

# Moly keeps mining equipment running

**Lubricants containing moly provide long-lasting lubrication of equipment operating in severe environments and whose components are inaccessible after assembly.**

There's nothing like moly for lubricating moly! Or more precisely, for lubricating moly-grade steels. Moly is well known to the mining and oil industries as an alloying element in steels and irons in their equipment. In these alloys, moly confers resistance to corrosion and chemical attack, enhances abrasion and wear resistance and increases strength and toughness, resulting in robust and reliable equipment. Moly-containing alloys are found in many of the machines used to dig, drill, crush, grind, pump, convey and transport the products of these industries. All this equipment is subject to rough working conditions, whether extracting bituminous shales in Alberta, drilling for petroleum deep under the Gulf of Mexico, digging for coal in Silesia, or mining uranium in Kazakhstan. Reliability of the equipment used in these heavy industries is critical no matter where they are located. But remote locations and challenging environments create great difficulties when having to replace a component that has seized up! For these cases, the best antidote is still ... molybdenum, or more exactly, molybdenum disulfide ( $\text{MoS}_2$ ).

## **A highly compatible lubricant**

Molybdenum disulfide is an excellent dry lubricant because its lamellar structure has a very low coefficient of friction between its layers and because it readily adheres to other materials. Usually dispersed into a thermoplastic resin or added to a paraffin mixture to improve adherence to the components being lubricated, it has excellent anti-seize and anti-friction properties. It is resistant to the effects of dust and fine abrasive particles, and is completely inert to water. It is extremely stable over time.

It is capable of lubricating equipment at temperatures up to  $400^\circ\text{C}$  and pressures up to  $30\text{ t/cm}^2$ , which a traditional oil or grease cannot withstand. Finally, it is compatible with practically all the alloys and materials used in mining and oil drilling, whether they are used on the surface, under the surface or under the sea.

## **Mining and drilling equipment's "best friend"**

These qualities make it the lubricant of choice for components that are inaccessible after assembly, or which would be too time-consuming and complicated to dismount. An example of such a component is a deepwater drill head.

Therefore, molybdenum disulfide lubricant is present in most mining equipment: examples are the crown gears and pinions of cranes, gears, transmission chains, piston compressors, mechanical



**Conveyor for nickel ore in New Caledonia, stretching 1.2 km (0.75 miles) into the sea (total length: 1.8 km, or 1.13 miles). Subject to a strongly saline atmosphere, to shocks and to jolts, the quality of its lubrication is essential for its reliability. Photo: Eramet-SLN.**

shovels, crushing machines, conveyors, bearings ... the list goes on and on. In these applications, more than 5%  $\text{MoS}_2$  is used as an addition to petroleum-based lubricants to enhance their capabilities. For example, molybdenum disulfide helps maintain the lubricating film in cases of seize-up in cold temperatures, protecting the equipment from premature failure.

Because of its unique ability to provide long-term reliable lubrication in challenging operating environments, molybdenum disulfide dramatically extends the life of mining and drilling equipment. Moly disulfide is truly mining and drilling equipment's best friend!