

Water Management Solutions for Mining Applications Featured at Flottweg MINExpo Booth

Flottweg experts will discuss key mining topics such as tailings dewatering, acid mine drainage, direct lithium extraction, and solvent extraction at MINExpo.

LAS VEGAS, NV, USA, August 13, 2024 /EINPresswire.com/ -- Process engineers interested in learning about innovative solutions to [improve water management and water recovery](#) using centrifuge technology in mining applications should visit the Flottweg booth #4279 in the Central Hall at MINExpo 2024 in Las Vegas on Sept 24-26.

Experts will be available to demonstrate Flottweg centrifuge technology using a clear equipment model that provides a unique inside look into how the efficient solution works together with sophisticated remote monitoring for minimal operator attention.

Booth attendees can expect to learn how to [solve problems for a variety of interesting mining applications](#):

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The core of all mining processes is the Flottweg decanter developed specifically for mining applications.”

Steve Benyo, Flottweg



Efficient operation, robust design, and high purity output make German-made Flottweg decanters a multi-talent in the mining industry.

1. Tailings Dewatering. The storage of tailings in sludge ponds is increasingly being replaced by the storage of dewatered tailings. Mining companies store the dewatered sludge on the ground, which complies with statutory regulations in most countries. In hard-to-reach and confined storage regions or in earthquake-prone areas, it is particularly advantageous if the tailings have been

dewatered to minimize environmental risks and space requirements. The cleaned process water can be recycled to significantly reduce mining operations costs and maximize water recovery rates. Flottweg decanter centrifuges use considerably less fresh water than belt presses or chamber filter presses to efficiently separate solid particles down to a size of 10 μm without using flocculants. If the operator uses flocculants, it is possible to separate even finer solids from the liquid (water). The recovered process water is then clean enough to be returned to the process. As a result, mine operators can significantly reduce fresh-water requirements.

2. Acid Mine Drainage. Water management has been a major issue for miners globally for decades. Global weather changes, focus on environmental, social & governance (ESG) issues, and new legislation on water management make it even more critical. Acid Mine Drainage (AMD) is considered the second largest global crisis after global warming and requires the attention of community, government, academia, and miners to create long-term solutions. The formation and movement of highly acidic water rich in heavy metals forms a chemical reaction of H_2O with rocks that contain sulfur-bearing minerals, resulting in sulfuric acid (H_2SO_4). Heavy metals then leach from rocks that contact with sulfuric acid and the process is often enhanced by bacterial action. The resulting liquid is usually toxic and has harmful effects on humans, animals and plants. Historically, treatment methods have required “sacrifice zones,” designated to accumulate toxic materials, and requires significant portion of land, which may not be available. Flottweg solves these by engaging in a full-cycle treatment, leaving no dangerous residue, and requiring minimal land space. Flottweg centrifuges can be found in active mine sites as a critical step in an acid water treatment plant or in a mobile, truck-mounted format, known as the mobile treatment center, which can perform dewatering of neutralized sludge at multiple legacy/active mine sites. With Flottweg centrifuges, a 20-plus year solution is guaranteed.

3. Direct Lithium Extraction. While lithium has been mined for many decades for glass and ceramics, the laptop and cell phone demand in the late 1990s and early 2000s provided additional uses for lithium—especially for batteries. The 2010s brought on the electric vehicle phase and produced a lithium boom unlike the global market had ever seen before. Auto makers are limiting production of internal combustion vehicles and may halt production altogether by the year 2050 in favor of electric vehicles. The technologies required to produce and mine more lithium have advanced to meet that demand. One of these solutions is a process called direct lithium extraction (DLE), a technique that consists of several processes that allow for fast, isolated lithium production into saleable forms of lithium, also known as LCE, Lithium Carbonate Equivalent. Centrifuges are vital to the DLE process for many reasons. The most notable is the ability to perform a liquid-liquid separation, via the Tricanter[®]. In addition, centrifuges are mobile and run continuously. Centrifuges are not batch operated and do not require consistent operator attention 24/7. This robust equipment is efficient and produces the required value material used for further treatment enhancement and the required waste material on the disposal side.

4. Solvent Extraction. Most commercial solvent extraction plants suffer from the formation of crud. With Flottweg Tricanter[®] centrifuges, copper mines can recover organic from crud and

reuse it in their solvent extraction processes. The solvent extraction (SX) process is a hydrometallurgical procedure in which metals, such as copper, platinum, gold, cobalt, nickel, zinc, or uranium, are recovered through the use of organic extractants. To separate the organic phase from the aqueous phase of the solvent, they are stored in settlers. Some of the impurities in the system build up in the settlers in the form of crud. The crud that is removed from the settler still contains considerable amounts of organic. The Flottweg Tricanter® separates the organic and aqueous phase from the crud with an industry-leading “cut-point”. This means that the mines can reuse the recovered organic in their processes and separated solids can be disposed of, significantly reducing operating costs.

The core of all mining processes is the [Flottweg decanter developed specifically for mining applications](#). It is the optimum solution for processing minerals and ore and has innumerable possible applications.

With more than 40 years of experience in the U.S. markets, Flottweg offers high performance industrial centrifuges and complete custom-designed processing systems for all types of liquid-solid and liquid-liquid-solid separation applications. Flottweg uses more than 60 years of decanter and disc stack centrifuge technology knowledge to custom engineer separation solutions for customers worldwide.

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