

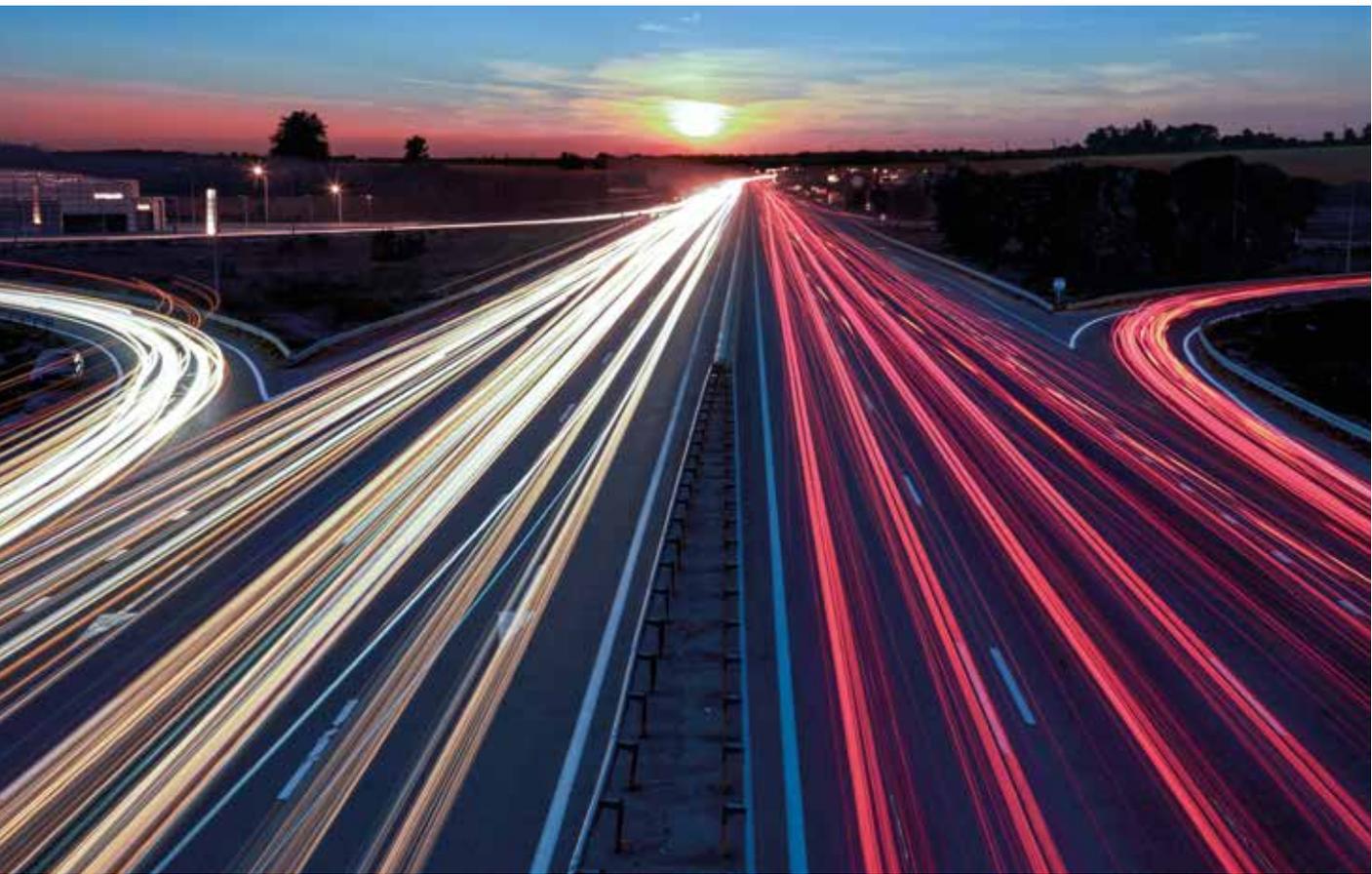


**hensel**  
recycling



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# PRECIOUS METAL RECOVERY **FROM END-OF-LIFE VEHICLES**



## RECOVERING PRECIOUS METALS TODAY FOR CLEANER AIR TOMORROW

Helping to meet tighter environmental standards in the 21st century

Emission regulations are becoming more and more stringent around the world driving technology and innovation. And the key to these advancements continues to be the precious metal catalyst.

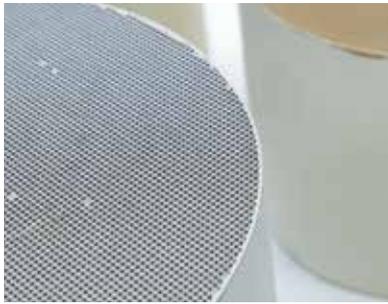
Recovering these valuable metals from end-of-life vehicles – be it from catalytic converters, oxygen sensors, electronic components, etc. – provides a more economical and environmentally friendly source of these materials as they make their way back into new emission control technologies or other industrial applications.

Hensel Recycling is your first choice in the conservation of precious metals from all vehicle applications. You can trust our experience and expertise because precious metals are our passion – since 1998.

## ON THE SCRAP HEAP TODAY – PRECIOUS METALS TOMORROW

### Precious metal recovery from vehicle components

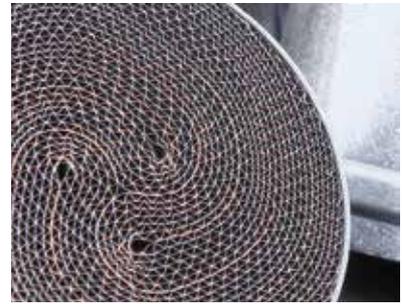
Our core competency is the recovery of precious metals from spent automotive catalytic converters and diesel particulate filters. We offer different approaches for these materials, including purchasing, fast settlement and toll refining.



*Ceramic catalytic converters*



*Diesel particulate filters*



*Metal foil converters*

Do you have other materials containing precious metals, such as oxygen sensors or electronic materials – printed circuit boards or electronic control units? We offer efficient recycling solutions for these materials as well.



*Oxygen sensors*



*Electronic control units*



*Fuel cells*



*Printed circuit boards*



*Cable harnesses*



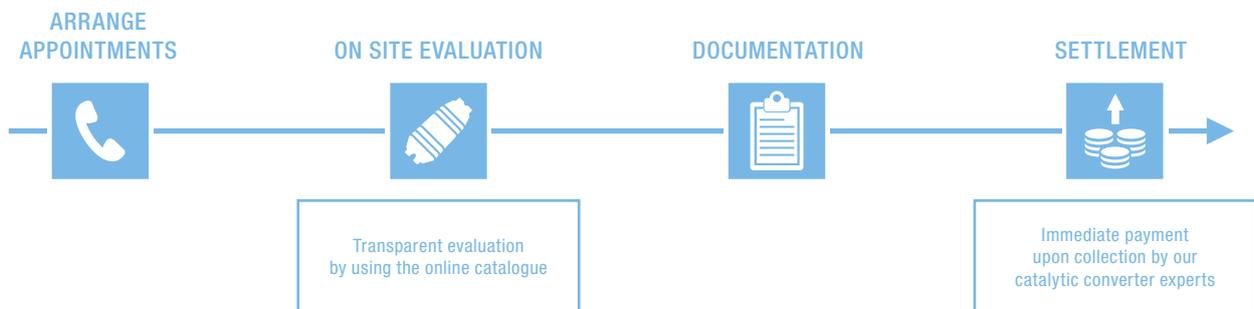
*Aluminium rims*

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# PURCHASING SERVICE

Transparent and long-term experience

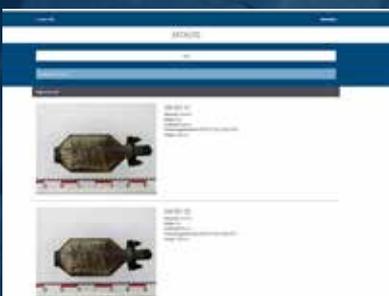
Evaluating catalytic converters is a tremendous challenge. At first glance, the value of the catalytic converter is difficult to determine from the outside. Thanks to its transparency, our online Catalogue offers one of the best data base available on the market. Our experienced team of experts uses the catalogue and the Hensel Recycling categories as the basis for evaluating your catalytic converters on site. The catalytic converter prices are based on daily precious metal prices.



## The digital access provides a quick overview

The Hensel Recycling catalogue is available both for the web and the iPad.

In just a few mouse clicks, you can find your desired catalytic converter type and its value – quickly and easily.



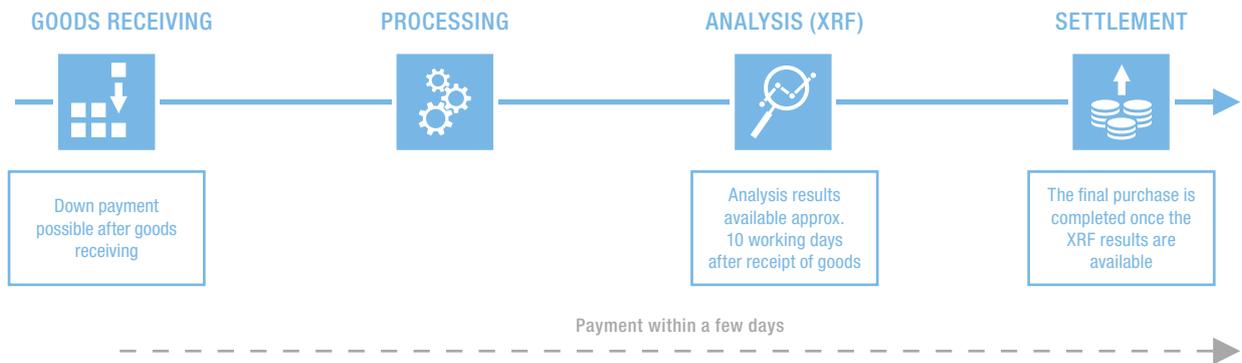
### The online catalogue – up to date and transparent

Each catalytic converter is recorded with images and categorised in our database. The precious metal content is based on precise analyses. We continuously check the classification and value of the catalytic converters listed to ensure that our database is always up to date.

## FAST SETTLEMENT

The ideal process for small quantities

Just a few days after receiving your ceramic catalytic converters or diesel particulate filters, your contract is ready for settlement. We welcome small quantities as our dedicated processing equipment, and X-ray fluorescence analysis (XRF) makes processing your material fast and economical. You may, of course, receive a down payment after goods receiving.



### Small quantity sampling

Our specially developed small quantity sampling system benefits from short set-up times allowing fast processing with inline sampling.

#### Advantages of X-ray fluorescence analysis (XRF)

X-ray fluorescence analysis is one of the most frequently used methods for determining the composition of a material sample. After processing, the finely ground, homogeneous powder is pressed into tablet form with a binding agent. The composition of the sample is determined quantitatively and qualitatively using X-rays. This means that reliable results are available for the precious metal content in a very short time.

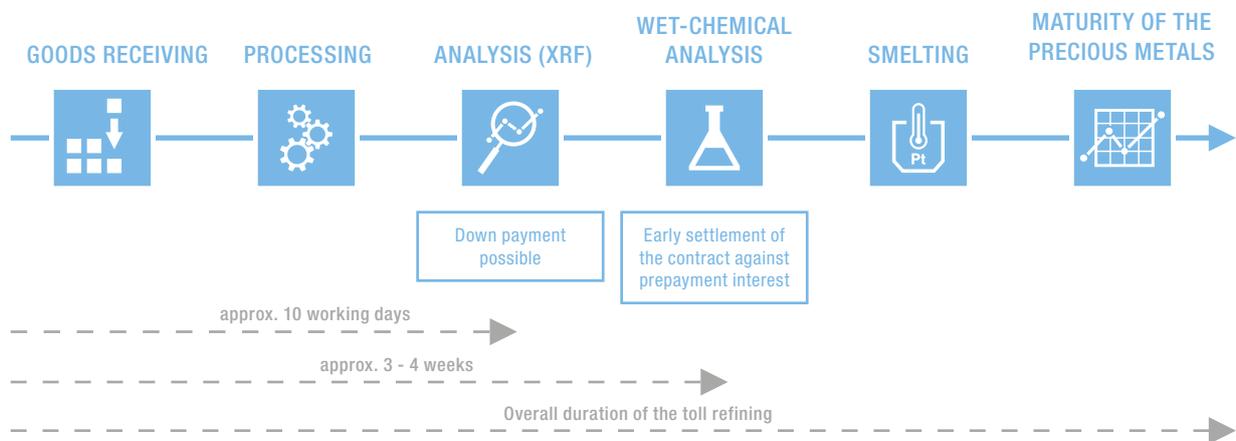


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# TOLL REFINING

## Settlement with flexible payment options

With toll refining, settlement is based upon a precise wet-chemical (ICP-OES) analysis. This is performed in a laboratory and is time consuming and costly, making this method more suitable for larger quantities. Our highly flexible payment plans offer you various options upon maturity of the precious metals.



### Our flexible solutions upon maturity of the precious metals

- » Fixing the precious metals with subsequent payout
- » Run and manage a precious metal account
- » Physical provision of the precious metals, e.g. in the form of bars



#### Advantages of wet-chemical analysis

The precious metal content can be accurately determined using wet-chemical analysis methods, e.g. ICP-OES (inductively coupled plasma with optical emission spectrometer). To this end, the homogeneous powder is converted to a liquid sample. The elements contained within it are then separated and a plasma flame can be used to make them visible. The relevant precious metal contents can then be picked out.

## COMPARE FOR YOURSELF

### An overview of our services

We offer flexible, tailored solutions for all your precious metal-bearing material. Our service overview helps you find the right information at a glance, quickly and easily. And we will always find the right solution for special requests and requirements. We would be happy to advise you on the best model to suit your needs.

Range of services ceramic catalytic converters (CC) / diesel particulate filters (DPF)	Purchasing	Fast settlement*	Toll refining*
Collection service	✓	✓	✓
Evaluation based on the Hensel Recycling categories	✓	–	–
Transparent terms and conditions	✓	✓	✓
Down payment possible	Full payment as direct settlement	✓	✓
Settlement	Promptly	Within a few days	Flexible payment options
Settlement basis	Categories	XRF analysis	ICP-OES analysis
Precious metal management	–	–	✓
Cost-effective, depending on the material composition, from	> 20 pieces	> 100 pieces CC > 30 pieces DPF	> 500 pieces CC > 150 pieces DPF

\* Diesel particulate filters must be gathered separately.

Range of services metal catalytic converters / oxygen sensors	Purchasing	Toll refining
Collection service	✓	✓
Evaluation based on the Hensel Recycling categories	✓	–
Transparent terms and conditions	✓	✓
Down payment possible	Full payment as direct settlement	✓
Settlement	Promptly	Flexible payment options
Settlement basis	Categories	ICP-OES analysis
Precious metal management	–	✓
Cost-effective, depending on the material composition, from	> 1 Converter (> 10 kg of sensors)	> 1 Ton (> 5 Tons of Sensors)

## OUR EXPERIENCE – YOUR PEACE OF MIND

See for yourself how reliable we are

Precious metals are our passion. Our day-to-day work is characterised by long-term partnership, personal care and the highest level of precision in processing your materials – and we've been doing that since 1998. With us – your material is in expert hands:

All our processes are certified in accordance with the most up-to-date quality standards, such as ISO 9001 and 14001, and continuously optimised.

We are there for you wherever you need us – at our headquarter in Aschaffenburg or through our numerous international locations. We'll take care of logistics, including organising proper customs clearance, clarifying terms of transport in line with waste disposal laws, and helping you prepare the necessary documentation.

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