

OLYMPUS[®]

Vanta[™] Handheld XRF Analyzer

Platinum Group Metals Analysis for Car Catalyst Recycling



Quickly Measure Platinum, Rhodium, and Palladium in Car Catalysts

Car catalytic converters contain the expensive platinum group metals (PGMs) palladium (Pd), platinum (Pt), and rhodium (Rh), making them extremely valuable scrap. The PGMs can be recovered and reused to produce new car catalysts when the scrap is properly sorted and prepared.

To help recyclers receive full value for PGM content, Vanta™ handheld XRF analyzers provide fast, accurate measurement of Pd, Pt, and Rh in spent catalysts. On-the-spot measurement enables you to:

- Quickly sort catalytic converters to recover the PGMs
- Measure the PGM concentration in minutes for accurate pricing
- Identify low-value monoliths (unloaded or washed-out)

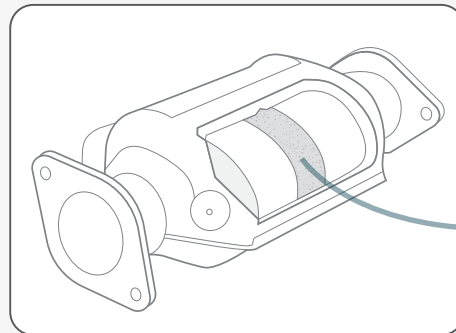
For the most representative and accurate results, we recommend you grind, sieve, and homogenize the samples to properly prepare them for XRF analysis. Combine the analyzer with the portable Vanta Work Station to take PGM measurements in a fully interlocked system. The Vanta Work Station offers hands-free testing of catalyst samples for an easier and more comfortable analysis.

El	PPM	+/- 3σ
Pt	1953	35
Pd	302	8
Rh	376	7
Ti	5580	280
Cr	444	64
Mn	318	18
Fe	1.269%	0.014
Ni	195	5
Cu	245	18

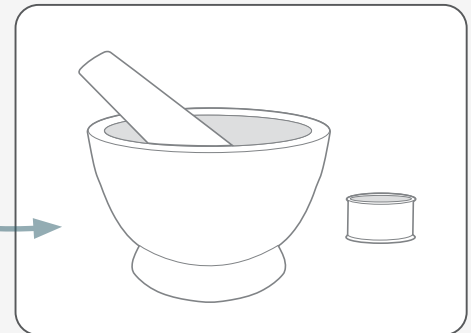
Measure Pd, Pt, and Rh quickly and easily



Set up the Vanta Work Station as a rugged, portable field laboratory or on a benchtop



Proper sample prep is important for accurate results



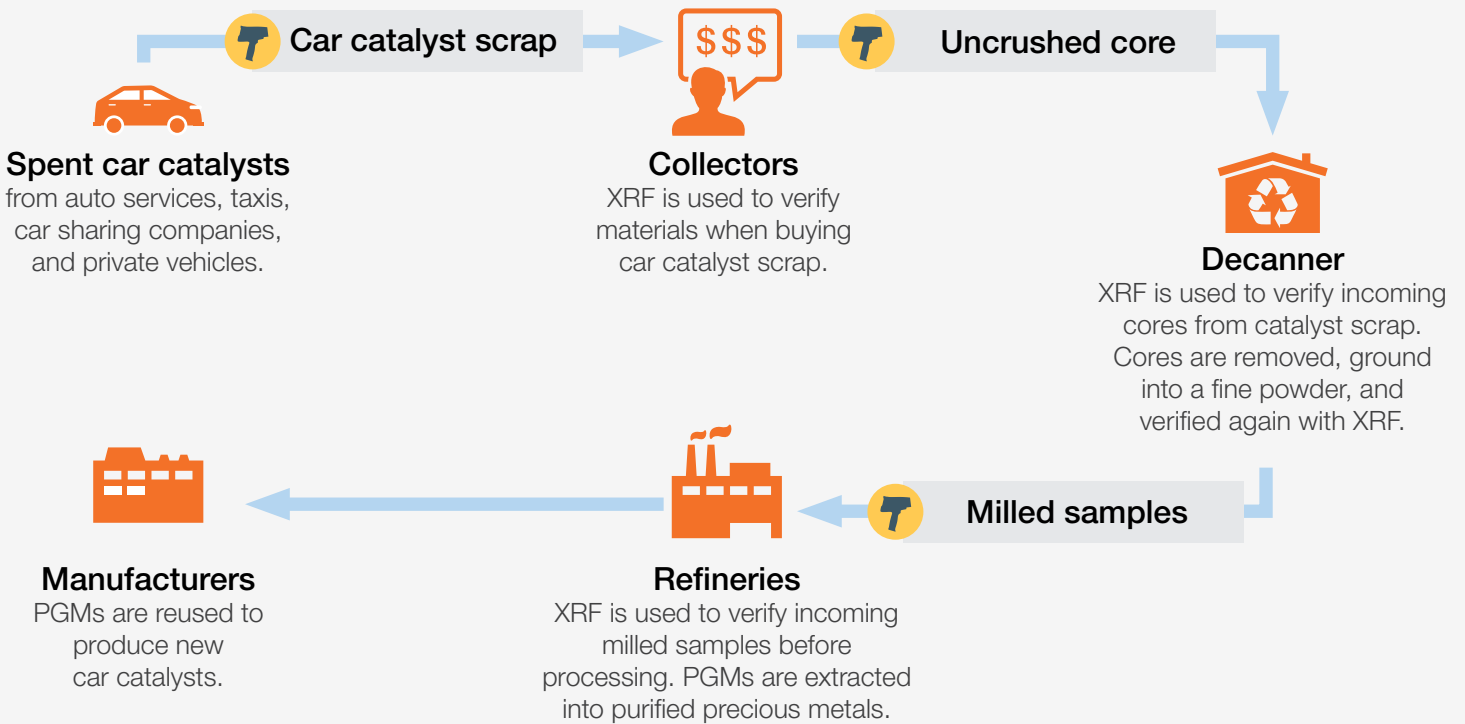
Optimize Your Recycling Process for Maximum Profitability

Typical concentrations of Pt, Pd, and Rh are only 5–20 ppm (g/t) in PGM mined reefs. In comparison, the PGM levels in catalytic converters are around 2000 ppm depending on the car's make, age, and engine size, making it both economical and environmentally friendly to recycle them.

No matter your position in the recycling circuit, Vanta™ XRF analyzers can optimize your process and quality while maximizing your return on investment (ROI). From decanning through sorting, crushing, and grinding to preparing the shipment for refining, the fast XRF results enable you to avoid empty and contaminated cores and provide the ideal mix for further refining.

Car Catalyst Recycling Process

Get full value for spent catalyst with fast, accurate identification of platinum group metals (PGMs).



The car catalyst recycling process must be flexible due to the wide range of vehicle types and ages, as well as their engine sizes and types. To provide this flexibility, the Vanta analyzer software incorporates User Factors, which give you the capability to make individual calibrations for each grade range and region as needed.

Results You Can Trust

Built with innovative Axon Technology™, Vanta™ analyzers provide higher X-ray counts per second for fast, accurate, and repeatable results. The car catalyst element suite is comprehensive, so you know the materials you are buying have not been added to or contaminated with elements like lead, tantalum, and selenium. Protect against fraud by detecting elements like:



Mo	1.000	0
Rh	0.942	0
Pd	0.983	-82
Ag	1.000	0
Cd	1.000	0
Sn	1.000	0
Sb	1.000	0
Ba	1.000	0
Ce	1.000	0
Hf	1.000	0
Ta	1.000	0
W	1.000	0

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Fast and Accurate Sorting

Before homogenization, recyclers should use the Vanta analyzer to sort and separate materials of the same type. Sort into three or four grade ranges, such as oxygen sensors, three-way converters, two-way converters, and diesel particulate filters (DPF). To improve sorting, define these grade ranges within the analyzer database using the Pseudo Elements function.

The Vanta™ Series

Olympus manufactures Vanta analyzers to suit a variety of applications depending on your needs. Each Vanta analyzer is engineered for durability and analytical superiority and comes with an industry-leading 3-year warranty.

M Series

Our most powerful Vanta analyzers feature exceptional performance. Each M Series analyzer comes equipped with a large-area silicon drift detector, your choice of either a rhodium (Rh) or tungsten (W) anode, and a 50 kV X-ray tube.

C Series

The C Series combine value with superior speed, limits of detection (LODs), and elemental range. Each C Series analyzer is equipped with a silicon drift detector and your choice of a 40 kV X-ray tube with a rhodium (Rh) or tungsten (W) anode, or a 50 kV X-ray tube with a silver (Ag) anode.

L Series

Get the ruggedness, ease of use, and data management features of Vanta analyzers in a cost-effective PIN instrument. The L Series is designed for maximum uptime and a lower cost of ownership for reliability in the field.

Choose Your Analyzer for Car Catalyst Recycling

Vanta models include options for X-ray source and detector type. For car catalyst recycling, our tungsten (W) X-ray tube is the ideal solution combined with either an SDD or PIN detector:

- PIN detector: the economical choice for initial sorting
- SDD with a large measuring window: ideal for fully prepared samples, offering the highest accuracy

Vanta Model		Vanta L Series (PIN)		Vanta C Series (SDD)	
Sample	Element	Reading	+/-	Reading	+/-
1	Pt	739	32	751	9
	Pd	1027	19	1030	6
	Rh	210	10	217	3
2	Pt	1742	45	1778	13
	Pd	773	15	772	5
	Rh	197	9	204	3
3	Pt	251	29	261	8
	Pd	4837	100	4944	31
	Rh	857	24	839	7

The differences in standard error between PIN-based and SDD-based analyzers

The Olympus Commitment

Olympus is a leader in XRF technology with a reputation for quality and accuracy. We are committed to providing the best technical support and after-sales service for our products, applications, training, and technologies through our global network of sales and service teams

www.olympus-ims.com

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