

**WACKER**

CREATING TOMORROW'S SOLUTIONS



GENIOPLAST®

PLASTICS | PERFORMANCE ADDITIVES

# POWER UP YOUR CABLES

Case Study: Wires & Cables

# GENIOPLAST® PELLET S FOR WIRES AND CABLES

The trend toward halogen-free flame retardants (HFFRs) has placed new processing demands on wire and cable manufacturers. The new compounds are heavily loaded and can create issues with die drool, poor surface quality, and pigment/filler dispersion. Incorporating GENIOPLAST® Pellet S significantly improves the material flow, extrusion process, and creates a synergistic effect with flame-retardant fillers.

## Adding 0.1 – 1% of GENIOPLAST® Pellet S

- Improved processing and flow
- Less extruder torque
- Lower die pressure
- Reduced die drool and melt fracture
- Faster throughput
- Better melt flow

## Adding 1 – 3% of GENIOPLAST® Pellet S

- Improved surface lubricity and slip
- Lower coefficient of friction
- Better abrasion resistance
- Better surface touch and feel
- Better mechanical properties
- Better synergy with flame retardants

|                         | Without Additive | +0.5% GENIOPLAST® Pellet S | +1% GENIOPLAST® Pellet S |
|-------------------------|------------------|----------------------------|--------------------------|
| <b>LDPE/ATH (60%)</b>   |                  |                            |                          |
| LOI [% O <sub>2</sub> ] | 26               | 26                         | 26                       |
| UL 94                   | V-1              | V-0                        | V-0                      |
| <b>PP/MDH (60%)</b>     |                  |                            |                          |
| LOI [% O <sub>2</sub> ] | 26               | 30                         | 32                       |
| UL 94                   | V-0              | V-0                        | V-0                      |



## Material

PE/EVA-ATH HFFR systems



## Additive

GENIOPLAST® Pellet S



## Dosage

1 – 3%



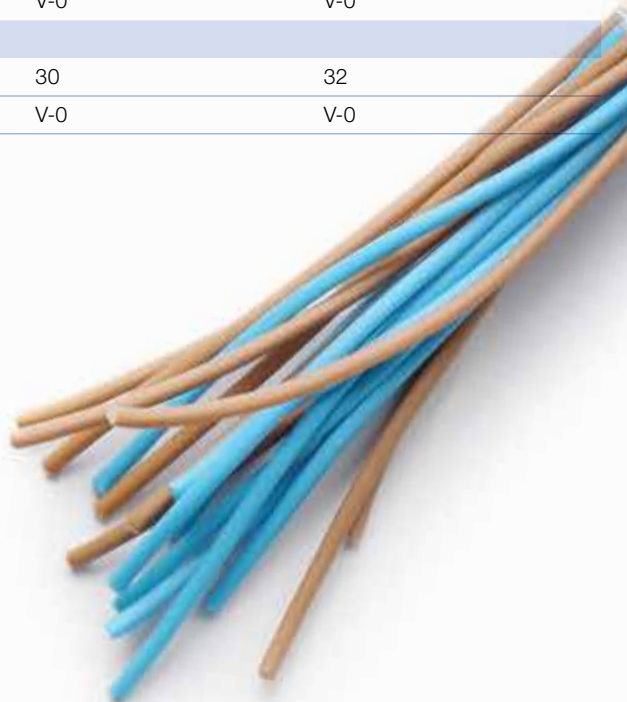
## Application

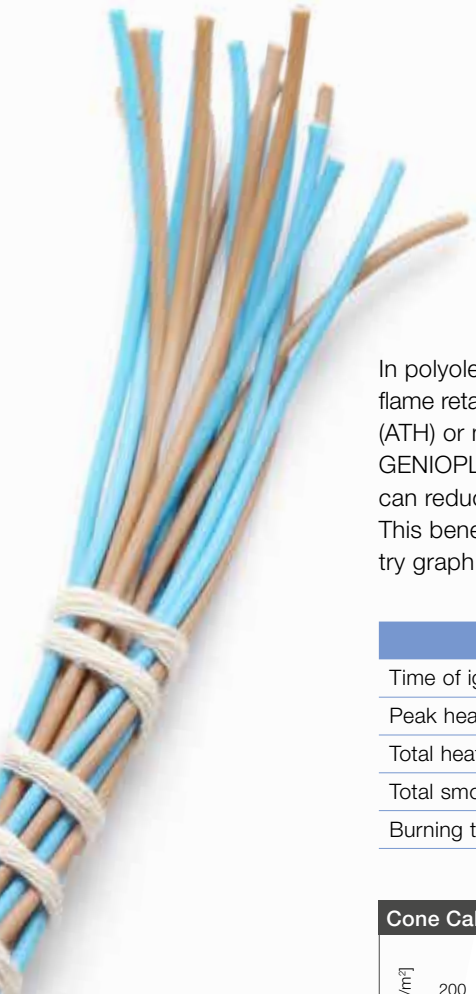
HFFR compounds for cable jacketing



## Key Benefits

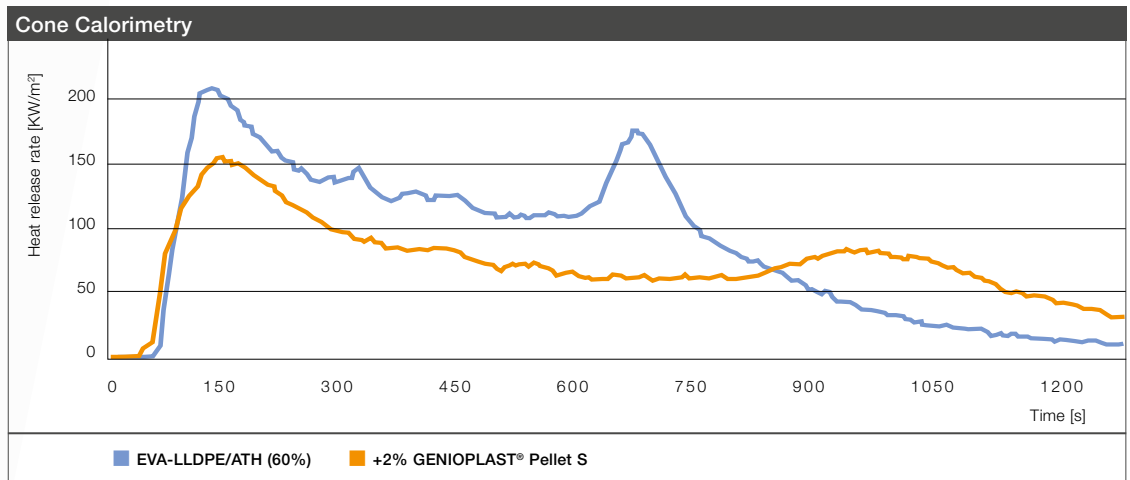
- Higher throughput
- No die drool
- Better surface properties
- Better flame retardancy





In polyolefin-based HFFR compounds containing flame retardant filler, such as aluminum hydroxide (ATH) or magnesium hydroxide (MDH), GENIOPLAST® Pellet S acts as char former and can reduce heat release and smoke generation. This benefit is demonstrated in the cone calorimetry graph and data below.

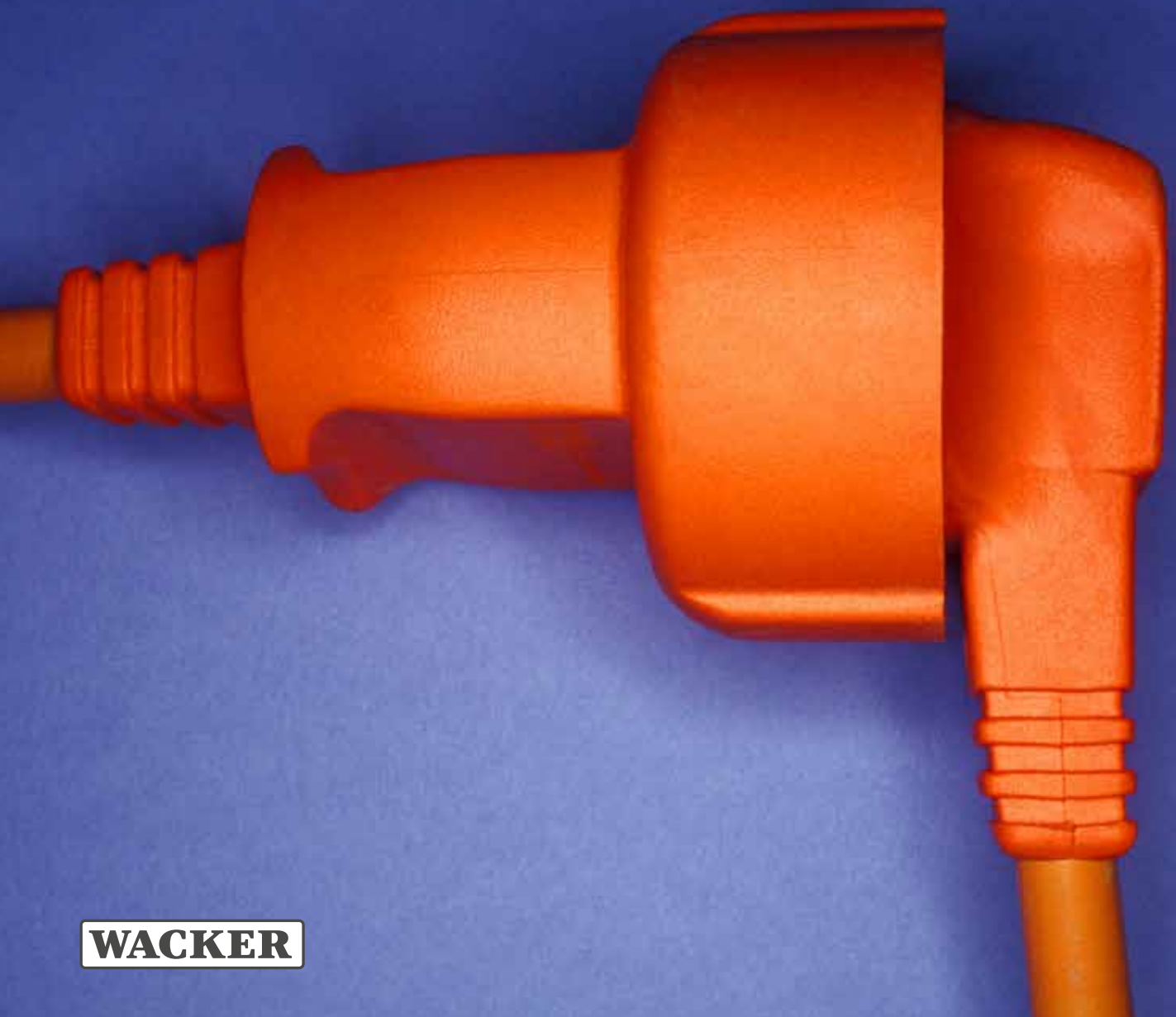
|  | Reference | +2% GENIOPLAST® Pellet S |
|--|-----------|--------------------------|
| Time of ignition [s]                                   | 68        | 61                       |
| Peak heat release rate [kW/m <sup>2</sup> ]            | 203       | 151                      |
| Total heat released [MJ/m <sup>2</sup> ]               | 110       | 102                      |
| Total smoke released [m <sup>2</sup> /m <sup>2</sup> ] | 866       | 313                      |
| Burning time [s]                                       | 1217      | 1820                     |



Combustion residue: reference



Combustion residue: +2% GENIOPLAST® Pellet S



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