Two new non-halogen flame retardant (FR) masterbatches from Clariant employ melt-processable ingredients that preserve colourability and physical properties

Processors who use flame retardants in masterbatch form enjoy the flexibility of being able to make dosing and processing adjustments easily to meet changing part requirements

Effective and eco-friendly solutions

Like all non-halogen flame retardants (FR), the new Clariant (www.clariant.com) products are free of bromine, chlorine and heavy metals, which have raised health and environmental concerns worldwide. However, unlike many other non-halogen flame retardants, which are based on organo-metallic chemistry, the Clariant additives do not contain solid particles that can make colouring difficult or expensive, and that can diminish important physical properties. They were developed specifically to help products made of polyester, polypropylene (PP) and thermoplastic urethane (TPU) meet critical flammability standards for applications in extruded and injection-moulded articles.

The new FR masterbatches, both marketed under the CESA-flam brand, are the first formulations in two product platforms developed specifically for challenging applications where non-halogen materials have had difficulty competing. The CESA-f/flam 5525NH is a halogen-free flame-retardant masterbatch for polyesters. It was designed to pass tests such as NFPA 701, MVSS 302 and UL 94 V-0. Applications include mono-filaments, films and injection-moulded articles. This masterbatch is fully melt-processable and highly efficient. Typical dosage of the masterbatch is in the 6 to 8% range. At these addition rates, it contributes only a slight yellow-gray coloration, so that bright colours can be achieved in the end product, more easily than with a more conventional non-halogen flame retardant.

Whereas the CESA-flam CT-1629NH is aimed at PP and TPU for applications in injection-moulding, extrusion and fibres, such as those used in office furniture. This masterbatch is specifically designed to pass California TB 133 for public seating and motor vehicle standard MVSS 302. Typical addition rates are in the 6 to 8% range. The masterbatch does not affect the colour of the base resin in the part so, in most cases, colouring costs do not change. It is also inherently UV stable, so no additional UV additives are needed.

"The industry has been seeking effective halogen-free solutions for years," explains Kirk Jacobs, head of Additive Masterbatches, North America, "but only recently have products really become viable. Early approaches, based on organo-metallic chemistry, required dosing as high as 40% in order to get an acceptable FR effect. At these rates, the end products either couldn't be coloured effectively or colour spaces had to be ignored

G&E renovates mill room for added capacity and quality

Goldsmith & Eggleton (G&E), (www.goldsmith-eggleton.com) a manufacturer of black masterbatches and reprocessed polymers, has completed the final phase of upgrades to its Mill Room. These additions have had a significant impact on quality supplied by G&E. The first phase of the renovation was the substantial investment in a new F-270 Internal Mixer with PLC controls for masterbatch production. The mixer greatly expanded G&E's ability to offer more capacity and a reliable source for masterbatch materials.

The second phase, completed in 2009, included the installation of new dual-drive, unitised 84-inch batch-off mills to create a state-of-the-art masterbatch mixing system. The batch-off mills provided better manufacturing quality, consistency and control. The final phase of the renovation includes the installation of a Marley Water Cooling Tower to assist in cooling the water supply, which feeds the mill. The tower will also lower the company's energy costs to provide higher production efficiencies. This phase also includes a spare parts programme for all critical components for the F-270 Mixer, 84-inch Batch-Off Mill and all auxiliary equipment. This programme is designed to minimise any unforeseen downtime due to unscheduled maintenance or needed repairs of the system.

According to Michael Fagan, president, "We are committed to the rubber industry and the environment, and these upgrades meet both of our objectives for a higher quality product while reducing our energy consumption." "The G&E masterbatch operation supplies products to compounders, custom mixers and processors around the world," adds Rob Eggleton, vice president & manager of Sales and Marketing. "By continually expanding our capabilities, we aim to offer our customer base with more value-oriented material solutions."

because high colouring costs were prohibitive. In addition, the high solids content resulted in poor physical and mechanical performance. This new generation of Clariant non-halogen masterbatches uses proprietary chemistry that does not require as much flame retardant to get the job done so additive costs are reduced and parts can be coloured more easily. In addition, because these flame retardants are totally melt-processable, physical properties of the polymer are retained."

New high-performance Lupolen resin

LyondellBasell (www.lyondellbasell.com) has launched a new low density polyethylene (LDPE) resin for potential use in a wide range of masterbatch applications and injection moulding. The new Lupolen 1800U grade features an excellent balance of mechanical properties and a unique combination of easy processability, toughness, softness and dimensional stability. The resin complements the company's existing LDPE product range used in injection moulding and addresses market requirements for applications such as flexible, thin-walled container lids.

Produced using LyondellBasell's Lupotech T high pressure tubular process technology,

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the Lupolen 1800U grade provides better processing characteristics than LLDPE (linear low density polyethylene), which is widely used in packaging and thin-wall injection moulding applications such as house wares and caps and closures. "At 60 grams per 10 minutes, the grade achieves the highest melt flow rate that has ever been produced within our European portfolio of LDPE grades," says Christof Justus, polyethylene marketing manager at LyondellBasell.

Due to its outstanding flow ability, the resin can be considered for use in injection moulding, colour and additive masterbatches, and as a viscosity modifier for compounds. The grade also contributes to very good dispersion and homogenisation of pigments and additives. "Lupolen 1800U grade is additive-free, and achieves thermal stability without the use of additives, unlike LLDPE which requires additives to achieve the same level of performance," adds Justus. "This will enable our customers to manufacture finished products and compounds free of materials that can interfere with successful production."

Lupolen 1800U resins are now available for market introduction and will be produced on a commercial scale in LyondellBasell's European Lupotech T plants, which offer the flexibility required for the production of high-performance low-density polyethylene resins for use in injection moulding. According to Tassilo Bader, LyondellBasell's senior vice president for Olefins and Polyethylene, "Based on the world's leading Lupotech T LDPE process technology, the new grade is positioned to become an industry benchmark."