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Industrial-strength concrete cleaning chemicals

A specialised range of industrial-strength cleaning products, some of which are designed to prevent concrete from adhering to equipment, and others to remove hardened concrete, was on display at the second International Product Fair, hosted by manufacturer of concrete products and supplier of concrete equipment Pan Mixers South Africa (PMSA), at its Boksburg factory, in September.

One of the products, MEK 3, manufactured by German company Leyde Chemicals, can be sprayed onto all equipment in any weather conditions, creating a light coating that prevents concrete from adhering to the surface, says PMSA director **Walter Ebeling**. PMSA has been appointed as the South African distributor for Leyco Chemische Leyde.

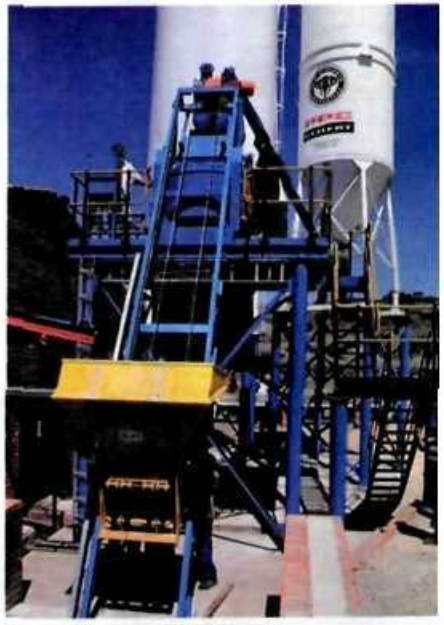
PMSA reports that a manufacturer of concrete products in the Western Cape, Cape Bricks, discovered the advantages of using the MEK3 range of Leyde chemicals last year.

Cape Bricks MD **Anthony Gracie** explains: "The MEK3 range of Leyde chemicals serves a dual purpose, as it helps to clean the mixing plant and prevents damage, which is cost effective. In the past, we would spray the inside of the plant with diesel, but that proved to be ineffective. The build-up of concrete would then have to be manually chopped off, which required a lot of worker power, was time-consuming and damaged the plant, which was expensive to repair."

Leyde has been a specialist in the supply of a wide range of cleaning products, including those for maintaining concrete equipment and truck mixers, for more than 40 years.

The MEK 3 is an oil-based chemical that is applied undiluted in a very thin layer to

Truth may walk through the world unarmed.
– Bedouin proverb



WIL-EL-MIL KERBSTONE PRESS
The first kerbstone press in South Africa

machines and working surfaces that come into contact with concrete.

"This product can be used in concrete chutes, concrete mixers, brick and block-making machines, roof tile machines, drum mixers and pitters," says Ebeling

Removing concrete manually is an expensive and time-consuming process. When concrete cures it becomes extremely hard. Companies have to use manual labour to chisel, hammer and jackhammer the concrete off the equipment, resulting in damage to machinery, such as dents.

The dents then provide a convenient place for concrete to collect the next time the machine is used.

MEK 3 forms an effective adhesive protective film on surfaces on which it has been sprayed, preventing the adhesion of residual deposits of concrete and mortar. Deposits can be removed by means of a water jet. As soon as the protective film wears off, a new protective layer of MEK 3 can be applied to the wet surface after cleaning.

The product can be used on concrete-making and processing equipment and machinery, as well as on bitumen-mixing and processing machines. Adhesion of concrete, mortar, plaster, bitumen and asphalt to metal and painted surfaces is prevented, and machines are protected against oxidation. The protective film becomes effective and is largely waterproof immediately after it has been applied.

The benefits of this product include protection against deposits, even on damp surfaces; longer service life of the machinery owing to better care; a decrease in labour costs for cleaning; no damage to rubber, glass, metal, paint, wood or clothes; and the product is an economical application, since only a thin film is needed for protection.

Another product, MES 2, is a stable emulsion, which can be applied as a release or protection agent, neat or diluted, with a sprayer, cloth or brush. Both the MEK 3 and MES 2 are designed to prevent concrete from settling on cement components.

Giving Colour to Concrete

High-quality colours can now be produced directly from a concrete mixer owing to the Finke Universal's powder pigment dosing system supplied by PMSA.

The patented system is designed to feed concrete mixers from a single ground-level weighing station, which replaces the need for the more-costly granular and free-flow methods and was officially launched at the product fair.

The universal system is able to work with up to six high-quality primary colour pigments, which are stored in bulk bags, and can be dosed individually or mixed together in different proportions to produce a wide range of intermediate shades.

"The disadvantage of a granular or free-flow system is the cost and the fact that granules take longer to break up inside the mixer, resulting in more of the product being used to get the same intensity that powder oxides produce. Further, if granules are used in the oxides, it may result in streaks of colour on the surface of the product because the granules do not break up completely," explains Ebeling.

The process starts when the bulk bag discharge sleeves are connected to the system, using a special sealed docking station for dust-free connection. The level of pigment within the bags is continuously monitored and displayed on the control panel of the unit to enable the production operator to determine when a new bag of pigment will be required and to avoid any disruption to production, he adds.

"After selection of the required recipe, the pigments are automatically weighed in the correct proportions, using a computer-controlled load cell system. "After weighing, the pigment is discharged into a pressure vessel and pneumatically conveyed to whichever mixer requires pigment," says Ebeling.

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Roofing specialist West End Roof Tiles has been making use of the Finke 4-colour Universal System on its production line for the past four years.

"In our line of work, colour quality is of the utmost importance. By using this system, we are able to ensure that we can precisely blend various colours to the highest grade, in the shortest amount of time," says West End production manager **Hennie Nortje**.

Moulding the Future of Kerbs

PMSA, also the local distributor for Wil-El-Mil Engineers, has supplied South Africa with its first kerbstone press machine manufactured by Wil-El-Mil Engineers.

The kerbstone press was bought by MVA Precast and was installed and tested earlier this year.

"The press went through its first wet testing phase in early March, with five pallets of kerbs successfully manufactured," says Ebeling, adding that the process was switched over to automatic the following day, with great results.

MVA Precast director **Sarel Maree** concurs: "There were some teething problems initially, which is expected, but the plant is now running smoothly and efficiently and we are already looking into ordering another press."

Compared with the traditional wet casting process, where a company would need 1 800 moulds over a period of days in a highly labour-intensive operation, this kerbstone press allows rapid output of a high-quality product, with less risk of human error, the company reports.

The press is a modern adaptation of older technology, offering easier maintenance and more modern technologies in hydraulic *and electronic control systems.*

The hydraulics ensure fast pressing, with an automatic product takeoff that uses a vacuum plate to suck the pressed kerb out of its mould before placing it on a transfer carrier. The carrier has a variable-speed drive and variable tilting action, which tips the kerb onto its side and places it onto the curing pallet. Once the pallet is full, it is taken to the curing area, making the process extremely quick.

Having run the rotary press for just one month, Maree says: "MVA Precast currently has an output of 1 000 m of kerbstone for each shift, which is limited by the number of curing pallets we presently have."

A lot of preparation went into receiving the kerbstone press. The plant had to be prewired and all hydraulic systems connected prior to the arrival of the Wil-El-Mil installation and commissioning engineers.

MVA Precast also needed to install a mixing and weigh batching plant with four aggregate bins and a weigh belt that feeds into a rapid countercurrent pan mixer for the operation.

A further two cement silos were installed, as well as a Spiraltech concrete screw conveyer from the mixer to the feeding hopper of the press.

While this appears to be a lot of preparation for one press, the plant is now capable of between 15- and 20-second press cycles, which means that it is able to manufacture up to 2 km of kerbing in a nine-hour shift.

"The rotary table quickly and smoothly indexes from one stage to the next, and the hydraulic valves and power pack are not on top of the machine, as with some other makes of presses, but are separate to the system. This means that personnel do not have to climb on top of the press to make adjustments or carry out maintenance and it reduces the risk of oil leaking into the mix," says Ebeling.

"Having worked with MVA Precast for this many years, we are delighted to see the company's expansion into kerbs, and we are confident that the new equipment will assist them on their path," he concludes.

We cannot become what we need to be by remaining what we are.

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