

# Versalis enters next phase of growth

Eyeing cumene plant in Italy, global petchem investments with Eni

▶ **Natasha Alperowicz**

**V**ersalis (Milan, Italy), the wholly-owned chemical subsidiary of Eni (Rome), is entering a new phase of growth after drastic restructuring in Italy and the commissioning of a major elastomers



joint venture (JV) with Lotte Group (Seoul) in South Korea—Versalis's first manufacturing complex outside Europe.

In 2011, Versalis's predecessor company, Polimeri Europa, announced a program to "right-size" its operations, and in 2012 it changed its name to Versalis. Daniele Ferrari, CEO throughout this period, presided over the transformation, which saw the company rebound from years of heavy losses to a profit in 2015, a year ahead of schedule. And 2017 was the third consecutive year in which Versalis achieved a significant rise in adjusted

**Versalis will continue its transformation with partners and with parent Eni.**

**Daniele Ferrari, CEO, Versalis**

operating profit (EBIT).

A major landmark in Versalis's recent history was the decision in 2016 by energy group Eni not to divest the company, which had been on the block for some time. Eni's about-face, which came after talks with private equity group SK Capital Partners collapsed, was formally confirmed when Versalis was declared a "not-for-sale" asset in the Eni accounts. Eni, together with other international energy groups, is now eyeing worldwide investments in integrated petrochemical projects to extract the maximum value from hydrocarbons in the current subdued oil price environment. Versalis is expected to play a major role in this strategy, with one major project being studied in Algeria and others in the pipeline.

Ferrari, in an exclusive interview with *CW*, confirmed recently that Versalis would continue its transformation in partnership with international petchem players and also with Eni in large integrated projects. "Versalis is a company with an Italian soul but a global vision," Ferrari said.

With 2016 revenue of €4.2 billion (\$5.0 billion), Versalis is a significant international player in intermediates, polyethylene (PE),

styrenics, and elastomers. It is also increasingly active in renewables, with several projects on the horizon. However, most of its revenue—about 90% in 2016—is in Europe. Ferrari says that the newly completed elastomers JV with Lotte in South Korea will help Versalis to meet a target of deriving 30% of its revenue from outside Europe by 2022, the end of the company's current four-year plan. The target includes exports from existing operations as well as a proposed second phase of the South Korean JV.

Versalis and Lotte inaugurated Lotte Versalis Elastomers, an equally owned JV, at Yeosu in November 2017. The complex is designed to produce 200,000 metric tons/year of elastomers, including 100,000 metric tons/year of ethylene-propylene-diene monomer (EPDM) and 100,000 metric tons/year of solution-styrene butadiene rubber (SBR). The JV, which is based on Versalis technology, targets Asia's tires, automotive applications, and technical goods markets. Lotte provides the complex with back-integration to petchem building block raw materials, as well as utilities and infrastructure facilities. "This achievement is an important milestone in Versalis's international development strategy, which leverages valuable proprietary technologies and strengthens our leading position in the global elastomers market," Ferrari says.

The proposed second phase of investment at Yeosu, which Versalis and Lotte are discussing, includes a project to add 50,000 metric tons/year of styrene-isoprene-styrene and styrene-butadiene-styrene capacity. A final investment decision will be made in the next few months, Ferrari says.

However, it is the big project in Algeria—a proposed massive integrated petchem complex with Eni and Algerian state energy group Sonatrach (Algiers)—that is attracting the most attention. "We are continuing with a feasibility study to build a petrochemicals complex in Algeria in partnership with Sonatrach," Ferrari says. "This would be a fully integrated Eni project, so we are talking about oil and gas, refining, and petrochemicals, with most of the petrochemical technologies supplied by Versalis." The complex would be centered on a world-scale steam cracker, based mainly on LPG and ethane.

Versalis has also signed an agreement with

Mazrui Energy Services (Abu Dhabi) to develop an oilfield chemicals production base in Abu Dhabi. Versalis makes a full range of oilfield chemicals at its Mantua, Italy, complex—a business that Ferrari says was developed in record time. Mazrui is “blending our chemicals and preparing tailor-made formulations that are needed in the Middle East. We will offer an integrated portfolio for drilling, production, and enhanced oil recovery,” he says. Some of the chemicals will come from Italy and some will be sourced locally, he adds.

Other international initiatives include the development of green tires with the Mesnac Group, a China-based rubber and tire machinery company, together with Mesnac’s local affiliates Ecombine and EVE Rubber Institute. The aim is to develop technology and produce a new range of tire elastomers with improved mechanical performance and lower environmental impact. Versalis currently markets emulsion SBR in China from Reliance Industries’ 140,000-metric tons/year plant at Hazira, India, which is based on Versalis technology.

Versalis has also expressed interest in the past in producing elastomers in the United States, and Ferrari says it is still looking for potential partners. The company established a new trading company in 2016, Versalis Americas (Houston, Texas), to reinforce its presence in the United States, notably in the elastomers market. A partnership in styrenics could also be a possibility, Ferrari says.

Versalis is not neglecting its operations in Europe, however. “We are primarily a European business, and in order to survive in Europe, we need to be more efficient and differentiated, and in our existing businesses we need to specialize more and more,” Ferrari says. After years of relative inactivity, Western Europe is undergoing something of an investment renaissance, based on the renewed global competitiveness of oil-based petchem operations. Several companies have announced investments in downstream projects, as well as propane dehydrogenation plants, to take advantage of lower feedstock costs and the improved market environment.

Ferrari tells *CW* that Versalis is planning to build a world-scale cumene plant in Italy. “This project will be at Priolo and it will feed our phenol-acetone complex at Mantua,” he says. The plant will be designed to produce about 400,000 metric tons/year of cumene and use proprietary technology. Versalis currently sources cumene from a



**NEW KID ON THE BLOCK:** Just-completed elastomers JV at Yeosu, Versalis’s first complex outside Europe.



**BIG ACHIEVEMENT:** Inauguration of a world-scale synthetic rubber and elastomers complex, with more to come.

300,000-metric tons/year plant at Lukoil’s (Moscow) ISAB refinery at Priolo, which Lukoil has put up for sale. “We want to have our own cumene feedstock, and the project confirms our commitment to the phenol-acetone chain,” Ferrari says. The new unit would enable Versalis to increase phenol production at Mantua, the only site where it makes the product, by 30%. The company declines to reveal its current phenol capacity.

Versalis’s three major petchem complexes—at Priolo, Sicily; Porto Torres, Sardinia; and Porto Marghera, near Venice—were its biggest money-losers until 2012. All three have undergone major restructuring. At Priolo, Versalis slashed ethylene capacity from 790,000 metric tons/year to 490,000 metric tons/year and discontinued PE production.

The company is now taking advantage of its surplus ethylene capacity, mainly at Porto Marghera, and renewed global competitiveness to supply international markets. About one-third of the ethylene produced by Versalis at Porto Marghera, Brindisi, and Priolo is sold under separate contracts with

three undisclosed companies. The product is sold to Asian customers. These contracts, signed in 2015–16, have duration of between three and five years. The rest is consumed internally. Ferrari says that Versalis will review the situation when the contracts expire, and may invest in new ethylene-consuming projects at Porto Marghera or Priolo. If the PE market remains favorable, Versalis could even build new capacity at Priolo, where it ceased PE production almost five years ago, he says.

The large Porto Marghera complex, with an ethylene capacity of 490,000 metric tons/year, is integrated with several other manufacturing operations in northern Italy, in a network that Ferrari calls Versalis’s small Verbund [full integration]. Pipeline and barge connections link the complex with Versalis’s Ravenna, Ferrara, and Mantua sites. At Ferrara, Versalis will complete an EPDM expansion at the end of the first quarter, adding 50,000 metric tons/year of capacity and revamping the existing complex, which will increase the site’s EPDM capacity to 150,000 metric tons/year.

Porto Marghera was saved from permanent closure in 2015 by a number of outages at several ethylene plants elsewhere in Europe. The Porto Marghera complex is now undergoing a transformation, which includes optimizing its plants and infrastructure, to make it more sustainable in the medium- and long term. About €23 million was invested in Porto Marghera’s cracker and aromatics units during a turnaround in September–October 2017. A separate €50-million project to replace two of the site’s boilers is under way, with the entire overhaul aimed at increasing the complex’s efficiency and integration.

However, the collapse in oil prices in 2014 led to a major project at Versalis’s Dunkirk, France, site being put on hold. The company was considering converting the complex’s ethylene plant to consume ethane imported from the United States, but shelved the project during the oil price rout. “We have the engineering ready for conversion, but we are not doing this in the current economic climate. Should the situation change in the future, we will be ready to convert,” Ferrari says. Dunkirk is a fully-integrated site based on naphtha and LPG that consumes all of its ethylene output internally. Its cracker also produces valuable C4 and C6 fractions. The most recent project at the complex was the addition of a 220,000-metric ton/year plant for low-density polyethylene-ethylene vinyl

acetate copolymers in 2011.

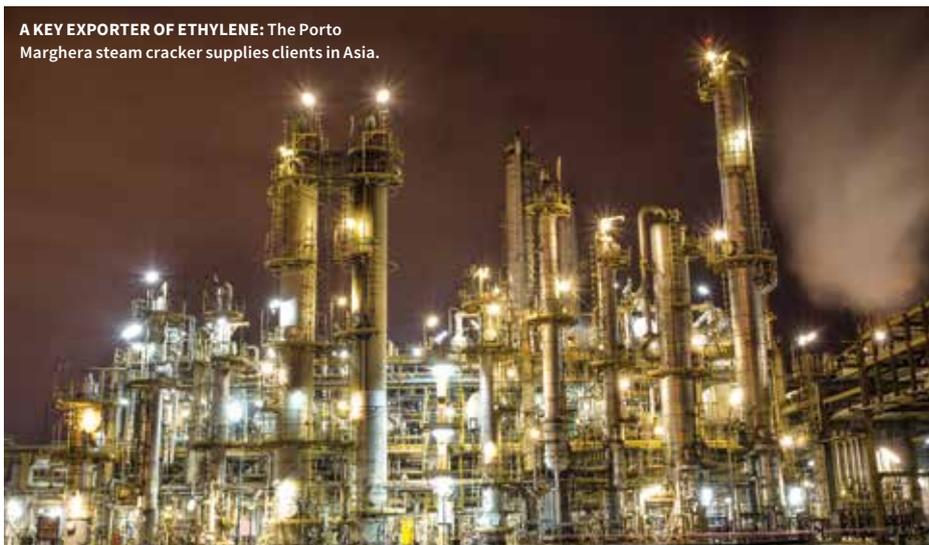
As part of its restructuring, Versalis has also made major inroads into green chemistry. In 2011, it formed Matrìca, an equally owned JV with Novamont (Novara, Italy), a producer of biodegradable plastics. Matrìca uses vegetable oils to produce monomers and intermediates, including azelaic and pelargonic acids, at Porto Torres, a former Versalis petchem site that made ethylene, aromatics, and PE. Matrìca's nameplate capacity is 70,000 metric tons/year. Its products are being qualified by customers for use in bioplastics, biolubricants, personal-care applications, detergent additives, and other products. Ferrari says that Versalis and Novamont are evaluating the next phase of Matrìca's capacity expansion.

Matrìca scored a major success recently when the crop protection producer Belchim (Londerzeel, Belgium) approved the use of Matrìca's pelargonic acid as a substitute for glyphosate, the world's most widely used agricultural chemical. Glyphosate, a nonselective herbicide, is under scrutiny throughout the world for what critics claim are its toxic and carcinogenic effects.

Separately, Versalis and biobased chemical firm Genomatica (San Diego, California) have been collaborating in a technology partnership, owned 80% by Versalis and 20% by Genomatica, to produce biobutadiene from sugars. The process is being tested on a pilot plant at Genomatica's San Diego facility. "We have also tested this biomonomer for downstream polymerization, proving its suitability to produce high-performance, first-in-kind biobutadiene-based polymers," Ferrari says. Versalis is looking for partners to build a demonstration plant, he says.

Versalis is also planning to use guayule, a renewable industrial crop, to produce natural rubber and terpene resins. Versalis has since 2013 been growing the desert shrub on experimental fields in southern Italy, testing different climatic conditions to ensure sustainable local cultivation. It is focused on several technologies, including water and solvent extraction of the guayule plant to target different rubber qualities for different applications, and to exploit the value of residual bagasse with proprietary saccharification technology. "In parallel, we are working to develop and assess where guayule products—natural rubber, resins, and micronized residual bagasse—can give considerable advantages compared to traditional products, for example in medical applications thanks to its hypoallergenic properties, development of green tires, resins for wood protection, adhesives, etc.,"

**A KEY EXPORTER OF ETHYLENE:** The Porto Marghera steam cracker supplies clients in Asia.



**RESTRUCTURED SITE:** Priolo is likely to see more investments, including cumene and possibly a return to polyethylene production.



Ferrari says.

Another major focus for Versalis is the circular economy. "We have established a dedicated circular-economy team to monitor initiatives in the field of environmental sustainability, identify impacts and opportunities, and coordinate and promote targeted actions to contribute to the objectives of circularity and resource efficiency," Ferrari says. Versalis has defined four pillars, strictly connected to innovation, that should be considered while exploring how to further improve the circularity of chemicals and plastics—life-cycle perspective, feedstock diversification, product innovation and eco-design, and polymer recycling.

The company is developing projects under all of these initiatives. "For example, we are promoting an eco-pallet project, with the aim to produce and use pallets made of recycled heterogeneous plastic material from industrial scrap of paper mills. In the first step

of the industrial trial, we will use the eco-pallets for the transportation of polyethylene, particularly for pharma applications, at the Brindisi (Italy) site," Ferrari says. The company is also developing a process for chemical recycling of polystyrene, but Ferrari says it is too early to give details. "In other technologies, we are evaluating chemical recycling of rubber from tires. These initiatives could be implemented at Matrìca, in addition to the expansion of the existing units," he adds.

Versalis performed well in 2017. The company recorded sales in the first nine months of €3.7 billion and adjusted EBIT of €423 million. It expects 2017 to be much better than 2016, with record full-year results. Sales and earnings will be disclosed as part of the Eni 2017 financial statement on 16 February. "2017 is the third year in a row that we have been profitable on a cash basis as well, and with that cash we are financing our own investments," Ferrari says. ■