Case Study

# Precious Metal Extraction and Recycling as an ecological Necessity

Edited by on 25. Oct. 2024

The extraction and recycling of precious metals has become increasingly important in modern industry, not only because of its economic value, but also in terms of environmental sustainability. With limited natural resources and increasing demand for precious metals such as gold, silver and platinum, the development of efficient and environmentally friendly methods for precious metal recycling is becoming increasingly urgent.

## Low-dust Technologies for maximum Safety

For an industry-leading company, Hecht Technologie has successfully implemented an engineering project for precious metal recycling. Reliable systems and well-thought-out systems are crucial for emptying, mixing and filling precious metal compounds or ores in the respective process steps and thus making the recovery process more efficient. In this project, HECHT was once again able to contribute its expertise and innovative solutions. Challenges of the given conditions were overcome, and specifications of the precious metals industry were also implemented to the fullest satisfaction.

The planning and subsequent implementation were carried out considering the components specified by the customer. One focus of the project was low-dust production to ensure the safety of employees. Therefore, HECHT designed the entire steel structure with a low-dust enclosure and the complete exhaust air

system with associated piping. This system is characterized by a more powerful filter system to avoid deposits in the pipe system.

Furthermore, this project demonstrates Hecht Technologie's ability to develop tailor-made solutions. Precious metals are often extracted in the form of ores, electronic waste or waste products. These materials must be prepared for further processing. Usually, mixing units are used to mix the raw materials with certain chemicals or solvents to prepare them for extraction or digestion. Here, however, for mixing the precious metal dusts to obtain an even grain size distribution. The mills and mixers specified on site therefore play an important role in the crushing and processing of the precious metal dust to prepare it for the further processing steps. This makes it even more important for the plant's feeding and processing systems to guarantee a reliable and smooth process. In this case, three individual mills or three individual mixers had to be approachable on two lines via a movable drum-lift-tilt system.

## Innovative Containment Solutions from HECHT

In addition, Hecht Technologie plays a decisive role in this process step, as the bulk solids specialist from Pfaffenhofen has developed innovative containment solutions that make it possible to empty and fill precious metals from drums safely and efficiently without risking potential hazards to the environment or personnel. Part of this overall solution are specialized docking stations with integrated weighing systems for drum emptying and filling, which operate under containment conditions.

The CFE-K (Containment Drum Emptying with Tipper) from HECHT has been specially developed for the low- dust and contamination-free emptying of drums. This system is characterized by its ability to ensure the highest level of product safety and occupational safety. A key feature of the CFE-K is the integrated containment system, which effectively prevents dust and particles from escaping during the emptying process. This is achieved through a combination of special seals, vacuum systems and highly effective filters that ensure that the working environment remains clean and safe.

(Picture: ©Hecht Technologie GmbH)

Another advantage of the CFE-K is the flexibility and efficiency in handling different drum sizes and types. Thanks to a modular design, the system can be adapted to specific requirements, making it a versatile solution for different applications. The integrated weighing systems enable precise dosing and control of the emptied material, which is particularly important in precious metal recycling to minimize losses and maximize yield.

In addition, the CFE-K is equipped with an automated drum handling system that reduces manual contact with the material and thus minimizes the risk of contamination of the operator. This HECHT system is also designed to be easy to clean and maintain, which reduces operating costs and increases uptime.

So the conclusion from this successfully implemented project is that precious metal extraction and recycling are indispensable elements for a sustainable and resource-efficient industry. Hecht Technologie has established itself as a pioneer in the development of drum emptying systems under containment conditions, which enable safe, efficient and environmentally friendly precious metal processing. The combination of technological advancements and ecological awareness paves the way for a future in which precious metals are responsibly sourced and recycled without compromising on safety and quality.