

SDCmaterials is an inventor and volume producer of high-value nano-based products. With our expertise in development, manufacture, and integration, we solve the end-to-end commercialization issues that have historically plagued the nanomaterials industry. For emission control applications, we have the ability to develop and manufacture catalytic materials tailored for specific automotive requirements. Our unique offerings can deliver substantial performance and cost advantages when compared to traditional catalyst products. Some of the key benefits realized from the SDCmaterials development and manufacturing approach are:

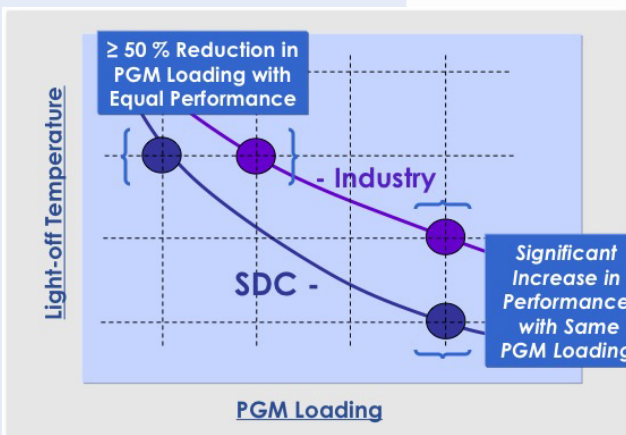
Independent Tuning for Critical Variables

Our process allows for independent control of five variables that are key to the final functionality of the catalyst. With this capability we are able to design and produce catalysts with an unprecedented level of precision and performance.

One of the benefits for emission control is the ability to tune catalytic material to catalyze a specific molecule.

Active Material	Size of the Active Material	Final Concentration of the Active Material	Nano Support Material	Macro Support Material
- PGM - PGM Alloys - Base Metals - Base Metal Alloys	0.5 nm Range 10 nm	0% Range 50%	- Al ₂ O ₃ - SiO ₂ - TiO ₂ - C - etc.	- Al ₂ O ₃ - SiO ₂ - TiO ₂ - C - etc.

Variables available for tuning SDCmaterials catalyst formulations.



SDC & 3rd party catalysts tested under equivalent conditions.

Enhanced Thermal Stability:

Our NanoParticle Synthesis System and Integration technologies have enabled us to create a high performance composite Nano-on-Nano™ catalyst specifically designed for emission control applications. Because of our unique design and fabrication process, SDCmaterials' catalysts have tremendous active surface area with dramatically reduced mobility. As a result, our catalysts demonstrate substantially better aged light-off temperatures and MVEG drive cycle performance compared to catalysts manufactured using traditional methods. Customers take advantage of these catalytic properties through reduced light-off temperatures or reduced PGM loadings.

Drop-in Replacement Form-Factors:

Although our process for developing and manufacturing catalyst material is novel, the form factor of our end product is not. Our catalysts are compatible with existing industry coating processes and end products.

