

## Bio-on chooses Siemens control and supervisory systems to develop Industry 4.0 in the bioplastic sector

- **Bio-on's new production hub has begun producing bioplastic with a Siemens control and supervisory system**
- **The new Bio-on plant was created innovatively, beginning with a digital twin that enabled prototyping and virtual simulation before actual production began**
- **Real-time generation and analysis of production process data enables accurate control over the process and ensures faster, more accurate decisions can be taken**
- **The plant's objectives include eliminating errors and increasing efficiency in bioplastic production, exceeding current market standards**

**Bio-on** S.p.A., listed on the AIM segment of Borsa Italiana and operating in the high quality, 100% natural and biodegradable bioplastic sector, has chosen **Siemens** automation and plant control and management systems for its bioplastic production plant at Castel San Pietro Terme, near Bologna (Italy). With the goal of making the production process more efficient and eliminating errors, the hub looks set to be one of the best examples of Industry 4.0 in the green chemicals and PHAs (polyhydroxyalkanoates) bioplastic sector.

*“Bio-on is a wonderful example of industry finding a way of being sustainable with plastic,”* says **Giuliano Busetto, Country Division Lead Digital Factory and Process Industries and Drives at Siemens Italia and Administrator of Siemens Industrial Software Srl.** *“Industry*

*can benefit the country's sustainability through the natural production of biodegradable biopolymers. We are proud to support the development of this industry through our innovative technology, through integration between the world of automation, process control and Information Technology, through our industrial software platforms, bolstered by our unique positioning throughout the life cycle of the production process.”*

Bio-on's innovative idea was to build, with the support of Siemens, a digital model of the plant (the so-called *digital twin*), placing automation and data at the heart of the design. “*The domination of steel over software should end,*” says **Bio-on Chairman and CEO Marco Astorri**. “*Industrial design must be centred on automation because only then can true efficiency be achieved, not just in energy terms but also plant optimisation. We are confident that this collaboration with Siemens can be extended to all our new bioplastic production plants built in the future around the world.*” The Castel San Pietro Terme plant design started out with plant management and automation systems before moving on to plant engineering and service structures. This process makes a major contribution towards changing the mentality of designers and creating new cross-sector skills among engineers.

Siemens' supervision, control and automation technologies are at the heart of the plant that Bio-on recently opened in Italy - the world's first plant producing special bioplastics for cosmetics uses: biopolymer micro-spheres made by fermenting non-pathogenic bacteria fed on plant waste (sugar beet, glycerol, fruit, potatoes and sugar cane waste); a 100% natural and sustainable supply chain with zero impact on the environment.

All the PHAs bioplastics developed by Bio-on are made from renewable plant sources with no competition with food supply chains. They can replace a number of conventional polymers currently made with petrochemical processes using hydrocarbons; they enable the same thermo-mechanical properties as conventional plastics with the advantage of being completely eco-sustainable and 100% naturally biodegradable.

### **The technology behind the plant**

Siemens control and supervisory systems ensures a number of advantages in plant management, in terms of production, economic, energy, production chain reliability, environmental and, last but not least, security. These systems enhance the skills and experience of the technicians overseeing the production process and, using data generated by the machines, can take accurate decisions based on real information. This helps reduce or eliminate errors and achieve extremely high production standards.

Bio-on has entrusted process control at its Castel San Pietro Terme plant and automation management to the Siemens Simatic PCS7 DCS in order to ensure more effective programming. The process data archiving system, built into the PCS7 and called MIS (Management Information System), provides real-time analysis and evaluation to optimise production over the short and long term. An MIS acquires process data, laboratory analysis data, data on fuel consumption, efficiency, wear and tear of components, etc. and makes it available for display in various significant and intuitive graphic forms. This data can be shared in a network in the form of daily, weekly or monthly summary tables and is used to generate trends and reports.

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**Bio-on S.p.A.**, an Italian Intellectual Property Company (IPC), operates in the bioplastic sector conducting applied research and development of modern bio-fermentation technologies in the field of eco-sustainable and completely naturally biodegradable materials. In particular, Bio-on develops industrial applications through the creation of product characterisations, components and plastic items. Since February 2015, Bio-on S.p.A. has also been operating in the development of natural and sustainable chemicals for the future. Bio-on has developed an exclusive process for the production of a family of polymers called PHAs (polyhydroxyalkanoates) from agricultural waste (including molasses and sugar cane and sugar beet syrups). The bioplastic produced in this way is able to replace the main families of conventional plastics in terms of performance, thermo-mechanical properties and versatility. Bio-on PHAs is a bioplastic that can be classified as 100% natural and completely biodegradable: this has been certified by Vincotte and by USDA (United States Department of Agriculture). The Issuer's strategy envisages the marketing of licenses for PHAs production and related ancillary services, the development of R&D (also through new collaborations with universities, research centres and industrial partners), as well as the realisation of industrial plants designed by Bio-on. Website: [www.bio-on.it](http://www.bio-on.it)