



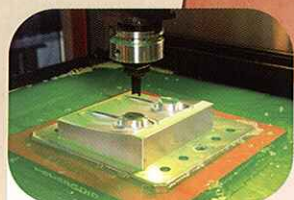
PLASTICS



COMPOSITES + RUBBER

VOL 8 NR 4 AUGUST/SEPTEMBER 2010

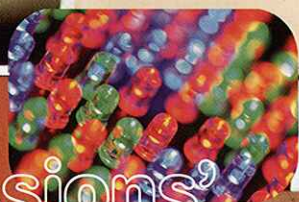
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IN SOUTHERN AFRICA
OFFICIAL MAGAZINE OF THE
PLASTICS CONVERTERS
ASSOCIATION OF SA

**A toast to
PET!**



Rubber talk

BY DAVE HUNT

Fascinating technical presentation on rubber compounds and processes

ORCHEM hosted an IOM³ Northern Branch function at the Benoni Lake Club in May at which its principal, Arkema, introduced its 'Polymer Bound Chemistry' and 'Modern Nitrosamine-free Cure Systems' technologies.

The speakers were Ad Konijnendijk, Arkema's business development manager, and Christophe Brunel and Pierre Lugez, area manager and technical development manager of MLPC International, a subsidiary of Arkema.

MLPC has been in operation since 1939. In 1998 the name was changed to MLPC International and, in 2005, it was fully taken over by Arkema. MLPC International has two manufacturing plants near Bordeaux in the south-west of France.

Rubber chemicals account for 75% of MLPC International's sales, with fine chemistry materials making up the balance. Their major market is Europe (53%). This excludes France, which accounts for 12%. The remainder of their turnover is accounted for by the Americas (15%), Asia (10%) and the rest of the world (10%). MLPC International has distributors in 37 countries throughout the world, including Orchem Trading in South Africa.

The company specialises in the manufacture of materials based on the chemistry of carbon disulphide, cyanogen chloride and amines. The Ekaland range of materials includes speciality accelerators, such as, guanidines, thioureas, dithiocarbamates and thiurams and sulphur donor components, such as, dithiomorpholine and tetrabenzyl thiuram disulphide for the rubber industry. Also on the Ekaland range is poly parnitrobenzene, which is used in RTM bonding, and isothiocyanates which are used in insecticides and herbicides.

Another group of products form the Mixland+ range. These are polymer-bound dispersions marketed in pellet or slab form. Conventional binders use EPDM and EVA as the polymeric medium. MLPC International developed and patented a binder based on an acrylate polymer. These are known as pre-dispersed polymer bound

chemicals, abbreviated to PPBC. A video was shown to illustrate the advantages of the pre-dispersed curatives compared to the use of powders. Among the benefits are faster and more homogeneous dispersion, less dust, better product stability and reduced scrap levels. The Mixland+ dispersions are also colour coded to assist in product identification. Over 30 materials in pellet form and 14 in slab form are available in the Mixland+ range.

The dangers of nitrosamines in compounding ingredients have been

well documented over the years. MLPC International have numerous nitrosamine-free chemicals in both the Ekaland and Mixland+ product ranges. The Vultac

range of nitrosamine-free sulphur donor ingredients has been developed for the rubber and pharmaceutical industries. These are based on polymeric alkylphenoldisulphides and can be used to replace MBTS, phenolic resins, DTDM and TMTD.

They can be used in NR, NBR and SBR polymers and, if combined with silica gel, in CIIR and BIIR. The benefits of using the Vultac range in a formulation include improved mechanical, heat ageing and dynamic properties. In addition, adhesion and green tack are improved and, due to its phenolic structure, Vultac products also act as antioxidants. They are safe to handle and are non-staining. At this stage there are six materials in the Vultac range but there are also approximately 30 nitrosamine-free chemicals in both the Ekaland and Mixland+ ranges.

Pierre Lugez used an example of how a nitrosamine-free ingredient can be used to replace OTOS (N-oxydiethylenethiocarbamyl-N'-oxydiethylene sulphenamide) in AVS (anti-vibration system) formulations. In AVS formulations it is essential that optimum compression set is achieved. The most effective compounds are based on OTOS. However, OTOS is classified as toxic and carcinogenic and it is also a nitrosamine generator. Pierre described the work carried out in 2007 to find a replacement for OTOS. It was proved that a mix

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Talking the talk: André Cornelius of Orchem Trading with speakers Ad Konijnendijk of Arkema, Chris Brunel and Pierre Lugez, both of MLPC International

of several nitrosamine-free curatives in the Mixland+ range give a compound with equivalent properties and at an acceptable cost.

This lecture was well attended, indicating the type of topics that will attract IOM³ members to future meetings. The lecturers are to be congratulated on an excellent presentation with very good visuals. All attendees were given a flash drive which contained, in addition to the discussed items, technical data sheets of the materials supplied by MLPC International.

Spike Taylor gave the vote of thanks and MLPC International is to be thanked for sponsoring the meeting.

More information can be obtained at:

www.mlpc-intl.com