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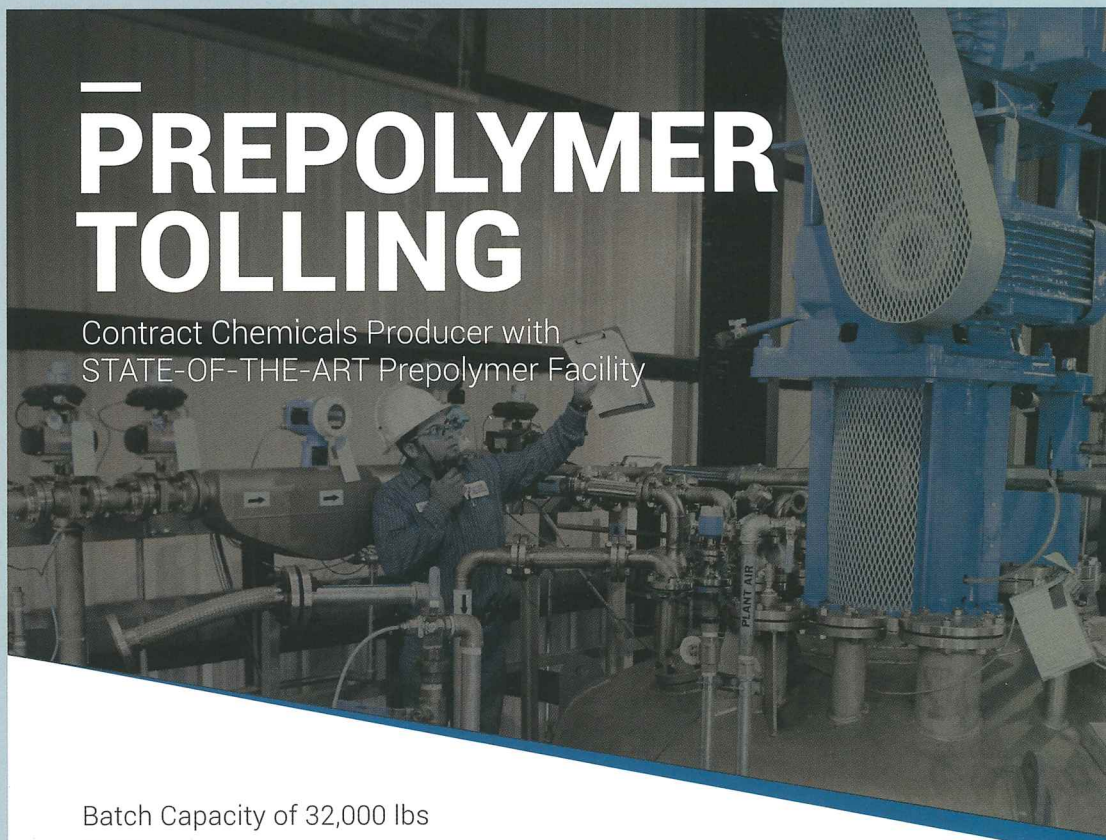
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The colourful world of Repi

Factory tour at the Repi headquarters in Lonate Ceppino, Italy

During a visit at the Repi headquarters in Lonate Ceppino, a small village close to Milan, Italy, we had a chance to gain insights into the company Repi, its product portfolio, its production facilities, and the way the company is performing research and development. The world of Repi presented itself impressively colourful from application labs to the production area.



The headquarters of Repi in Lonate Ceppino, Italy

Company profile

Repi was born in 1973 from the insight and inspiration of the founder and his family in developing and producing colourants and additives in liquid form for plastics.

Study, experimentation, and dedication along with a forward-looking vision led the company to be among the world leaders in the industry. Today, Repi is a global supplier, with facilities in Italy, the USA, UK, and Russia. Globally, Repi has about 125 employees, most of them being located in the headquarters in Italy. Cutting edge R&D as well as prototyping departments are consolidated in Italy and in the USA. Local partners cover the five continents with their commercial activities and a comprehensive network in more than 80 countries.

Repi's strength lies not only in a variety of product ranges, which fully cater to the needs of diverse industries and applications, but also in its continuous research

into new materials, the extensive know-how and process expertise of the technical team in dealing with special requests, in its ongoing training on dosing equipment and products, and in the assistance and support provided by the sales and marketing departments. A key success factor for Repi is its flexibility to produce also small quantity amounts for trials. These are especially re-

The "Colour Kitchen" allows to dose up to 48 different components from each dispensing head



quested by designers in the fashion industry, e.g., footwear.

Key industries

Today, the key industries for Repi's products are polyurethanes and thermoplastics. In the area of polyurethanes that make about 62 % turnover ratio, nearly all applications are covered from flexible foams and integral foams for furniture, bedding and the automotive industry to elastomers for footwear, flooring and CASE. In the footwear industry, one of the main applications for colours, Repi is proud of supplying very well-known global brands.

About 38 % turnover ratio come from thermoplastics with its main application PET preforms for bottles as well as for rigid containers and injection moulded parts. Also in these industries, Repi is one of the leading global suppliers for colours and additives.

This diversification into two business lines has been one of the key success factors for Repi to overcome the recession in 2008/2009 when sales decreased by only 16 %, significantly less than the PU industry itself.

Product portfolio

Repi is one of the leading global suppliers of high performance liquid colours and additives based on pigments. However, the company does not only supply colours, but also the corresponding dosing equipment for

polyurethanes and thermoplastics belongs to its portfolio. These dosing systems can handle, e.g., colour additives very accurate in small quantities down to 0.001 % of the total formulation. Innovative colour formulations and speciality additives are continuously developed to improve end-product performance, enhance aesthetics, performance and ensure excellent dispersion. R&D specialists apply their extensive experience in plastic applications for new developments of OEMs and brand owners. The technical service team provides worldwide support for trials and onsite training.

The Colour Kitchen

A crucial part of the production of Repi's colours is the so-called "Colour Kitchen". This is an equipment where a certain number of basic colours is stored in tanks with a recirculation system, and through pumps, pipes and valves these basic colours are dosed following a specific formulation.

The tank which will contain the final product is placed on a scale connected to a computer controlling the exact dosing of each component. After moving to the new factory in 1998, the original colour kitchen has been improved with the addition of different dispensing heads, thus allowing the possibility to dose up to 48 different components from each dispensing head.

Furthermore, this equipment is also used to dose all carriers, which are stored in silos

with a capacity of total 300 t, while additives are contained in smaller tanks. This means that, any time a quantity of product is required, as an example composed by four different basic colours and three additives, just the code number of the product and the

All components have been dosed to the formulation (before mixing)



Source: I. Gupta

total quantity to be produced need to be entered into the computer system. The colour kitchen weighs the right quantity of each component with a precision of 1 g, giving back the final product in the required quantity and formulation. This system works fully automatically, giving the maximum production speed and precision.

The black planet

As colourful as the 5,000 t/y world of Repi is, we had to learn that nearly two-thirds of total production volume of colours are black. But black is not only one black: the portfolio

of black colours for polyurethane alone consists of more than 50 different types.

Repi has a production capacity of 12,000 kg per shift of blacks for polyurethanes. This production is made in a fully computerized automatic plant, where only a few people are handling the incoming carbon black and packing the final product.

The different types of carbon black, packed in big bags or in paper bags, are unloaded into a hopper and from there the carbon black powder is pneumatically loaded into stainless steel tanks, each one with a capacity of around 3,000 kg of carbon black. The paper bags are then going immediately under the hopper, into a compression system in order to get packed and disposed.

The production site is completed by mixers and horizontal and vertical pearl mills. The mixers are equipped with load cells connected to a computer system. The procedure is similar to the Colour Kitchen. All product formulations are saved in the computer to instruct the pumps to upload carriers and additives, coming from the storage, one after the other. Subsequently, the carbon black powder is pneumatically loaded into the tank and a time controlled blending system starts at different speeds, controlled by the computer as well. When the right blending is achieved, the black colour is milled in special vertical and horizontal pearl mills, the liquid is filtered and stored into another vacuum blender in order to homogenise the product and remove all the air bubbles.

This system gives a high consistency from batch to batch and a very high production capacity. "Our black production site seems to be the cleanest in the world handling carbon black", explains **Michael Rath**, Managing Director for Polyurethanes at Repi. Due to our visit, we can confirm this statement: if we weren't told that they produce black colours there, we wouldn't have believed it. Aside from the dominating role of black, the world of Repi presented itself impressively colourful with its application labs, production area, and the whole headquarter.



Source: Repi

Repi liquid colours produced in the "Colour Kitchen"