

APPLICATION NOTE

Determination of Platinum, Rhodium and Palladium in automotive catalytic converters

Automotive catalytic converters contain the precious metals Platinum, Rhodium and Palladium. The exact amount of these elements is important for the recycling industry to determine scrap values.

The European Directive on End-of-Life Vehicles (ELV 2000/53/EC) has the real effect that a huge number of different automotive catalytic converters are now recycled. The value of these used catalytic converters depends on the amount of precious metals they contain, making it important for the recycling industry to be able to determine precisely the content of Platinum, Rhodium and Palladium.

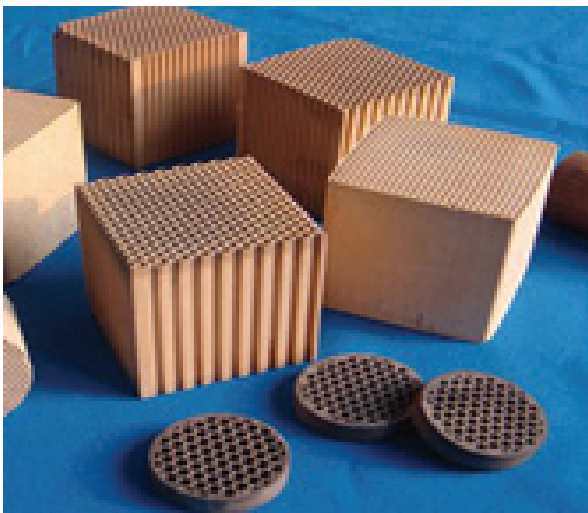


Figure 1: Automotive catalytic converters

In comparison to analysis using traditional chemical methods, measurement of these three elements can be performed more quickly and accurately with the FISCHERSCOPE® X-RAY XDV®-SDD equipment.

To get the best measuring results the catalyst structures are first milled and pressed into pellets. The FISCHERSCOPE® X-RAY XDV®-SDD has a programmable measuring stage, which makes it easy to analyse a large number of samples (pellets) automatically.

The powerful WinFTM® analysis software provides accurate measurements of all three precious metals by their components.

	Platinum		Palladium		Rhodium	
	ICP-OES	XDV-SDD	ICP-OES	XDV-SDD	ICP-OES	XDV-SDD
A1	1065	1055	861	871	236	243
A2	1112	1101	747	759	212	213
A3	1004	995	785	774	201	186
A4	770	741	1335	1315	125	100
A5	856	880	850	856	194	181
A6	1158	1142	806	815	180	177
A7	1071	1089	729	756	185	186
A8	1060	1057	761	747	189	189
A9	3112	3200	2830	2789	716	700
A10	975	996	887	884	177	172

Figure 2: Comparison of XDV-SDD and chemical analysis by ICP-OES for some automotive catalytic converters. Values in mg/kg.

With its silicon drift detector (SDD), the programmable measuring stage and the powerful analysis software, WinFTM®, the FISCHERSCOPE® X-RAY XDV®-SDD is perfectly suited for the efficient, precise and convenient measurement of precious metal content in catalytic converters.