



HeraPur® Catalysts for Four-Stroke Small Engines

High efficiency for a cleaner tomorrow

Service and support

For more than a decade, Heraeus has been the global market leader for catalysts for four-stroke small engines. Our main business areas are Europe, Asia and the USA. Moreover, we have always maintained close relationships to research institutes, universities across Europe and, of course, our customers in order to be at the forefront of the latest technologies.

Based on your engine specification and muffler design, we provide highly efficient state-of-the-art catalytic coatings to enhance our customers' products.

Applications

Our product portfolio comprises catalysts for construction and garden equipment, e.g. power generators, walking tractors, and lawn mowers. As we are not restricted to the above mentioned equipment, we can also help you to meet the emission regulations for your special application.

Performance and solutions

Heraeus catalysts have been field-tested for years and demonstrate a proven track record for many applications in Europe, Asia and the United States.

Production capability

Heraeus, as global market leader, develops catalysts with customised precious metal loadings in varying degrees of platinum, palladium and rhodium.

We mainly coat knitted wire for well-priced products and metal honeycombs for ambitious applications. In addition, depending on your system's requirements, we can also provide complex shapes and densities of knitted wire – especially designed for your application.

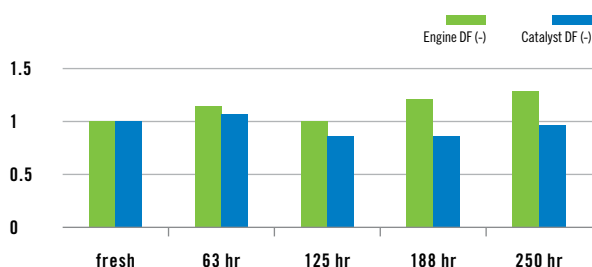
Research and development

Our R&D centre is located in Hanau, Germany. We are constantly working on novel washcoat formulations and coating techniques for our global customers. We work closely with our partners to meet the requirements of our clients' applications which ensures that their demands are satisfied and that we are at the forefront of the latest technologies. Therefore we can look back on numerous co-operations with leading equipment manufacturers.

Heraeus developed honeycomb catalysts for 500 hours small engine applications that would exhibit a deterioration factor equal to one (DF≈1) even if the engine raw emission had worsened.



Deterioration factor (EPA phase III class I 250h application)



Current solutions for four-stroke small engines

Emission regulation	Inner dimensions (mm)	PGM loading (g/ft ³)	PGM relation (Pt/Pd/Rh)	Remarks
US 2	35 x 24 x 10	50	0/10/1	knitted wire
US 2	30 x 34 x 9.25	70	4/10/1	knitted wire
US 2	35 x 25 – 300 cpsi	5	4/20/3	honeycomb
EU 2	50 x 40 – 100 cpsi	40	4/0/1	honeycomb
EU 2	28 x 25 – 400 cpsi	60	5/0/1	honeycomb

EPA phase III class I (≤ 10 g/kWh HC + NOx)

173 cc multi-purpose engine		126 cc multi-purpose engine		80 cc multi-purpose engine	
66x28x18 mm knitted wire – 35 mg Pt:Pd:Rh 1:20:1		42x20 mm – 300 cpsi honeycomb – 40 g/ft ³ Pd only		55x44x37 mm ceramic honeycomb – 45 g/ft ³ Pd:Rh 10:1	
	g/kWh HC+NOx		g/kWh HC+NOx		g/kWh HC+NOx
raw emission	12.08	raw emission	12.94	raw emission	7.59
0 hours	4.24	0 hours	7.43	0 hours	2.92
63 hours	5.58	72 hours	8.03	63 hours	3.49
125 hours	7.91	125 hours	9.27	125 hours	2.55
				188 hours	2.82
				250 hours	3.65

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