

## APPLICATION

Allis Chalmer Ball Mills

# LE Lube Cuts Consumption, Lowers Ball Mill Gear Noise

## CUSTOMER TESTIMONIAL

Armstrong Cement

## CHALLENGE

Open gear lubricant required significant application volume, and gears produced noticeable engagement noise.

## SOLUTION

Pyroshield® Syn Kiln Lubricant (9020)

## RESULTS

- Reduced lubricant consumption by 90% – from 30 barrels to three barrels per year
- Significantly reduced cleanup and disposal requirements
- Completely eliminated gear noise while keeping gear temperatures low

## Customer Profile

Armstrong Cement & Supply Corp. is a cement manufacturer in Pennsylvania and has been an LE customer since 1985. The company experienced huge success after switching to LE oil for a critical gearbox, solving what had been chronic wear problems. After that, Armstrong began using LE lubricants for much of its equipment.

## Application

Armstrong uses three Allis Chalmer ball mills to grind raw material. Being an older design, the ball mill gear teeth are straight cut and very large. The customer found the gear tooth design demanded a very viscous, high solid content lubricant.

## Challenge

As a longtime LE customer that had experienced success with other LE products, Armstrong Cement was willing to use an LE-recommended lubricant on its ball mill open gears. However, the open gear lubricants available did not contain the level of solids required for the unique gear configuration at Armstrong.

“We discovered that our existing Pyroshield lubricants, which excel on newer ball mill gear sets, did not provide demonstrably superior performance when used on straight cut and slower moving, heavily loaded gear sets,” said John Hayes, the LE lubrication consultant working with Armstrong. “In newer gear sets, teeth tend to be smaller and helical, so the load is spread over more teeth. With

## Results

After the switch to Pyroshield 9020, the customer was immediately impressed with the gear noise reduction.

“Now there is virtually no gear noise,” John said, “Gears used to sound like a jack hammer; now they’re like silk.”

In addition, and most importantly, Armstrong was able to reduce application rates. Over time, the lubricant spray volume was safely reduced to one-tenth the volume required with the old product. Gear tooth temperatures and gear sound remain low.

After one year using Pyroshield 9020 on the ball mills, lubricant consumption has been reduced from 30 barrels to just three barrels. Cleanup effort has been reduced correspondingly.

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# ARMSTRONG CEMENT

Armstrong Cement's ball mill gear teeth, being very large and straight cut, one tooth can be carrying the load, placing maximum stress on the lubricant. This design demands the lubricant contains a high level of solids, along with a robust anti-wear formulation."

Instead, Armstrong used a competitor's asphaltic open gear lubricant. This product came with issues typical to this type of lubricant, including high application rates and messy, time-consuming cleanup and disposal. In addition, the ball mill gears were very noisy in operation.

## LE Solution

As soon as it became available, John recommended LE's newest open gear lubricant – Pyroshield® Syn Kiln Lubricant (9020) – which contains a mix of graphite and Almasol®, LE's exclusive additive.



In addition to this higher amount of solids, it still offers all the advantages associated with the Pyroshield name. Pyroshield open gear lubricants are heavy-duty synthetic fluids providing outstanding protection for high-load, heavy-shock applications. They are non-asphaltic and environmentally friendly, containing no heavy metals, and exhibit exceptionally high film strength.

## Results (cont.)

Subsequently, Armstrong Cement converted its two rotary kilns to 9020 as well, with similar results – consumption is approximately one-tenth of what it had been.

Mark Lunn, Jr., plant manager, said, "9020, this stuff works; it does what we wanted our open gear lube to do."

"It appears that under compression, the solid additives in 9020 work together to cause a separation of gears and a deadening of sound," John said. "This proprietary chemistry is unmatched in the industry."

In February 2021, Armstrong began using Pyroshield 9020. It was introduced in very cold weather, with lines heat traced, and no pumping or spray issues were encountered. They keep the dispensing drums in a well-lit, heated room. Although they anticipated a reduction in product usage, they initially applied the new product at the same rate as the asphaltic product.

*Thank you to Mark Lunn, Jr., Armstrong's plant manager, for his assistance with this report.*