

Bergamo, 17 July 2015

Radici Novacips SpA measures and discloses the environmental impact of its HERAMID® products: two new EPDs published.

*Radici Novacips SpA, head company of the RadiciGroup Plastics Business Area, has chalked up another important achievement in sustainability: the company has developed and published an **Environmental Product Declaration (EPD)** for its **HERAMID® post-industrial PA6 and PA6.6 engineering plastics** and an **EPD for its polyamide scrap recovery service (which supplies secondary raw material for HERAMID® production)**.*



Concrete commitment, transparency and clarity on sustainability issues have yielded another important result for RadiciGroup. After obtaining Environmental Product Declaration Process Certification for its EPD compilation and internal verification system and publishing EPDs for its PA6 and PA6.6 engineering plastics – Radilon® S and Radilon® A respectively–, Radici Novacips SpA has measured and disclosed the environmental impact of both its HERAMID® post-industrial engineering plastics and its polyamide waste and scrap recovery service. The latter process produces the secondary raw material used in the production of HERAMID® products.

The two new Radici Novacips SpA EPDs – [HERAMID® EPD](#) and [Polyamide waste recovery service EPD](#), registered and published on the Environdec website – are further proof of RadiciGroup’s putting its consistent commitment to transparency on sustainability issues into practice, specifically on matters of objective measurement and disclosure of the environmental impact of its products and services. “We previously announced this important step last May, on the occasion of the PLAST international plastics and rubber exhibition,” said **Cesare Clausi**, *Europe business manager of the RadiciGroup Plastics Business Area*. “Now, we have officially concluded the compilation and publication of all the documentation and can make all the information available to our stakeholders – foremost, the market and our customers. This way they can view objective data regarding the environmental impact of our HERAMID® post-industrial engineering polymers.”

“We have also measured the environmental impact of our polyamide scrap mechanical recovery service,” Mr. Clausi continued, “and we are the first to do it scientifically and publish a related EPD. This means that we have objective and assured data on the environmental impact of the secondary raw material used for the production of our Heramid® line. These data speak clearly and indicate that the impact of the mechanical recovery of plastics on the environment is marginal, lower than other recovery methods such as depolymerization. Products such as our HERAMID®s prove that the plastics industry can produce materials with a good technical performance to environmental impact ratio.”



HERAMID®... is the RadiciGroup brand name for its post-industrial PA6 and PA6.6 engineering plastics, ideal for automotive, electrical/electronics and industrial applications.



HERAMID® products combine good technical performance with reduced environmental impact, as they are plastic compounds made from secondary raw material obtained from the recovery of industrial waste and scrap produced by the RadiciGroup polymerization and compounding plants. RadiciGroup’s distinctive vertical integration in polyamide production allows for total control over its products and processes: from upstream (polyamide polymer production) to downstream (engineering polymers, synthetic fibres and nonwovens). These are the processes generating the polyamide scrap recovered by Radici Novacips SpA, which is then treated and recycled to become secondary raw material for the HERAMID® production process. (Additionally, HERAMID® involves “sustainable recovery” in logistics terms, because the production sites producing the waste are all located just a few kilometres away from Radici Novacips).

In 2013, RadiciGroup created Product Category Rules (PCRs) for its production chain that were validated by the International EPD System and have become an international reference and model for any industry operator who wants to measure the environmental performance of products belonging to this specific production chain.

What is an EPD?... An EPD is a certified Environmental Product Declaration that reports quantitative data on the environmental performance of a single product. **Objectivity, comparability** and **credibility** are the distinctive features of an EPD:

- **OBJECTIVITY** – The indicators of the environmental impact of a product are calculated based on a **Life Cycle Assessment (LCA)** carried out in accordance with the ISO 14040 standard.
- **COMPARABILITY** – Specific *Product Category Rules (PCR)* are created for each product group. A PCR document is developed in an open consultation and defines the rules on how to carry out an LCA study and how to present the environmental performance data for a product in an EPD format.
- **CREDIBILITY** – To be published, an EPD must be validated by an approved independent party that verifies the correctness of the LCA and the information, as well as the conformity of the EPD to the rules of the relevant PCR.

EPD - Polyamide scrap recovery service

The environmental performance of the polyamide scrap recovery service was measured by conducting an LCA in accordance with ISO 14040 and the calculation rules in **PCR 2013:08 PLASTIC WASTE AND SCRAP RECOVERY (RECYCLING) SERVICES**, approved by the technical committee of the International EPD system. The system boundaries included the waste collection phase (**upstream processes**), the pre-treatment and treatment phases (**core processes**).

The secondary raw material obtained through the scrap recovery service is 100% made of post-industrial recycled waste. Table (A) shows the environmental impact category values per kilogram of secondary raw material obtained.

Table (A)

Impact Category	Unit	Upstream Processes	Core Processes	Total
Global warming (GWP)	kg CO ₂ eq	0.008830	0.439000	0.448000
Photochemical ozone creation	kg C ₂ H ₄ eq	0.000002	0.000085	0.000086
Acidification	kg SO ₂ eq	0.000042	0.001770	0.001810
Eutrophication	kg PO ₄ ³⁻ eq	0.000008	0.000351	0.000359

GLOBAL WARMING POTENTIAL (GWP): The global warming potential (also called carbon footprint) is given as the total of the greenhouse gas emissions during the entire life of a product. It is expressed in mass of CO₂ equivalent.

PHOTOCHEMICAL OZONE CREATION POTENTIAL (POCP): Photochemical ozone creation is the production of compounds that, in the presence of light, may promote an oxidation reaction leading to the production of ozone in the troposphere. This indicator is expressed in mass of ethylene (C₂H₄) equivalent.

ACIDIFICATION POTENTIAL (AP): Acidification is a phenomenon caused by the emission into air of acid gases such as SO₂, NO_x and NH₃. These acid gases are taken up by atmospheric precipitation which, as a result, has a lower than normal pH and may cause damage to forests, crops and aquatic ecosystems. This indicator is expressed in mass of SO₂ equivalent.

EUTROPHICATION POTENTIAL (EP): Eutrophication arises from an increase in the concentration of nutrients in an aquatic system. The eutrophication potential is mainly due to the discharge of phosphates and nitrates into a water environment. This indicator is expressed in mass of PO₄ equivalent.

EPD - HERAMID®...

The environmental performance of HERAMID® products was measured by conducting a Life Cycle Assessment (LCA). The system boundaries included the pre-production phase (**upstream processes**), the compound production phase from cradle to gate (**core processes**), and the finished product distribution phase (**downstream processes**). The LCA was conducted in accordance with ISO 14040 and the calculation rules of **PCR 2010:16 PLASTICS IN PRIMARY FORM**, approved by the technical committee of the International EPD system.

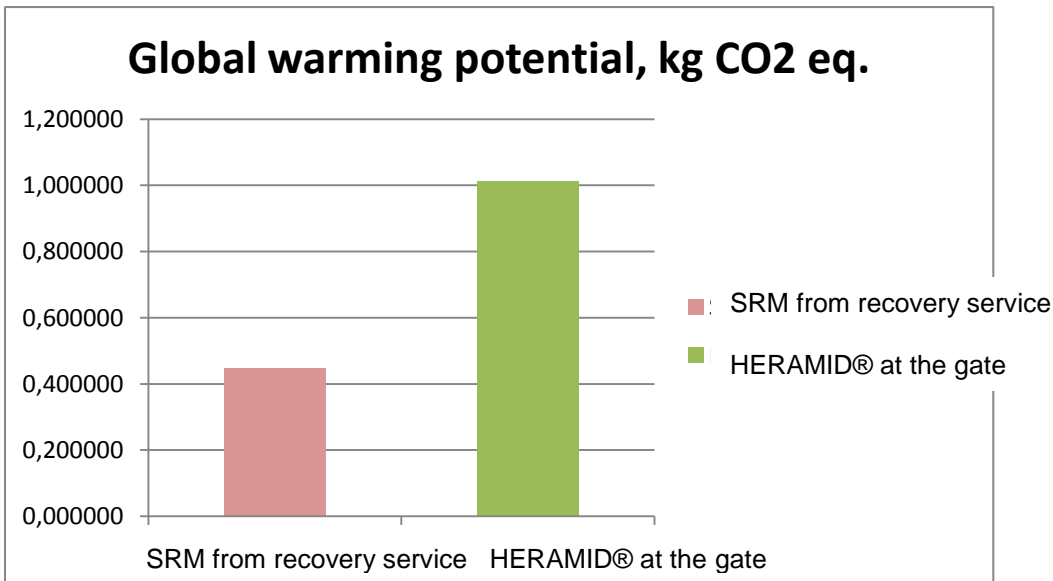
Table B shows the environmental impact category values per kilogram of HERAMID® GF 030 (FINISHED PRODUCT).

Table B

Impact Category	Unit	Upstream Processes	Core Processes	Heramid® at the Gate	Downstream Processes	Total
Global warming (GWP)	kg CO ₂ eq	0.469755	0.543422	1.013177	0.200082	1.213259
Photochemical ozone creation	kg C ₂ H ₄ eq	0.000145	0.000111	0.000257	0.000037	0.000294
Acidification	kg SO ₂ eq	0.003651	0.002311	0.005961	0.001027	0.006988
Eutrophication	kg PO ₄ ³⁻ eq	0.000570	0.000778	0.001348	0.000183	0.001532

Graph© shows the global warming potential values per kg of Secondary Raw Material (SRM) produced by the scrap recovery service and per kg of HERAMID® finished product at the gate.

Graph©



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SUSTAINABILITY FOR RADICIGROUP...

"I am firmly convinced that consistency and concrete action, which have always distinguished the RadiciGroup approach to sustainability, are an added value to our business, our customers and all our other stakeholders. A plus that is likely to become even more significant in the future." Angelo Radici, President of RadiciGroup"

In all its businesses – from chemicals to plastics, synthetic fibres and nonwovens –, RadiciGroup has adopted an approach to sustainability based on systemic and rigorous measurement of **environmental, economic and social performance** indicators, as per the guidelines of the *Global Reporting Initiative (GRI)*, the most influential world organization in the field of non-financial reporting. Since **2004**, the year of publication of its first Social Report, RadiciGroup has continued to advance and improve its method of communicating with stakeholders. RadiciGroup has widened the system boundaries of its Corporate Social Responsibility reporting and made the communication of its activities and achievements in this field more transparent (*all the RadiciGroup Sustainability Reports, published from 2004 to 2014, are available on the Group website and can be accessed from the page [SUSTAINABILITY](#)*).

Radici Novacips SpA measures and discloses the environmental impact of its HERAMID® products

Rigorous measurement of the environmental impact of its products: a fundamental component of RadiciGroup's approach to sustainability.

One of the Group's main objectives is to provide its stakeholders – in the first place, the market and customers – with objective and scientific data and information on the environmental impact of its products, that is, data that are verifiable and truly comparable and useful for the eco-design of new materials, which must be tightly linked with product performance. To this end, RadiciGroup has decided to report its product environmental data and environmental impact by compiling Environmental Product Declarations (EPDs). The data disclosed in an EPD are environmental parameter quantities obtained by carrying out a Life Cycle Assessment (LCA) in accordance with the principles of the framework defined in the international standard ISO 14040. In this endeavour, it was crucially important for RadiciGroup to develop and define **specific Product Category Rules (PCRs) for its plastics and synthetic fibres production chain**: polymers, engineering plastics, synthetic fibres and nonwovens. RadiciGroup was the first industrial group to introduce the concept of a “production chain PCR” and to define and develop such PCRs. Today, these PCRs, validated by the International EPD System, have become an international model for any operator who wants to measure and report the environmental impact of products belonging to the same chain. The development and validation of the production chain PCRs (October 2013) was a significant step, which was followed by other important achievements in the area of rigorous and systemic measurement of environmental impact.

- **November 2013:** RadiciGroup was the first chemical Group in Europe with a company – Radici Chimica SpA – to be awarded Product Environmental Footprint (PEF) and Organisation Environmental Footprint (OEF) Statements of Compliance. Radici Chimica SpA is testing the PEF methodology, introduced by the European Commission, with its polymers (Radipol®) and chemical intermediates (Radichem®).

To learn more... [PRESS RELEASE](#)

- **June 2014:** Radici Novacips SpA, a RadiciGroup company, obtained EPD Process Certification for its internal EPD compilation and verification system. It also compiled and published an EPD for its Radilon® S and A, nylon 6 and 6.6 engineering plastics.

To learn more... [PRESS RELEASE](#)

- **July 2014:** RadiciGroup was the first European group – with Radici Novacips SpA – to test the PEF methodology for calculating the environmental footprint of its products, supplementing the EPDs compiled in accordance with the production chain PCRs defined in 2013. PEFs were calculated for Radilon® A PA6.6 engineering plastics.
To learn more... [PRESS RELEASE](#)
- **July 2015:** Radici Novacips SpA, a RadiciGroup company, compiled and published two more EPDs: one for its HERAMID® range of PA6 and PA6.6 post-industrial engineering plastics and another for its polyamide scrap recovery service.

RadiciGroup's sustainable product strategy follows a three-pronged approach: **1)** biopolymers, in particular biopolyamides produced with materials partially or totally obtained from renewable resources; **2)** post-industrial recycling; and **3)** eco-design, a new approach to product design. Eco-design must begin upstream of the production process and include all the processing stages down to the finished product. Keeping an eye on recycling potential from the start is the only way to design sustainable materials with no need for industrial processes requiring excessive consumption of energy further downstream.

A few of the most significant figures from our latest Sustainability Report are available on our website

[RadiciGroup Sustainability Report 2013 - Key Elements](#)

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. 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.

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