



PRESS RELEASE

Milan, 5 - 9 May 2015

PLAST 2015: RadiciGroup focuses on innovation and sustainability.

Radici Novacips SpA, headquarters of the RadiciGroup Plastics Business Area – one of the world's leading manufacturers of a wide range of PA, PBT, TPE and POM engineering plastics – is back at PLAST, international exhibition for the plastics and rubber industries, in Milan from 5 to 9 May.

*At the event, RadiciGroup is focusing on its most recent developments and achievements in the fields of **innovation** and **sustainability**.*

FOCUS ON... **RADILON®** enhanced heat-resistant specialities – from traditional HHR to the new **RADILON® XTreme** -, **RADISTRONG®** long-fibre PA6 and PA6.6 specialities and **RADILON® D** and **RADILON® DT** PA6.10 and PA6.12 engineering plastics. Ample space is also devoted to **RADIFLAM®**, the RadiciGroup range of flame retardant PA6, PA6.6 and PBT products for injection moulding and extrusion. Additionally, special attention is given to new **RADIFLAM® ARV250 HF 3003 BK**, a material specifically developed for applications in the solar power sector.

SUSTAINABILITY... RadiciGroup's commitment to sustainability is ongoing. After obtaining EPD Process Certification for its Environmental Product Declaration (EPD) preparation and internal verification system (in June 2014) and developing EPDs for its Radilon® A and Radilon® S, PA 6 and PA6.6 engineering plastics, **Radici Novacips SpA is now preparing two new EPDs for publication, one for its Heramid® reduced environmental impact post-industrial engineering plastics and the other for the recovery and recycling system for the same products.**

In 2015 the RadiciGroup Plastics Business Area has a full calendar of trade fairs around the world: after PLASTINDIA, NPE and FEIPLASTIC, RadiciGroup Plastics is in Milan, from 5 to 9 May, at PLAST 2015, one of the most important international exhibitions for the plastics and rubber industries.

Radici Novacips SpA – head company of the RadiciGroup Plastics Business Area (founded in 1981) – is focusing on its most recent developments and achievements in the fields of innovation and sustainability. These are also the central topics to be discussed at the Group Press Conference scheduled for Thursday, 7 May, at 11.00 am, at the RadiciGroup stand (**C121 – D122, Hall 9**). At the event, **Erico Spini**, marketing & application development director of RadiciGroup Plastics, is giving a talk on “*Speciality polyamides: RadiciPlastics' most recent innovations and examples of their potential applications*”, and **Cesare Clausi**, business manager Europe of RadiciGroup Plastics is presenting on “*RadiciGroup as a model of sustainable chemistry*”.

The focus is on...

RADILON® HHR AND RADILON® XTREME: DESIGNED TO WITHSTAND HIGH TEMPERATURES.

RADILON® HHR

Radilon® HHR nylon 6.6 engineering plastics feature excellent high-heat ageing resistance at temperatures of up to 210° C.



RADILON® A RV350HHR
Turbo resonator made of high-temperature resistant PA66-GF35.
Application sector: AUTOMOTIVE.

of up to 210° C.

They are suitable for injection and blow moulding and are available in 15%, 20% and 35% glass-fibre-filled versions.

Radilon® HHR products were formulated using a special RadiciGroup technology that allows for a dramatic reduction in mechanical properties degradation in materials at service temperatures of up to 210°C in air.

RADILON® A RV350HHR is the ideal solution for applications such as **intercooler end caps, turbo ducts and resonators**.

RADILON® XTREME

The recent addition of the new RADILON® XTreme speciality line to the already existing RadiciGroup HHR line has extended the application temperature range of this class of products. RADILON® XTreme materials



RADILON® XTREME RV200UK

Grass mower components made of PA-GF20.

UV resistant – excellent appearance –
available in several colours.

Application sector: CONSUMER GOODS

were developed for hot-air applications at continuous operating temperatures of up to 230°C, through a synergistic collaboration of the RadiciGroup Plastics and Chemicals Business Areas.

RADILON® XTreme engineering plastics are mainly used in **automotive** (turbo air ducts, EGR heat exchanger components and resonators) and **electrical** applications (high-temperature electrical insulation components), as well as **power tools** (components for grass mowers/cutters, chain saws, bush cutters, etc.).

Among the key RADILON® XTREME technical characteristics ... Melting temperature, 280°C (+20°C compared to PA6.6); glass transition temperature, 90°C (+20°C compared to PA6.6); moisture absorption at saturation, 7% (-25% compared to PA6.6).

RADISTRONG®: IDEAL FOR METAL REPLACEMENT.

RADISTRONG® specialities are available in nylon 6 and 6.6 versions. Due to their characteristics, they are



RADISTRONG® A LGF60W 3739 BK12

Pedal support made of PA6.6-LGF60, featuring
excellent creep resistance and
superior impact strength.

Application sector: AUTOMOTIVE..

ideal for metal replacement in critical applications where high performance not attainable by traditional engineering plastics is required.

The new Radistrong® long-fibre specialities are manufactured by pultrusion and are available with from 20% to 60% glass-fibre or carbon-fibre fill.

Application sectors include:

AUTOMOTIVE, HOUSEHOLD APPLIANCES,
SPORTS AND LEISURE, and INDUSTRIAL.

The main advantages of the new RADISTRONG® long-fibre specialities compared to conventional polyamides include:

- Superior impact strength
- Improved creep and fatigue resistance
- Greater mechanical resistance and stiffness at high temperatures.

RADILON® D: NATURALLY PERFORMING.

Ideal for injection and extrusion moulding, these materials are produced from PA6.10, a biopolymer obtained from sebacic acid (64% by weight). Sebacic acid is a product of natural origin extracted from the seeds of the castor oil plant, which is grown mainly in India and China in semi-arid regions and, for this reason, does not compete with agricultural food products. Radilon® Ds ensure a high level of sustainability, as well as excellent performance. These RadiciGroup PA6.10 polyamides feature properties that are the equivalent of, if not superior to, those of conventional polyamides.

Compared to PA6 and PA6.6, RADILON® D polyamides show ... reduced moisture uptake, less loss of tensile strength and tensile modulus under wet conditions, better chemical resistance to zinc chloride and calcium chloride, and improved glycol resistance.

RADILON® Ds are ideal for automotive applications: FUEL LINES, FUEL LINE CONNECTORS, PNEUMATIC CONDUIT, BRAKE CONDUIT AND UNDER-THE-BONNET COMPONENTS.

RADILON® DT: OUR PA6.12 SPECIALITIES.

Nylon 6.12 engineering plastics with good mechanical properties and excellent chemical resistance, even to zinc chloride solutions. **RADILON® DTs ensure:** good hydrolysis resistance, exceptional resistance to stress cracking even in contact zones between conduits and fittings, and good dimensional stability because of low moisture absorption.

RADILON® DTs are ideal for applications in the automotive and industrial sectors.

MAXIMUM PERFORMANCE AND SAFETY WITH FLAME RETARDANT RADIFLAM®.

RadiciGroup flame retardant PA6, PA6.6 and PBT engineering plastics can meet any customer requirement and address the needs of the electrical industry, in particular. The Radiflam® range comprises families of materials combining flame retardant properties with exceptional electrical and mechanical characteristics. Of special interest is the line of halogen- and red phosphorus-free products. These engineering plastics are available in a wide selection of colours and ensure quality, high performance and safety.



“At this year’s PLAST, we are continuing to focus our attention on our RADILON® and RADISTRONG® specialities,” said **Erico Spini**, *marketing & application development director of RadiciGroup Plastics*. “But that’s not all. We are also showcasing RADIFLAM® ARV250 HF 3003 BK, our latest addition to the halogen- and red phosphorus-free flame-retardant line of products mainly targeted at the electrical market. This *UL94 V-0* rated material was developed for solar photovoltaic power applications, specifically for support housing for solar inverters, devices that convert direct current into alternating current.”



Mr. Spini added: “Besides flame retardancy, the RADIFLAM® ARV250 HF 3003 BK performance characteristics include good mechanical properties, high resistance to UV rays, weathering and hot/humid cycles.

What’s more, the special formulation of this material ensures excellent protection for electronic inverter components, thus enhancing their reliability and safety.”

For technical information on products:

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Our concrete commitment on the Sustainability front...

Concrete action has always been the distinguishing trait of RadiciGroup's commitment to sustainability. This commitment was rewarded in June 2014, when **Radici Novacips SpA**, headquarters of the RadiciGroup Plastics Business Area, obtained EPD Process Certification for its Environmental Product Declaration preparation and internal verification system and afterwards, when it published EPDs for its Radilon® A and Radilon® S, PA 6 and PA6.6 engineering plastics. Radici Novacips SpA is now about to take another important step by publishing two more EPDs: **an EPD for its Heramid® reduced environmental impact post-industrial engineering plastics and an EPD for the recovery and recycling system for these same products.**

"Our commitment and the scientific approach we have consistently followed on sustainability issues have led to success," said **Cesare Clausi**, *business manager Europe of RadiciGroup Plastics*. "Now, with the publication of the EPDs for our Heramid® products and their recovery and recycling system, we are taking a further step towards reaching our main objective: to provide our customers not only with scientific data on the environmental impact of our products – data that are verifiable and comparable –, but also with a variety of solutions to make the eco-design of materials a reality. And let us not forget that eco-design is tightly linked to product performance."



"We intend to continue and extend the application of this environmental impact assessment tool," Mr. Clausi concluded, "because we think it is an essential service for the innovation of truly sustainable products."

SUSTAINABILITY FOR RADICIGROUP: A RIGOROUS SYSTEMIC APPROACH...

The Group believes that, in matters of environmental sustainability, innovation can only come from a rigorous transparent approach. Starting from this conviction, the Group has made the systemic and rigorous measurement of environmental, economic and social performance indicators, as per Global Reporting Initiative guidelines, the centre of its action plan along its entire industrial production chain (from chemicals to plastics, synthetic fibres and nonwovens). In the development of new products, RadiciGroup follows a three-pronged strategy: biopolymers, post-industrial and post-consumer recycling, and the eco-design of products made of traditional source materials.

MEASURING THE ENVIRONMENTAL IMPACT OF ITS PRODUCTS. RadiciGroup is committed to provide its target markets and stakeholders with information based on scientific, verified and comparable data. How? First of all, through the development and definition of Product Category Rules (PCRs) for its production chain, which set down how to measure and quantify the environmental impact performance of its products using Life Cycle Assessments (LCAs), in order to obtain specific Environmental Product Declarations (EPDs). RadiciGroup was the first multinational to present and propose the concept of a production chain PCR to the International EPD System, from which it received positive feedback. Today, the PCR prepared by the Group and validated by the Swedish International EPD System – one of the most highly regarded bodies in Europe – is an international standard and model for any company in the industry that wants to measure the environmental impact performance of its products. **BUT THAT IS NOT ALL...**

IN EUROPE RADICIGROUP IS...

- The first chemical group with a company – Radici Chimica SpA – to be awarded Organisation Environmental Footprint (OEF) and Product Environmental Footprint (PEF) Statements of Compliance.
- Among the few enterprises with a company – Radici Novacips SpA – to obtain EPD process certification, which recognizes its capability to handle the process for the preparation and internal verification of Environmental Product Declarations (EPDs).
- The only European industrial group that has experimented with calculating PEFs to complement EPDs and environmental labelling rules.

IN THE PLASTICS INDUSTRY, RadiciGroup is one of the most highly regarded manufacturers of polyamide and polyester engineering plastics for applications in many industries such as: **AUTOMOTIVE – ELECTRICAL AND ELECTRONICS – TECHNICAL INDUSTRIAL – FURNISHINGS – CONSUMER GOODS – SPORT.** With six plants strategically located in Italy, Brazil, the United States, Germany and China, RadiciGroup Plastics offers processing, quality control, research and development, and technological development support. A network of sales units – with a strong presence in Italy, Germany, France, Spain, Great Britain, the USA, Brazil, China and India – makes RadiciGroup Plastics a truly global organization, capable of meeting the needs of its customers worldwide on a timely basis. WWW.RADICIGROUP.COM/PLASTICS

RADICIGROUP. Production and sales sites in Europe, North America, South America and Asia. Diversified businesses focusing on chemicals, plastics, synthetic fibres and nonwovens. Know-how. Vertically integrated nylon production. Constant commitment to guaranteeing its customers quality, sustainable innovation and reliability. All this is RadiciGroup, a leader in nylon chemicals. RadiciGroup products are used in applications such as: **APPAREL – FURNISHINGS – AUTOMOTIVE – CONSUMER GOODS – CONSTRUCTION – ELECTRICAL AND ELECTRONICS – HOUSEHOLD APPLIANCES – SPORT.** RadiciGroup, with its Chemicals, Plastics, Synthetic Fibres and Nonwovens Business Areas, is part of a larger industrial group that also includes textile machinery and energy businesses.

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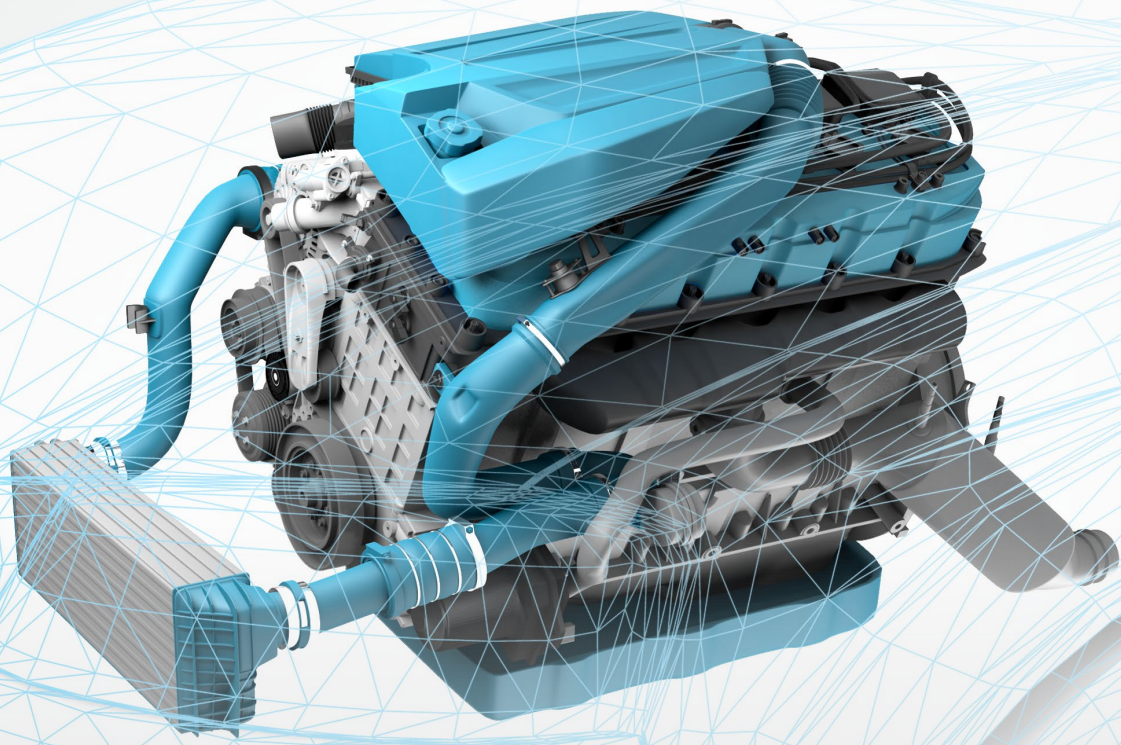
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ENGINE-PROOF POLYAMIDES THAT REALLY TAKE THE HEAT

Radilon® HHR and Radilon® XTreme.



RADILON® enhanced heat-resistant specialties, from the more traditional **HHR nylon 6.6** engineering polymers, featuring excellent high heat-ageing resistance at air temperatures of up to **210°C**, to the new **RADILON® XTreme** line developed for hot-air applications at continuous service temperatures of up to **230°C**.

