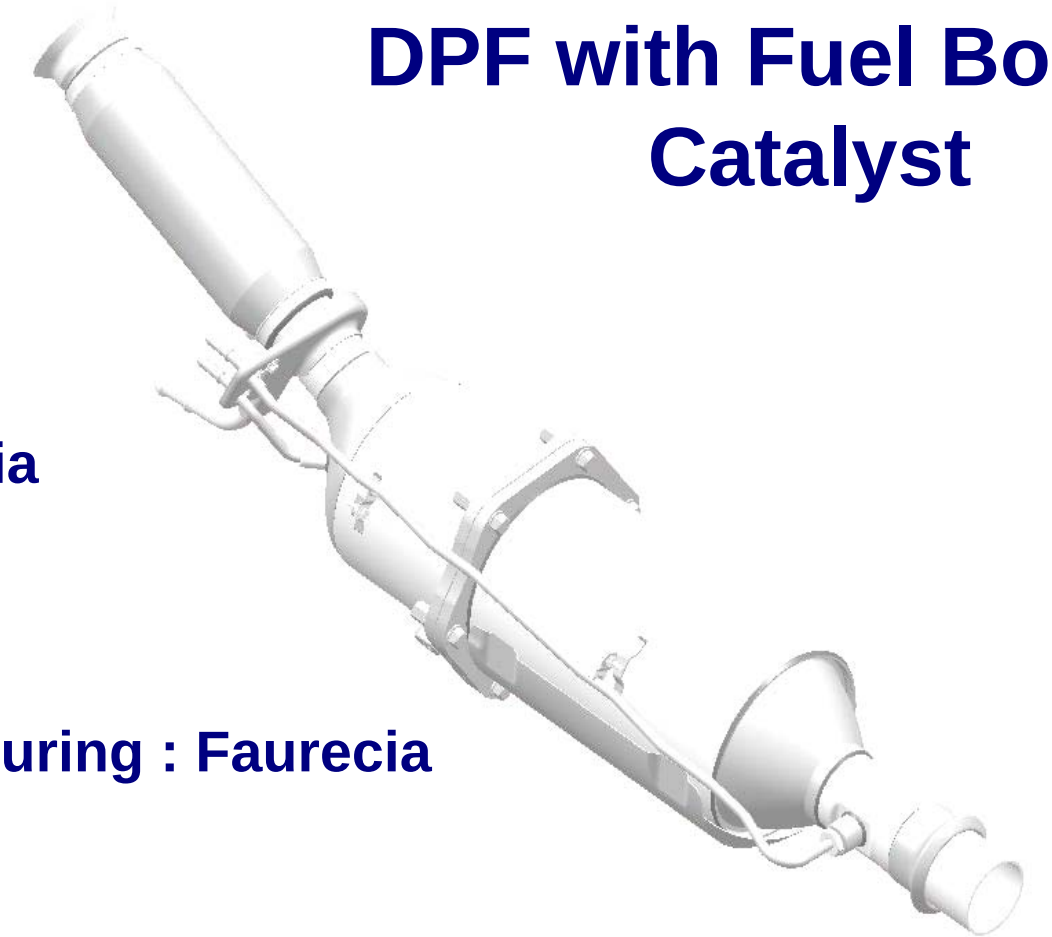
exhaust systems

DPF Experience in Europe by Faurecia

DPF with Fuel Borne Catalyst



Exhaust system : Faurecia

Filtration : Ibiden

Regeneration : Rhodia

Cleaning and remanufacturing : Faurecia

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exhaust systems

DPF : large success for Faurecia Exhaust Systems

1995 : First Research on DPF by Faurecia

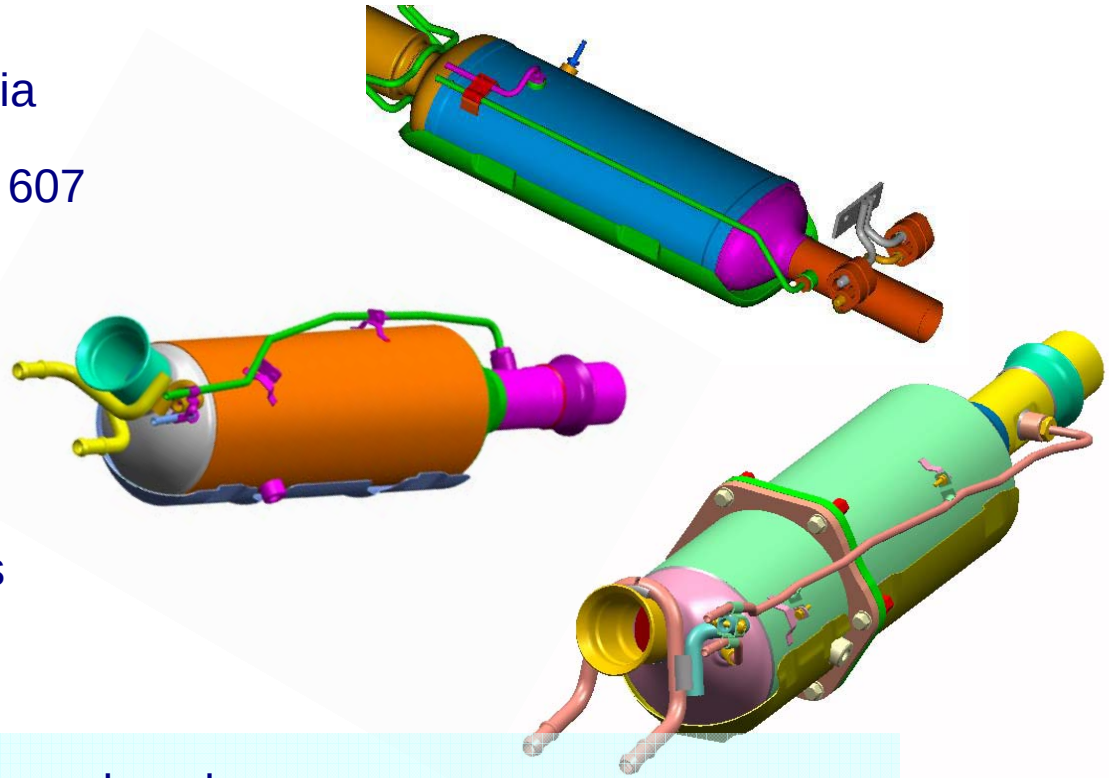
1998 : System development for Peugeot 607

2000 : SOP Peugeot 607 DPF

2001 : SOP Peugeot 307 DPF

2002 : Start of remanufacturing facility

2003 : SOP planned with new customers



- Since 3 years : 500 000 DPF already produced
  - ☞ Faurecia market share : 70%
- In 2003 : More than 2 000 parts already cleaned by Faurecia

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DPF with FBC* : an efficient and reliable system

System configuration

- Exhaust Systems by Faurecia
- Regeneration with Eolys™ fuel-borne catalyst by Rhodia
- Filtration on SiC Filter by Ibiden
- Cleaning & remanufacturing by Faurecia

Technical Key points

- FBC to lower the temperature of soot combustion process
- Fresh nano-crystal catalyst is continuously delivered in the soot
- Homogeneous Catalyst dispersion that favors diffusion of soot combustion process to the entire soot layer
- Fast, complete and safe DPF regeneration
- No sulfur sensitivity
- Cleaning : 120 000 km with the 2nd Eolys™ generation
- Target : to achieve 250 000 km

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* FBC Fuel Borne catalyst (additive)

DPF with Coated Filter : a concept in development

System configuration

- Exhaust Systems by Faurecia
- Regeneration assisted by coating
- Filtration on SiC Filter by Ibiden

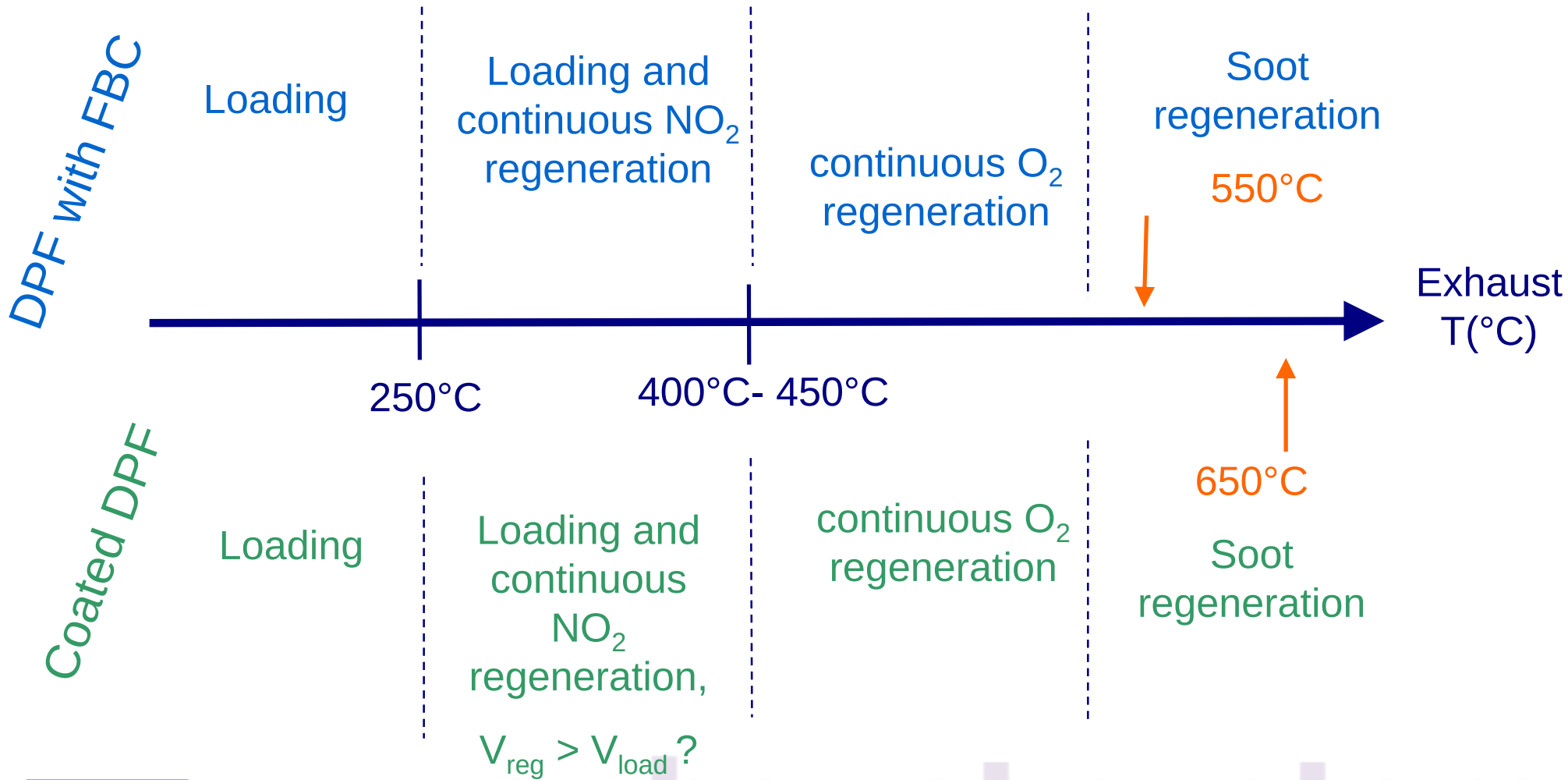
Technical Key Points

- PGM coating on filter to
  - accelerate soot oxidation
  - lower oxidation temperature
  - promote NO2-oxidation
- Possible High dependence on sulfur level
- Low kinetic with low thermal gradients

Key Points to be solved

- Regeneration in city cycle ?
- Durability ?
- Cleaning and Remanufacturing ?

DPF with FBC or Coated DPF regeneration temperature



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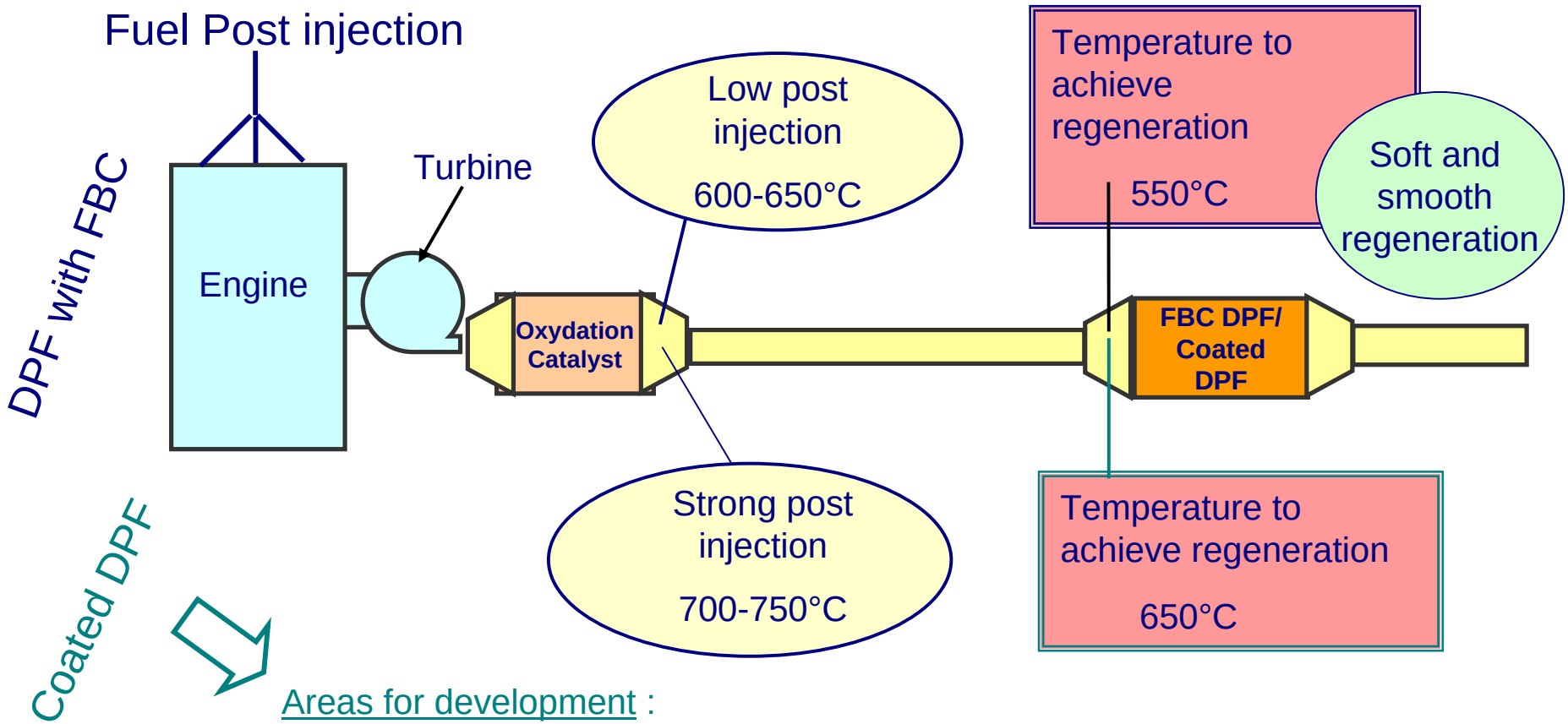
System DPF: a global system where thermal management is critical



Areas for development :

- Ageing of the oxidation catalyst due to high temperature ?
- Thermal gradient of the SiC to reach a complete regeneration ?
- Durability ?

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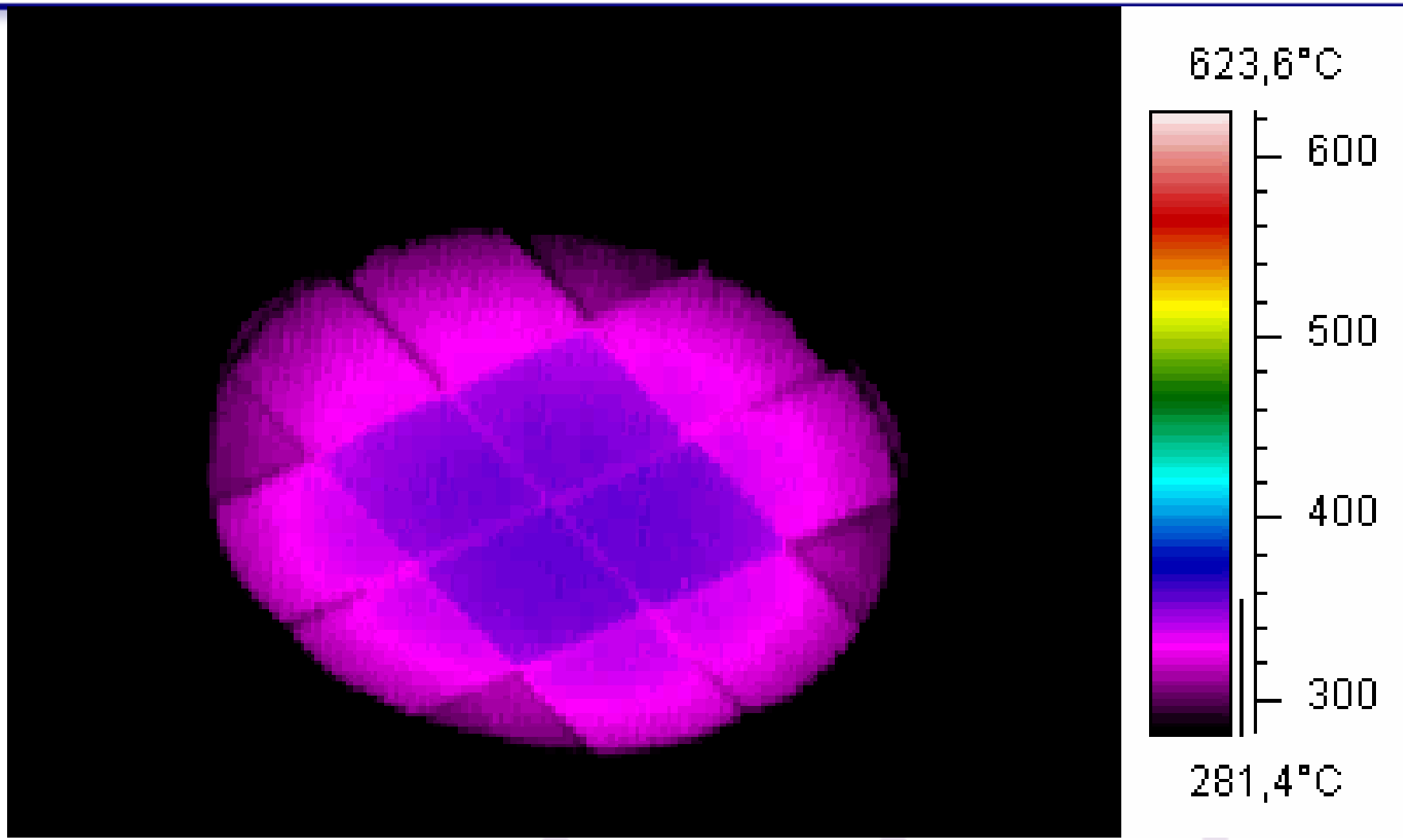
Example of temperature repartition (Dynamic)



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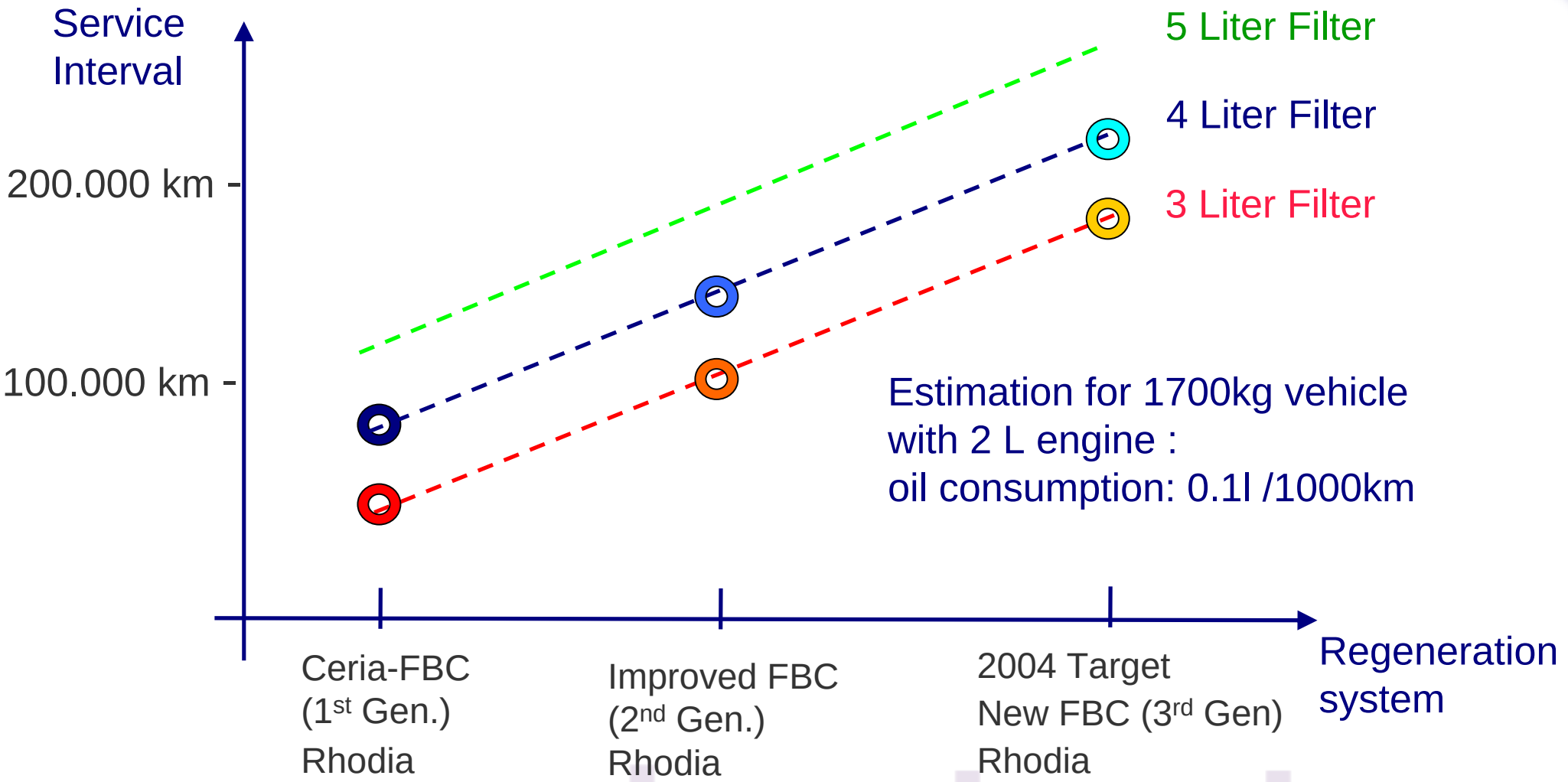
DPF with FBC Service interval of 120 000 km have been reached thanks to Rhodia Eolys™ fuel-borne catalyst



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>Mechanics & environment

The 1st Automated Diesel Particulate Filter Remanufacturing service in the World

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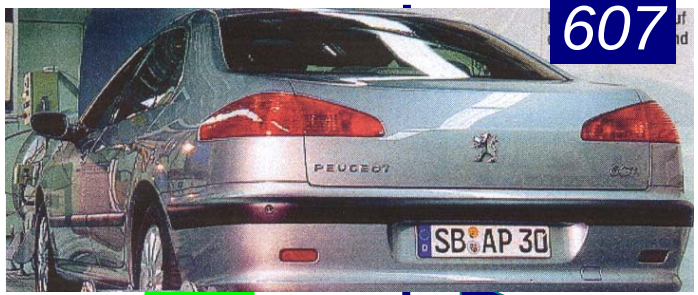
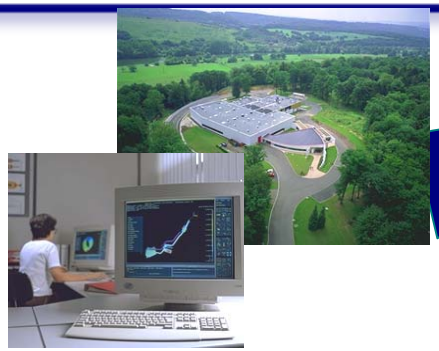
exhaust systems

Faurecia & PSA Peugeot Citroën Partnership

Remanufactured DPF

M&E Site





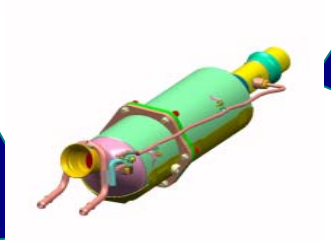
R&D Bavans

Beaulieu Site

M&E core collecting

SECOIA

PEUGEOT



OES OEM

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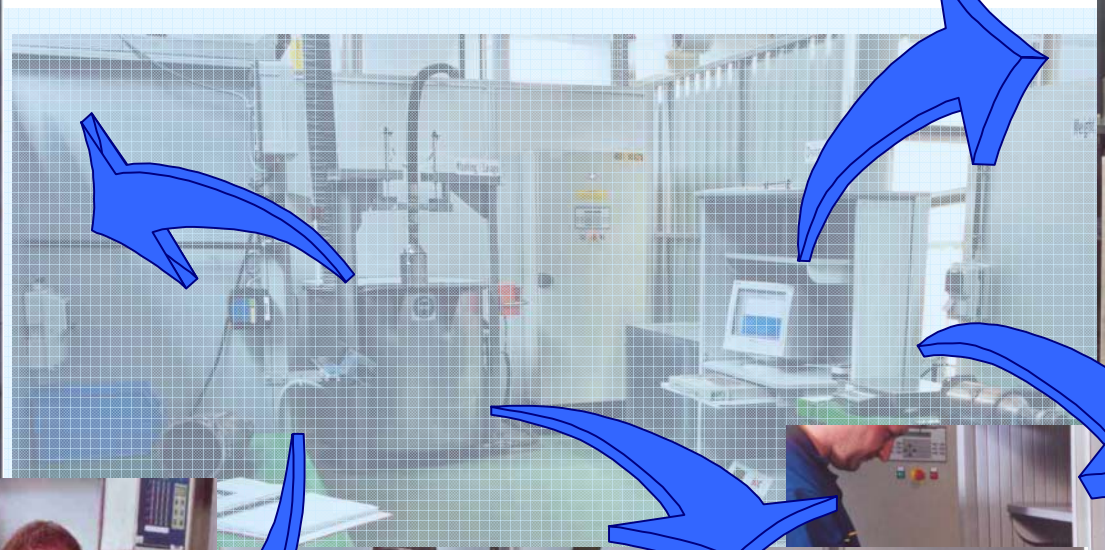
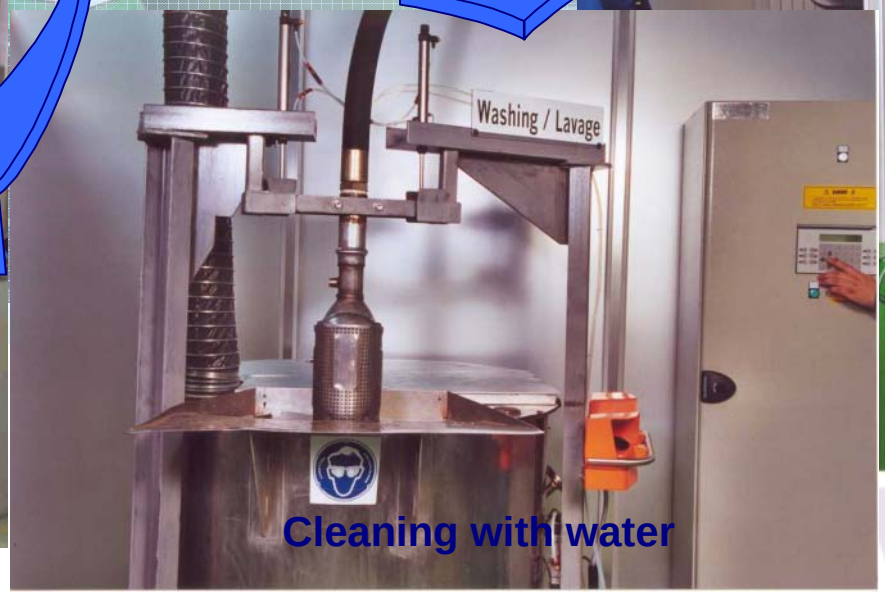
Cleaning process for Particulate filter

Regeneration



Drying

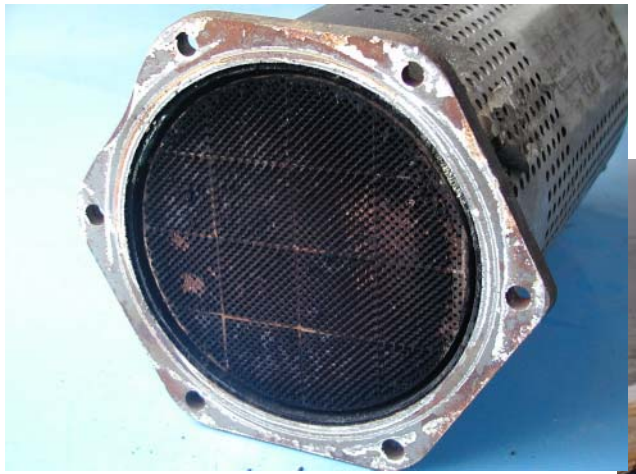
Visual Control



Cleaning with water

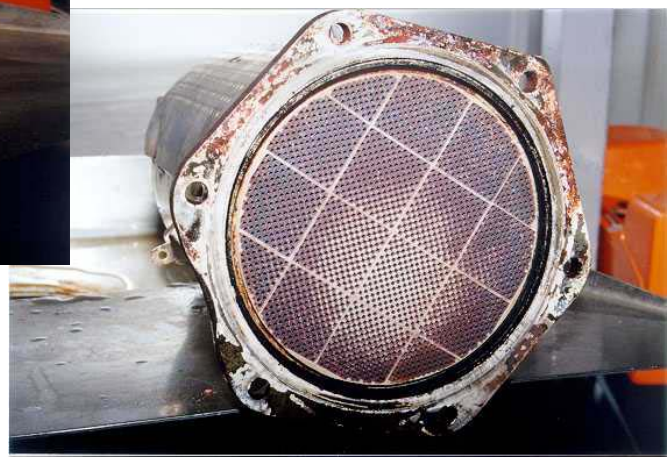
Weighting and marking

Remanufacturing Steps – Inlet Aspect



DPF
80 000km

DPF after
cleaning



DPF after
drying

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The Remanufactured DPF

- As good as a new part
- 30 to 50% less expensive than a new DPF
- Environmental friendly product and packaging

DPF Remanufacturing site – Industrialization – 2003

DPF Remanufacturing module
Capacity 250 units per day

Regeneration

Today water treatment capacity 1,000 DPF per day

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DPF Remanufacturing – Conclusion

- The 1st and the only automated remanufacturing process working in the world.
- A flexible process, adapted to all DPF types based on SiC substrate & Rhodia additives.
- A safe & efficient process - more than 2,000 DPF already remanufactured and Zero warranty problem