

## Press Release

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[www.dsm.com](http://www.dsm.com)

### **DSM plastics provide electrical components with extra safety and reliability for intelligent appliances in smart homes**

Royal DSM, a global science-based company active in health, nutrition and materials, announces that it is the first plastics producer in the world to offer the Grail of appliance connector manufacturers: materials that meet the highest flame resistance requirements of standards organizations all around the world and which also have the required electrical properties. With specially developed Akulon® SafeConnect and EcoPaXX® PA410 grades, DSM has a complete portfolio of polyamides that not only enable OEMs to meet the EN 60335-1 international standard on safety of household and similar appliances, but which also meet individual OEM requirements that go beyond international standards.

Appliance makers producing and selling in global markets can therefore simplify their supply chains by specifying the same material for a connector, wherever the appliance is sold.

With the growth of the Internet of Things (IoT), consumers increasingly have the ability to remotely control electrical and electronic devices in their homes from their smart phones and tablets. The Consumer Electronics Show (CES) in Las Vegas at the beginning of this year showcased numerous new 'smart' appliances that may soon form a part of the connected home.

Home appliances are increasingly complex electromechanical systems with sophisticated user interfaces and control systems, and the addition of new functionality is a crucial design driver. There is however concern about the safety of appliances that can be switched on and operated without any direct human supervision. There have already been numerous reports of malfunctioning smart appliances catching fire with no-one around in the house to extinguish them.

Consumers may have virtual connections to their smart appliances, but the appliances themselves still need real, physical electrical and electronic connectors. Designed poorly, these connectors can increase the risk of electrical failure, with potentially serious consequences.

To simplify connectivity, power and signal lines are frequently integrated into the same connectors. Given that such components are intended to last the lifetime of the appliance, this significantly raises the challenge for designers. This is particularly the case with connectors for pumps and motors, which require much higher amperage than other system components.

Performance requirements for appliance connectors are increasing, but not uniformly: there are important regional differences in the standards that are applied. As a result, connectors fitted to equipment sold in one regional market are often made in a different material from those on equipment sold into another market. What would simplify logistics considerably for global manufactures who

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purchase and market worldwide are connector materials that meet all the relevant industry requirements, wherever they end up.

Advanced engineering plastics from DSM are coming to the aid of appliance connector designers. DSM has been committed to developing plastics materials for use in appliances for decades and its materials are already widely used in the sector. In close cooperation with leading OEMs and connector manufacturers, its innovation focus has succeeded in developing several materials that achieve the highest UL 94 flammability rating, V-0, at a thickness of just 0.4mm, which also enable end products to pass the IEC 60695-11-10 Glow Wire Test (GWT) without igniting at 850oC, and which also have a high comparative tracking index (CTI) of 400V. DSM is already offering four grades of Akulon SafeConnect that meet these requirements together with varying customer specifications, as well as one grade of EcoPaXX PA410. Further grades are under development and evaluation.

Furthermore, this material is free of additives that have health and safety issues associated with them, such as zinc borate and antimony trioxide flame retardants. DSM can even offer halogen-free flame retardant compounds delivering a CTI of 600V.

In addition to their very good flammability and electrical properties, grades of Akulon SafeConnect and EcoPaXX in the DSM connector portfolio have been proven in customer testing to have excellent flow properties as well as mechanical strength, enabling processors to produce thinner parts that still meet all relevant performance requirements.

Compounds are available globally for customer testing.

### **DSM - Bright Science. Brighter Living.™**

Royal DSM is a global science-based company active in health, nutrition and materials. By connecting its unique competences in life sciences and materials sciences DSM is driving economic prosperity, environmental progress and social advances to create sustainable value for all stakeholders simultaneously. DSM delivers innovative solutions that nourish, protect and improve performance in global markets such as food and dietary supplements, personal care, feed, medical devices, automotive, paints, electrical and electronics, life protection, alternative energy and bio-based materials. DSM and its associated companies deliver annual net sales of about €10 billion with approximately 25,000 employees. The company is listed on Euronext Amsterdam. More information can be found at [www.dsm.com](http://www.dsm.com).

Or find us on: 

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DSM develops breakthrough solutions for white goods and industrial connectors, applications in connectors for white goods and industrial goods, with expanding Akulon® SafeConnect plus and EcoPaXX® portfolio  
(Photo: DSM Engineering Plastics)