

# Nano Dispersions for Advanced Applications

# Luxfer Nano Dispersions – General properties

- Aqueous dispersion of mixed oxide
- 20-25 wt.% oxide (current standard\*)
- pH 3-8, composition dependant
- Contain no organic additives, or stabilizers
- Small particle size; Z-Average 100-300 nm
- Low viscosity; <100 cps, dependent on composition
- Long-term stability; >1 year
- Highly crystalline

# Range of compositions (dopants) available

Dried properties	SA (m²/g)	TPV (cm³/g)	Crystallite size (nm)
Zr nano	90	0.16	12
LaZr nano	130	0.18	7.7
CeZr nano	170	0.18	5.3

Some example nano compositions (undoped/doped)





Phase depends on composition

### Luxfer nano dispersions – potential applications



ES:



Coating/composite

#### Emission control

Binder

# Application example – Filters (DPF/GPF)

- Coating applied to filter substrate, to provide:
  - Catalytic performance
  - Improved particle filtration efficiency
  - Maintain acceptable back pressure within the exhaust system
- Nano dispersion shows a more homogenous/ denser coating
- TWC/OSC compositions are also available for GPF applications
  - CeZrOx mixed oxides containing additional dopants (e.g. La<sub>2</sub>O<sub>3</sub>, Nd<sub>2</sub>O<sub>3</sub>, Y<sub>2</sub>O<sub>3</sub>, P<sub>r6</sub>O<sub>11</sub>)





CePrZrOx (nano) on SiC filter

CePrZrOx (milled oxide) on SiC filter

# Discover more at www.luxfermeltechnologies.com

<sup>+</sup> The information contained within is meant as a guideline only

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