Passion of colour is the flame that shaped my metal
power and beauty combined by generous craft
I open new trails in relentless quest of perfection
follow my print as I come home to the land of ink
the tiger

Made in Europe since 1894

Herkula
HIGH-CHEM SPECIALITY INKS
UV-curable, water-borne, solvent-based for telecommunication and power cables, optical fibres, matrix resin for ribbon and tight buffer
Handling compounds for coverings

General Cable’s research and development department develops materials for wire insulation and jacketing of power cables used in utility, petrochemical, gas, mining, nuclear and military applications.

According to technical services manager, Bruce Johnston, blending of thermoplastic resin pellets with solid and liquid additives for wire insulation compounds is a critical part of the development process. “We use a variety of thermoplastic resins, including LDPE, LLDPE, EVA, PP, CPE, and silicone, which we mix with peroxides to produce thermosetting (or crosslinkable) compounds,” he explains. The insulating compounds are crosslinked to allow the cables to operate at higher temperatures than thermoplastic insulations.

To prevent high shear forces from degrading temperature-sensitive thermoplastics and/or melting the resin pellets, the team previously needed to start and stop its existing high-speed mixer repeatedly. They now utilise an MX-1-SSJ rotary batch mixer from Munson Machinery that gently tumbles the material in a rotating drum. The unit has a volume capacity of 0.03m$^3$ and weight capacity of 22.7kg, and can blend at 100% to 10% of capacity with equal effectiveness, enabling the team to vary its testing protocols.

Johnston’s group had no first-hand experience with a rotary batch-type of mixer, but the staff of General Cable’s Indianapolis compounds plant uses a 136kg capacity model, 700-TS-17. “Much of the decision came from the compounding plant’s familiarity with the mixer,” recalls Johnston.

MX-1-SSJ is from a line of miniature rotary batch mixers, ranging in capacity from 0.01m$^3$ to 0.42m$^3$, scaled-down versions of production-scale units ranging from 0.28m$^3$ to 17m$^3$ in capacity.

Designed for applications in laboratories and small production operations, it tumbles, turns, cuts, and folds its contents, minimising degradation of materials that are friable or sensitive to pressure and/or temperature.

“Sometimes we add new curatives,” Johnston says. “We want as much flexibility as possible, to add different compounds that require different temperatures.”

The team specified the mixer with a water jacket, allowing operation at temperatures to 93°C. “The constant exchange of material against the heated drum wall with no dead spots provides uniform heat distribution and eliminates the need for remixing,” Johnston explains. “We benefitted from the unit’s low shear mixing, which minimises frictional heat and the generation of fines, and from hydraulic tipping and an easy-to-clean interior.

“The particular value of the device stems from its ability to adapt to various batch sizes and temperatures while minimising unwanted shear, heat generation or material degradation.”

Munson Machinery Company – USA
Fax: +1 315 797 5582
Email: info@munsonmachinery.com
Website: www.munsonmachinery.com