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OCTOBER 2014

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This issue's front cover...

LUBRILOG SA: For more than 25 years, LUBRILOG has specialised in the production of very high quality lubricants for the lubrication of open gear drives in raw material industries, including the mining and cement sectors. LUBRLOG has also developed an innovative cleaning solution in service, LUBRICLEAN EP, which ensures a thorough cleaning process and extends drive lifetime by reducing abrasive wear. This is done in a maximum time of 90 minutes and without halting production.

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Dear readers,

Welcome to the October 2014 issue of *Global Cement Magazine* - the world's most widely-read cement magazine. Looking at the global cement news in this issue, we see continued preparation by Lafarge, Holcim and others ahead of the planned LafargeHolcim merger in 2015. In Singapore, CVC Partners and the Government are in discussion over the purchase of assets that will be sold by both merging parties. It was earlier agreed by the Singaporean competition authorities that Lafarge and Holcim *would* be able to merge due to them being relatively small players in that market. Meanwhile, in the UK and the US, HeidelbergCement is positioning itself via share deals in its subsidiary Hanson Building Products so that it may bid for the LafargeHolcim divestments in the US and UK. Hanson Building Products has filed for an Initial Public Offering in the US in preparation for HeidelbergCement to sell it later in the year. This sounds like a case of HeidelbergCement focusing on core markets. It will be interesting to see which other multinational and regional players decide to 'show their hand' through the rest of the merger process.

Away from the news, this issue has a distinct Russian flavour with an in-depth look at the large and rapidly-changing Russian cement industry. It covers the latest production and consumption trends, cement prices and economic factors, regional breakdowns and an up-to-date listing of all active Russian cement plants, ongoing plant constructions and newly announced projects (See Page 28). Tying in with the industrial report, this month's cement plant visit is to one of Russia's most modern plants, the BaselCement plant in Ryazan Oblast. Turn to Page 40 to read Amy Saunders' review of the plant's construction, production process, markets, distribution and future projects for this plant, which was only commissioned in 2013. Elsewhere in the issue we have features on lubrication (Page 8), alternative fuel production (Page 10), hot gas filtration (Page 16), lime production (Page 18), and a look at thermal energy efficiency in the Indian cement industry (Page 56). There is also a pictoral look at the recent Resource and Waste Management (RWM) Exhibition, which was held in Birmingham, UK. It once again featured many exhibitors of relevance to the use of waste-derived fuels in the cement industry.

And finally, those with an interest in photography (and even some without) will welcome the return of the *Global Cement Photography Competition 2015*. Previous competitions have led to hundreds of amazing entries from across the world. Follow the instructions to enter by Friday 19 December 2014 for your chance to see your photos in print and win cash prizes. We hope that you enjoy this issue of *Global Cement Magazine* - the world's most widely-read cement magazine!

PKEdwards

Dr Peter Edwards
Editor

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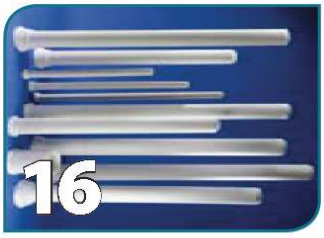
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28 Russia's cement industry: A drive to modernity

The Russian cement industry, like Russia itself, is vast and changing. It has 64 active cement plants but 12 new dry process kilns are under construction and upgrades are in progress at other plants. Such expansion is certainly justified by rising wealth and a massive infrastructure backlog.

40 BaselCement's Serebryansky plant: Environmentally-friendly cement production

Global Cement's Amy Saunders visits the BaselCement plant Serebryansky, Ryazan Oblast, Russia. Commissioned in 2013, the plant represents the new modern face of the Russian cement industry, with a 1.8Mt/yr dry process line from Sinoma.

Lubrilog SA

LUBRILOG introduces an innovative method for cleaning gear sets in motion

Based in the south of France since 1987, Lubrilog offers a complete range of lubricating solutions for open gear drives in rotary kilns and ball mills (lateral drives). Thanks to its technical expertise and close collaboration with cement manufacturers around the globe, Lubrilog is listed as the certified lubricant manufacturer for leading open gear drive OEMs. Lubrilog solutions can be found in all stages of open gear drive lubrication starting from the commission to running-in of the open gear drives. Additionally Lubrilog's expertise covers all types of open gear lubricating methods which are commonly used: splash lubrication (with or without idler), circulation lubrication and automatic spray lubrication.

Good lubrication is imperative to the operation of mechanical systems like the open gear drives found in cement plants. However, proper lubrication can only be performed on clean, unpolluted surfaces. Thus cleaning operations play a critical role in the lubrication process, while ensuring smooth operation and extended life of the open gear drives. It is therefore imperative to regularly clean large open gear drives.

Lubrilog introduces Lubriclean EP, a 'green' solvent combined with high pressure pulverisation technology to clean the gear set while in operation. Thanks to the Lubriclean EP application process, cement factories may completely eliminate downtime while saving substantial time and revenue losses resulting from the damage and maintenance of open gear sets.



Right - Figure 1: The effects of abrasion on an open gear drive.

Lubriclean EP redefines cleaning of open gear drives

Large open gear drives operate in difficult environments and are subject to pollution by abrasive elements such as clinker, cement, coal, sand, additives and metallic powders. The abrasive wear may cause the loss of material on the gear drives due to the presence of hard particles suspended in the lubricant or embedded in the flanks of the mating teeth. This may cause serious damage to the fast gear set working flanks. This type of equipment damage and eventual associated financial losses can only be avoided by regular cleaning of the open gear drives.

The traditional method of cleaning imposes a complete stoppage of the rotary kilns and ball mills before starting the cleaning process. However, Lubriclean EP, a green solvent that is applied with the high pressure pulverisation technology, allows operators to simplify this laborious task and carry out the cleaning task efficiently while the open gear drive is in operation.

Lubriclean EP is specifically formulated by Lubrilog to allow smooth functioning and long life of the open gear drives. The combination of Lubriclean EP and high pressure pulverisation technology means that cement plants can take advantage of the following operational benefits:

- Effective cleaning and associated lubrication during drive operation;
- Reduction of downtime;
- Safe, simple, and quick setup;
- Biodegradability and no VOCs.

In addition to the operational advantages, the process of applying Lubriclean EP offers a cost-effective cleaning and protection of the working flanks. This considerably reduces the risk of repairs and interventions, while improving the longevity, productivity and performance of the large open gear drive.

Two main uses

Lubriclean EP finds two main uses in cement plant open gear drives:

1. Protection of the working flanks through affordable preventive cleaning and;

2. Prior to interventions or changes to the operation of an open gear drive. This may be for gear set inspections or for any other mechanical operation,

such as alignment, repair, reversing the sets or replacement.

Cleaning methodology

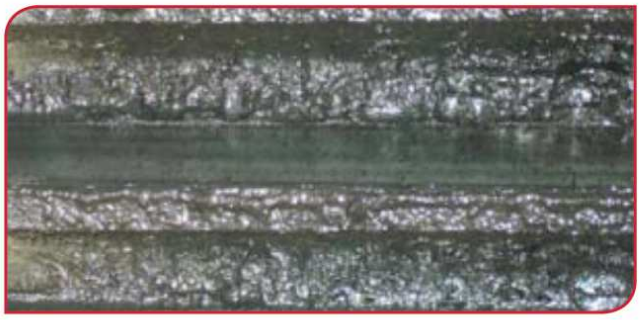
Cleaning during operation can be performed on any type of lubrication system, be it permanent or intermittent. Here, we describe the cleaning method applied to a spray lubrication gear set but open gear sets cleaned by splash baths or circulating lubrication systems can also be cleaned.

Gear drives that are spray-lubricated with grease are subject to high levels of abrasive wear known as 'wear of three bodies.' The low circulation of lubricant on the active flanks allows abrasive particles to agglomerate within the lubricant at the bottom of the teeth and so frequently damage the working flanks.

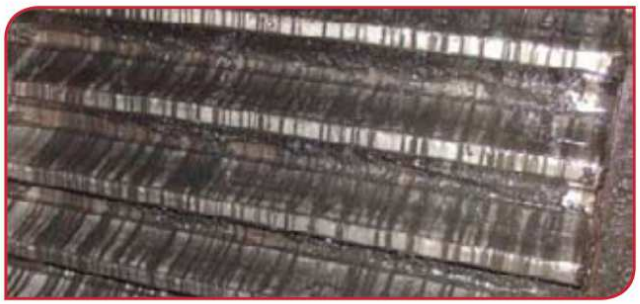
The cleaning system is prepared by installing a collection tank for the used solvent under the housing. A drum of LUBRICLEAN EP is fitted with a high pressure pump. To clean the gears one has to halt the lubrication system before spraying LUBRICLEAN EP at medium pressure. This ensures impregnation and washing of the surface. A period of time without spraying then follows to let the LUBRICLEAN EP soak in, prior to a second period of spraying, this time at high pressure.

A very short interruption is necessary to verify the effectiveness of the cleaning operation. Depending on the level of cleanliness achieved and the type of operational lubricant to be cleaned, slow finishing with an auxiliary drive may be used to clean the bottom of the teeth. This takes only around five minutes and the total cleaning operation will last about one hour. After cleaning, the teeth are covered with an extreme pressure protection film.

Before restarting the gear drive, it is necessary to complete the lubrication of the teeth with a priming grease or with the operational lubricant. The gear drive will be sprayed continuously for at least four hours.



Left - Figure 2: Open gear drive of cement mill prior to cleaning with LUBRICLEAN EP.



Left - Figure 3: Open gear drive of cement mill after final cleaning step.

Cement industry examples

Figures 2 and 3 show before and after images of a cleaning operation performed during operation of a cement mill open gear drive. Three 180kg drums of LUBRICLEAN EP were used, spraying from the inspection door, IN pinion side. The images were taken 45 minutes apart.

Figures 4 and 5 show the before and after images of a cleaning operation on a different double-drive cement mill. The cleaning was again performed by spraying from the inspection door on the IN pinion side. The operation took 1 hour and included a five minute period of slow finish cleaning on both the IN and OUT pinon sides. Three 180kg drums of LUBRICLEAN EP were again used.

Conclusion

Cleaning the open gear drives of cement kilns and ball mills while operating is the best way to clean at lower cost accompanied by very short downtime.

Below left - Figure 4: Open gear drive of cement mill prior to deaning with LUBRICLEAN EP.

Below - Figure 5: Open gear drive of cement mill after final cleaning step.

