APPLICATION
Open Gears on Kilns & Ball Mills

Open Gear Oil Saves Cement Plant Nearly $100K/Year

CUSTOMER TESTIMONIAL
Cement Plant – Balkan Peninsula

CHALLENGE
Increase gear protection while lowering lubricant consumption

SOLUTION
Pyroshield® Syn XHvy Open Gear Lubricant (9011)

RESULTS
- Reduced lubricant consumption by up to 87%
- Saved $94,395 per year in lubricant costs alone
- Reduced lubricant waste disposal by nearly 3,000 kg per year
- Lowered operating temperatures

Customer Profile
The customer is a worldwide cement corporation with plants in many countries including the United States.

Application & Challenge
The corporation's plant in the Balkan Peninsula has KHD cement kilns and Polysius ball mills. The plant's maintenance managers and engineers wanted to better protect the open gears on the kilns and mills, while reducing lubricant consumption.

LE Solution
Lubrication specialists from Hexagon Europe – a Greece-based distributor of Lubrication Engineers products – recommended LE's Pyroshield® Syn XHvy Open Gear Lubricant (9011) in the open gear systems. They assured the customer that Pyroshield 9011 would improve protection, reduce operating temperatures, minimize wear, and reduce lubricant consumption.

Pyroshield 9011 is a heavy-duty synthetic fluid designed to provide outstanding protection for high-load, heavy-shock applications. It features Almasol®, LE's exclusive wear-reducing solid additive, and a unique combination of extreme pressure additives. Almasol can withstand extremely heavy loads, chemical attack and temperatures up to 1,900°F (1,038°C). It is attracted to metal surfaces, forming a microscopic layer but not building on itself or affecting clearances. Almasol minimizes metal-to-metal contact and the resulting friction, heat and wear.

Pyroshield 9011 can be applied manually or through automatic spray systems. It is non-asphaltic and appears translucent in use, allowing for visual inspection of the open gear. This plant uses a spray system.

Results

They started by converting a single ball mill. The initial results were very good, with lubricant consumption reduced by 65% and pinion temperatures reduced by an average of 15%. Based on numerous conversions done worldwide, these were normal results for Pyroshield 9011. They prove its enormous load-carrying ability, as well as its ability to reduce friction. By reducing friction, temperature is reduced, and wear is minimized. In addition, the lubricant's tackiness (which helps it stay in place) allows consumption to be seriously reduced.

After these results, plant personnel decided to do further conversions five months later. The following numbers show the results of the first kiln conversion after more time had passed, as well as additional kiln and ball mill conversion results.

continued on next page

Results *(cont.)*

Kiln No. 5

- Consumes 0.792 kg per day, down from more than 3 kg per day with previous lubricant
  - o 74% reduction in lubricant consumption
  - o 662 kg reduction of waste disposal per 300 days of operation

Kiln No. 4

- Consumes 0.792 kg per day, down from more than 3 kg per day with previous lubricant
  - o 74% reduction in lubricant consumption
  - o 662 kgr reduction of waste disposal per 300 days of operation

Raw Mill No. 4 (ball mill)

- Consumes 0.864 kg of lubricant per day, down from 6.67 kg per day (200 kg per month)
  - o 87% reduction in lubricant consumption
  - o 1,742 kg reduction of waste disposal per 300 days of operation

Total estimated savings per year were initially calculated up to €86.904 ($94,395). With the lubricant quantities recommended by Hexagon Europe and the savings experienced, the purchase price of Pyroshield 9011 proved itself to be more than justified.

The preceding numbers are compelling and immediately visible, but Pyroshield 9011 provides many other important benefits, including:

- Lower operating temperatures
- Lower vibrations
- Increased protection of gear and pinions for longer service life
- Reduced energy consumption
- Easy visibility of all gears during operation
- Clean environment

Based on these excellent results and savings, the plant converted its remaining ball mill's open gear system to Pyroshield 9011.

As of 2023, it has been 15 years since the original lubricant conversion. Ongoing audits reveal continued positive results for these kilns and mills.

About Hexagon Europe

Based in Athens, Hexagon Europe was founded in Greece in 1989. It is the exclusive distributor and marketer of Lubrication Engineers high-performance products in Greece, Cyprus, Bulgaria, Albania, North Macedonia, Montenegro and Kosovo, Serbia and Romania.
www.hexagon-europe.com

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