PRODUCT NEWS

Borealis flame retardant solutions – empowering a safe and sustainable future

FR4850 and FR4852 – Halogen free polypropylene compounds for 125°C automotive wires

With increasing functionalities in modern vehicles such as entertainment, engine technology and safety, the wiring harness plays a core role. Especially demanding requirements apply for wires operating under high temperatures. Since the majority of these wires are single insulated, the insulation material must provide all necessary properties to protect the wire from wear, temperature and chemicals throughout the lifetime of the car.

Borealis has a 20 year track record in providing halogen free XLPE based material for 125°C automotive wires. With the new **FR4850 and FR4852** we are expanding our offering with a halogen free, thermoplastic solution.

ISO 6722 compliant

FR4850 and FR4852 are specially designed to provide the required balance of stiffness, flexibility and flame retardant properties in order to meet the requirements in ISO 6722 on all cross-sections down to 0.35 mm^2. The compounds also contain additives to provide excellent heat ageing resistance.

– **FR4850** is designed for conductor sizes from 0.35 mm^2 up to 1.5 mm^2

– **FR4852** is designed for conductor sizes larger than or equal to 2.5 mm^2

Simple extrusion

Due to the high melting point of polypropylene, it can be used for demanding 125°C wire applications. Since no crosslinking step is required, finished wires can be produced in only one step on conventional thermoplastic extruders.

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Both sand paper and needle scrape abrasion resistant

Requirements for abrasion resistance may vary between different regions and car manufacturers. In ISO 6722, two methods are described; sand paper and needle scrape abrasion. In order to meet all demands, **FR4850 and FR4852** fulfil both abrasion tests.

Sustainable solution providing stability beyond ISO 6722 requirements

FR4850 and FR4852 are unique in being a thermoplastic and halogen free solution for 125°C automotive wires. Most thermoplastic alternatives contain halogens which can generate acidic fumes at high temperatures, even before ignition. FR4850 and FR4852 also have the advantage that mechanical properties are stable throughout the whole operating temperature range (-40 to 125°C).

Property profile – FR4850 and FR4852

Property	Typical value FR4850	Typical value FR4852	Test method
Density	1.4 kg/dm^3	1.3 kg/dm^3	ISO 1872-2/ISO 1183
Tensile strain at break	>300%	>300%	IEC 60811-501
Tensile strength	>15 MPa	>15 MPa	IEC 60811-501
Hardness, Shore D	70	60	ISO 868
Limiting oxygen index	27	24	ISO 4589-2

Bringing energy all around | Date of issue: February 2018

About Borealis Borealis is a leading provider of innovative solutions in the fields of polyolefins, base chemicals and fertilizers. With its head office in Vienna, Austria, the company currently has around 6,600 employees and operates in over 120 countries. Borealis generated EUR 7.5 billion in sales revenue and a net profit of EUR 1,095 million in 2017. Mubadala, through its holding company, owns 64% of the company, with the remaining 36% belonging to Austria-based OMV, an integrated, international oil and gas company. Borealis provides services and products to customers around the world in collaboration with Borouge, a joint venture with the Abu Dhabi National Oil Company (ADNOC).

Borealis and Borouge aim to proactively benefit society by taking on real societal challenges and offering real solutions. Both companies are committed to the principles of Responsible Care®, an initiative to improve safety performance within the chemical industry, and work to solve the world's water and sanitation challenges through product innovation and their Water for the World programme.

For more information visit: www.borealisgroup.com · www.borouge.com · www.waterfortheworld.net

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