

THE IMPORTANCE OF RECOVERY OF PGMs FROM CATALYSTS – A CASE STUDY OF RECYCLING NETWORK IN POLAND

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Abstract

Combustion engines are the main driving force of passenger cars, trucks or buses. Engines burn fuels, and as a side effect, release many pollutions to the atmosphere. Car manufacturers had been aware of a need of lowering the amount of exhaust fumes. This brought on the market the first catalytic converters. Nowadays automobile catalyst manufacturing is the largest sector of demand of PGMs (mainly platinum, palladium and rhodium), and unfortunately consumption and future demand of these critical metals is getting higher.

Over the past two decades, most countries around the world have developed and implement solutions that would minimize the impact of the growing number of cars on the environment. One solution contributing to this is the organisation of an end-of-life car collection and recycling network, which is now an integral part of automotive industry. The main drivers for the development of such network were stricter environmental regulations and economic conditions.

The development of recycling is also becoming more popular in Poland. However, catalyst recycling system is still not transparent to all stakeholders. Due to the huge variety of catalysts and their different structure and composition of elements from the PGMs group, the valuation of their price before they are recycled is not obvious. This raises a lot of controversy and does not inspire trust among those who recycle their catalysts.

The aim of this work is to show how the management of used catalytic converters looks like in Poland and how developed is network of catalysts recycling in Poland. At the same time this will show how important it is in terms of a circular economy and the recovery of valuable raw materials from a group of PGMs.

Keywords: Catalysts; Recycling; PGMs recovery; Platinum; Palladium; Rhodium.