

**Shell Lubricants**

Mining



## **REGULAR TECHNICAL SERVICES HELP DOUBLE THE LIFE EXPECTENCY OF GOLD MINE BALL MILL COMPONENTS**

**TOTAL REPORTED CUSTOMER SAVING**

**US\$540,300\***

**COMPANY:** Underground Gold Mine

**COUNTRY:** Australia

**PLANT:** Ball Mill

**APPLICATION:** Pinion and Girth Gear  
Lubrication

**KEY EDGE:** Shell LubeExpert and  
Shell Gadus S2 OG 80<sup>+</sup>

**SAVING:** US\$540,300\*

### **A large scale Australian underground gold mine, converted its milling train from a bitumen based lubricant to Shell Gadus S2 OG 80<sup>+</sup>**

After implementation, Shell LubeExpert Technicians provided ongoing, quarterly condition monitoring services that consisted of:

- Temperature and alignment profiling
- Lubricant displacement audits
- Girth and pinion gear wear monitoring
- Lubrication system upgrades, and
- Delivery of on-site technical training

After twelve years in operation, the pinion and girth gear are considered to be in excellent working condition. Since April 2003 the pinion has not been reversed; the mill is still running the original pinion on the original side.

The pinion has been in operation for 96,000 hours, with minimal signs of wear.

Typical total life expectancy of similar equipment is approximately 45,000 hours.



Drive end of pinion



Lubricant coverage of pinion

## EXAMPLE OF DELIVERED VALUE

### 1 CHALLENGE

The ball mill in a gold mine is a critical fixed plant asset. Normal servicing practices, to reverse pinions at 25,000 hours (3 years) and replace at 45,000 hours, can mean significant downtime.

### 2 SOLUTION

The Shell technical team examined the mill and recommended the use of Shell Gadus S2 OG 80\* with quarterly inspections by Shell LubeExperts. This solution helped to ensure correct lubrication was maintained, downtime impacts were minimised and helped extend equipment life.

### 3 OUTCOME

The mill has now been in operation for more than 96,000 hours (12 years). The pinion is still in excellent condition and continues in operation.



### 4 VALUE

The Shell product and technical service offer has helped so far to avoid the need to replace and align the pinion.

This is a significant task that involves around 300 man hours, crane hire, laser alignment costs and around 36 hours of mill downtime.

By implementing quarterly inspections and using Shell Gadus S2 OG 80\* it is estimated this gold mine saved US\$540,300\* across twelve years of operation.

## SHELL GADUS S2 OG 80+

### SUPERIOR PERFORMANCE OPEN GEAR GREASE

Shell Gadus S2 OG 80+ is a range of premium quality, full EP lubricants developed for the lubrication and protection of open gears and wire ropes subjected to extremes of ambient temperature and operating conditions. They are a unique blend of high quality paraffinic mineral and synthetic base oils with carefully selected additives to provide optimum performance. Its balanced formulation allows the lubricant to stay soft and pliable over long periods, thus helping to minimise the build-up of lubricant in the roots of the gear teeth.

#### Performance Features

##### Exceptional Physical And Mechanical Stability

- Shell Gadus S2 OG 80+ retains its natural protective properties over its long working life.

##### Excellent Anti-Wear Performance

- At working temperatures, speeds and pressures, Shell Gadus S2 OG 80+ forms a protective cushion between the large gear (girth, bull etc) and pinion teeth.

##### Superb Load Carrying Capacity

- Molybdenum disulphide and other solid lubricants combine to reduce tooth contact zone temperatures, reduce gear surface pitting and help alleviate 'stick-slip' conditions.

##### Water Repellent

- Effectively resists water 'wash-off' by immersion or spray.

### Corrosion Protection

- Protects metal surfaces from corrosion in hostile environments such as saltwater conditions. Repels dirt and dust.

### Applications

- Heavily loaded open gears, particularly those found in grinding mills, kilns, shovels, draglines, ship loaders, stackers and reclaimers and excavator applications. When choosing a product to suit your ambient temperature conditions, always consult with your Shell representative for the appropriate grade.
- Multi service lubricant that can be used as the one grease (multi-purpose and open gear) for the entire machine on most shovels, excavators and draglines (excluding electrical motor bearings).
- Surface dressing of slow moving gears open to the atmosphere.
- Plain bearings, pivot pins/bushings and articulations found in earth moving equipment.
- Mooring, static and slow moving wire ropes including those intermittently immersed in saltwater.
- Wide variety of heavy-duty mining and industrial applications

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\*Previously Shell Malleus GL 400

\*Savings reported by specific customers. Actual savings may vary and will depend on the application, the current oil, the maintenance procedures, equipment and the operating conditions.

"Shell Lubricants\*" refers to the various Shell companies engaged in the lubricants business.

Approved for external distribution.

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