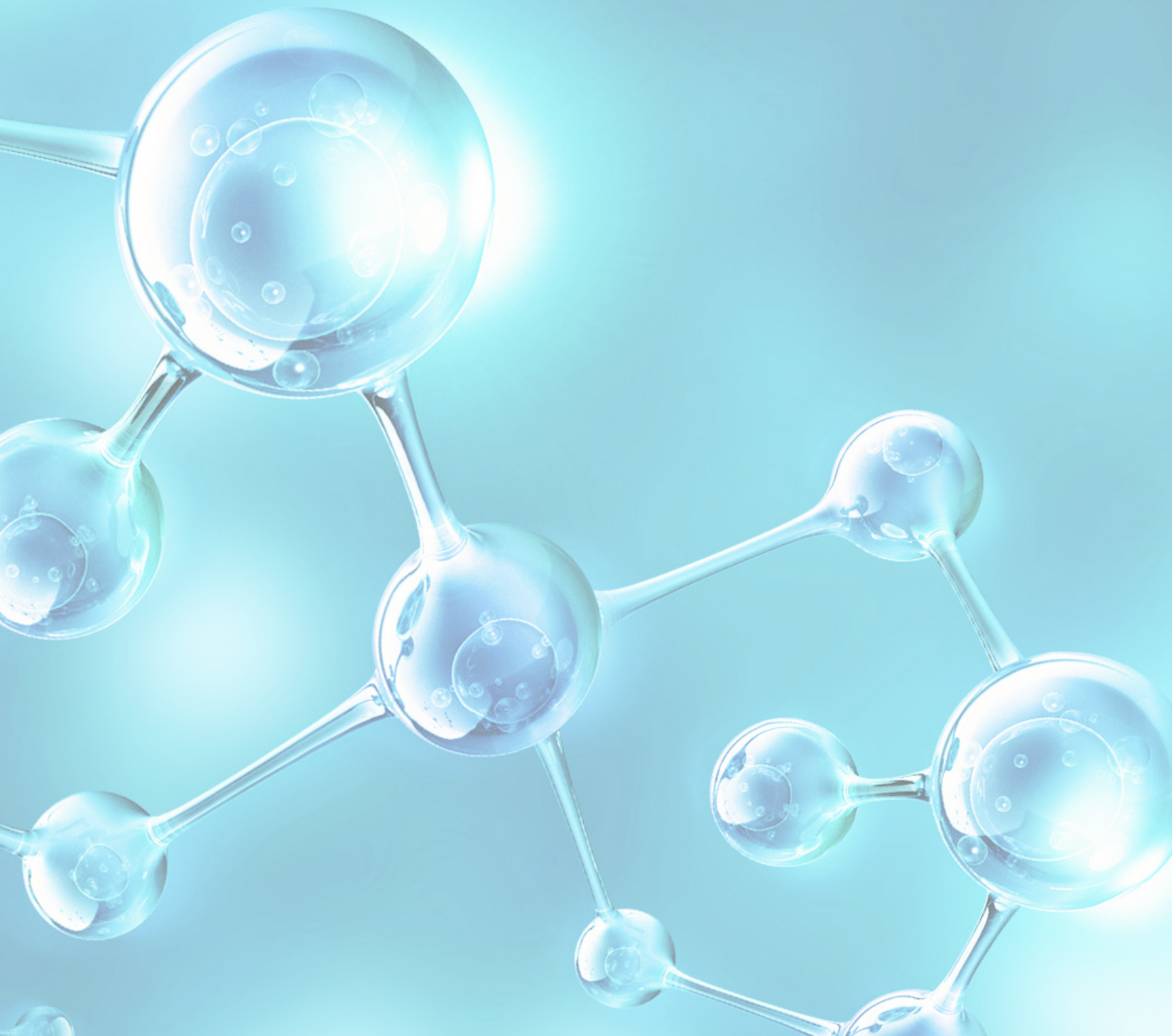
Polynt Group

Resins
Engineered stone



POLYNT COMPOSITES

Global leader
for thermoset composites

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Polynt Composites France S.A.

Polynt Composites Poland Sp. z o.o.

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Polynt SpA

Reichhold AS (NOR)

Reichhold UK Limited

Polynt Reichhold Group

After the merger on May 2017 the new Polynt-Reichhold Group is a global Company in the Intermediates, Coating and Composite Resins, Thermoset Compounds, Gel-coats and niche Specialties.

This combination enhances the Group's leading position as a global vertically integrated specialty chemicals player, with significant global presence in Europe, North America and Asia, a strategy initiated by Polynt with the successful integration of PCCR and CCP in the last years and now further reinforced by Reichhold's global scale, extensive product portfolio and R&D competencies.

Polynt-Reichhold Group is known for its superior quality and impressive range of products and with its excellent distribution network it can provide first-class service to customers whatever their market. Customer Service and Technical Service teams are renowned for their customer focus, offering the best service even after products have left manufacturing.

The Group strives to keep customers satisfied, assisting them in producing premium quality products every time they use its products.

Product innovation is important for the Group's business and it's the reason for which it constantly works with customers to find solutions to problems.

Introducing new or improved products ensures that Polynt-Reichhold Group continue not only to deliver what the market wants and needs, but also when it is wanted and needed.

Introduction to Engineered Stone

Engineered Stone / Agglomerated Stone represents one of the most important markets for UPR resins. They are a valid alternative of the use of natural stones providing new and innovative aesthetical and functional solutions in the building industry

The success for engineered stones materials which are continuously innovative in appearance is due to their advanced technical properties that can be designed upon end-user request making these products adaptable to modern design and construction and durable in time.

The two main technologies consist of the direct production of slabs with various thickness and dimensions in an automated plant or the production of solid blocks from which slabs are obtained by cutting. Products from both methods are largely used in flooring, walls, cladding, kitchens tops and bath furniture.
Polynt Group supplies resins for both technologies.

In this application the resin plays the important role of bonding agent of mineral fillers (quartz, granite, marble, etc) that are used in the mixture with a content that can be over 90% by weight. The resin contribute to mechanical, chemical, heat, stain and abrasion resistance of the final article so adhesion and compatibility with fillers is crucial as they must be bonded together to form an impenetrable non-porous material.

Even if the amount of resin is very low, the choice of the right formulation and its fine tuning is very important to guarantee good process flow from filler impregnation to curing, rectifying, cutting and polishing of the slabs.

The main characteristics of a resin for Engineered Stone can be summarized as following:

- Good filler wettability in order to maximize the filler content
- Very good adhesion to fillers and stones
- Guarantee of absence of cracks, distortions or tensioning during curing
- Good chemical and thermal resistance
- Low and consistent colour.

Polynt Group has a broad range of products in its portfolio for Engineered Stone / Agglomerated Stone application. In order to find the best product for your application, please check our product range description and summary table.

Polynt Group Production Range Description

Following the development strategy for these applications, Polynt Group offers an extremely versatile range of resins in order to meet manufacturer specifications while delivering superior performance.

Main products are described below.

DISTITRON 417 Series is an Orthophthalic resin suggested for blocks cured at room temperature. Due to its high viscosity it is recommended when high filler sizes are used (especially if exceeding 50 mm).

DISTITRON 5119 V7 is an Orthophthalic resin suggested for the same technology and is available in different versions according to temperature in the work place and filler size.

DISTITRON 110 Series is a low styrene content DCPD resin for blocks, suitable to get high filler content. For blocks with large dimensions (over 2.5 m3) curing kinetics must be carefully tuned in order to prevent cracks, particularly in the core of the block.

POLYNT 1303 Series and **DISTITRON 506 V5** are both Orthophthalic resins suitable for the production of slabs at high temperature: both have low unsaturation and provide high rigidity and high tensile modulus.

The benefit of enhanced flexibility of our resins has been demonstrated in a wide spectrum of customers formulation and applications: high flexibility reduces cracks formation during production and installation while preserving good applicative properties.

Several alternatives are available following this philosophy such as **POLYNT 2359 Series, Norsodyne C 23195 Series** and **Polylite 463-000**.

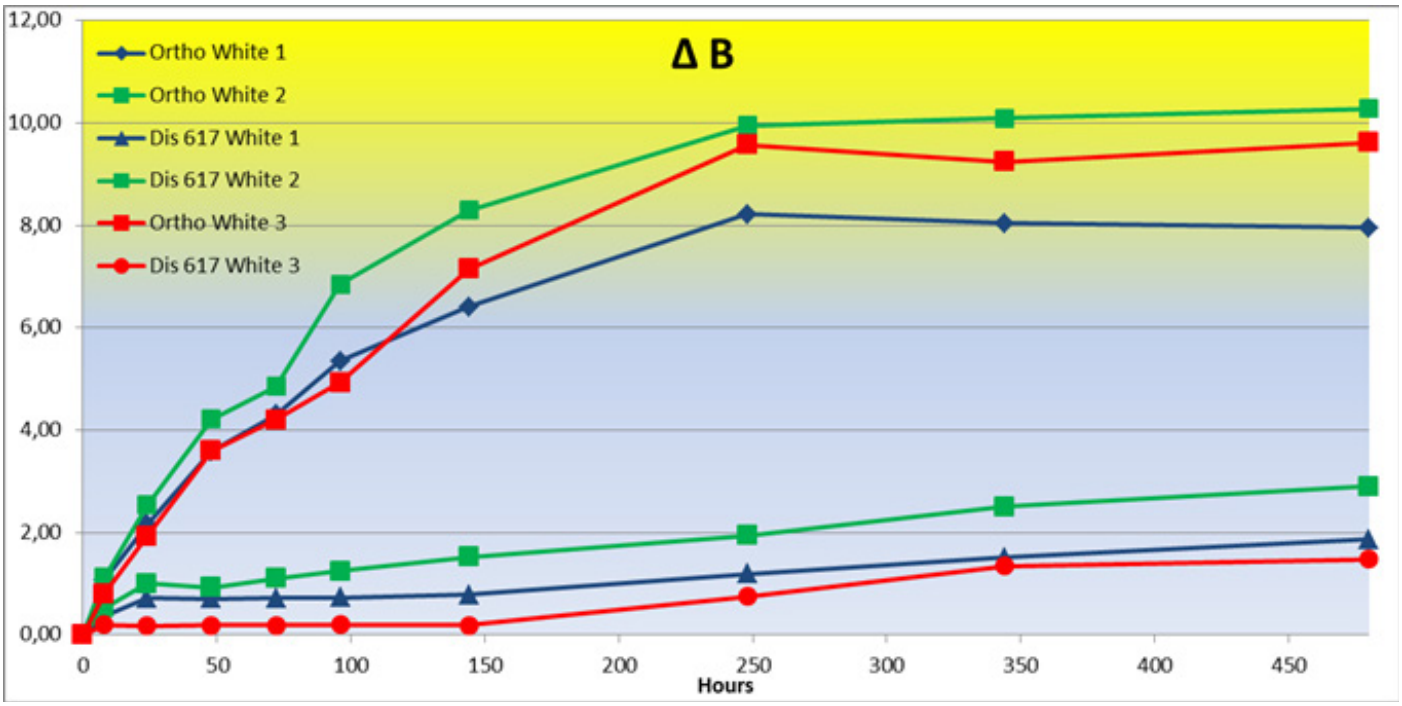
To complete the product range, **DISTITRON 100 ALV7** is a low styrene content and low shrink DCPD resin, able to provide high surface hardness.

Unsaturated polyester resins are often used for outdoor applications and need to resist against sun's ultraviolet rays and temperature cycling, most often in presence of moisture.

Styrenated polyester resins have a limited resistance to weathering and several additives are added to improve UV resistance such as light stabilizers, that absorb photons and block radicals generated by chain cracks. Acrylates monomers could also be used as partial or total replacement of styrene as they are less sensitive to UV light.

However, as the effects of these solutions are limited, it is desirable to have a polymer that in itself possesses good weatherability. Polynt Groups developed a series of special resins using some internally produced raw materials that are finding a growing success in the market due to their exceptional yellowing resistance: these aliphatic substances are less sensitive to UV light in respect to aromatic ones providing during time a stable absence of yellowing that is very appreciated.

The result of this effort is the introduction of **DISTITRON® 617**, a resin developed specifically for Engineered Stone based on special aliphatic raw materials. The hereunder graph reports its exceptional UV resistance compared to a standard orthophthalic resin used for this application: tests were done on 3 different shades of white slabs.



Samples were exposed to QUV-B at 313 nm cycle 4 hours at 60°C UV + 4 hours at 50°C condensation according to ASTM G 154 Cycle 2 : exposure up to 480 hours

The UV resistance is extremely good allowing very limited change in B and E values, behaviour that is particularly appreciated for white and light slabs

Furthermore, its special polymer backbone and glycol composition can guarantee an excellent weathering resistance with reduced tendency to bleaching, also for dark colors.

Resin could be processed for the production of slabs using the same setting and curing condition used for the orthophthalic resin: it doesn't require any specific peroxide or higher curing temperature.

According to ongoing Polynt Group commitment to launch innovative products in the market, our R&D department has been working to propose the Bio resin **ENVIROLITE® 32445-50**.
It is a medium orthophthalic, bio based resin with high tensile elongation and good mechanical properties.
It's based on renewable resources formulated for engineered stone production, non-accelerated and non-thixotropic.
Other innovative products under development include lower styrene content or styrene-free resins suitable for Engineered Stone.

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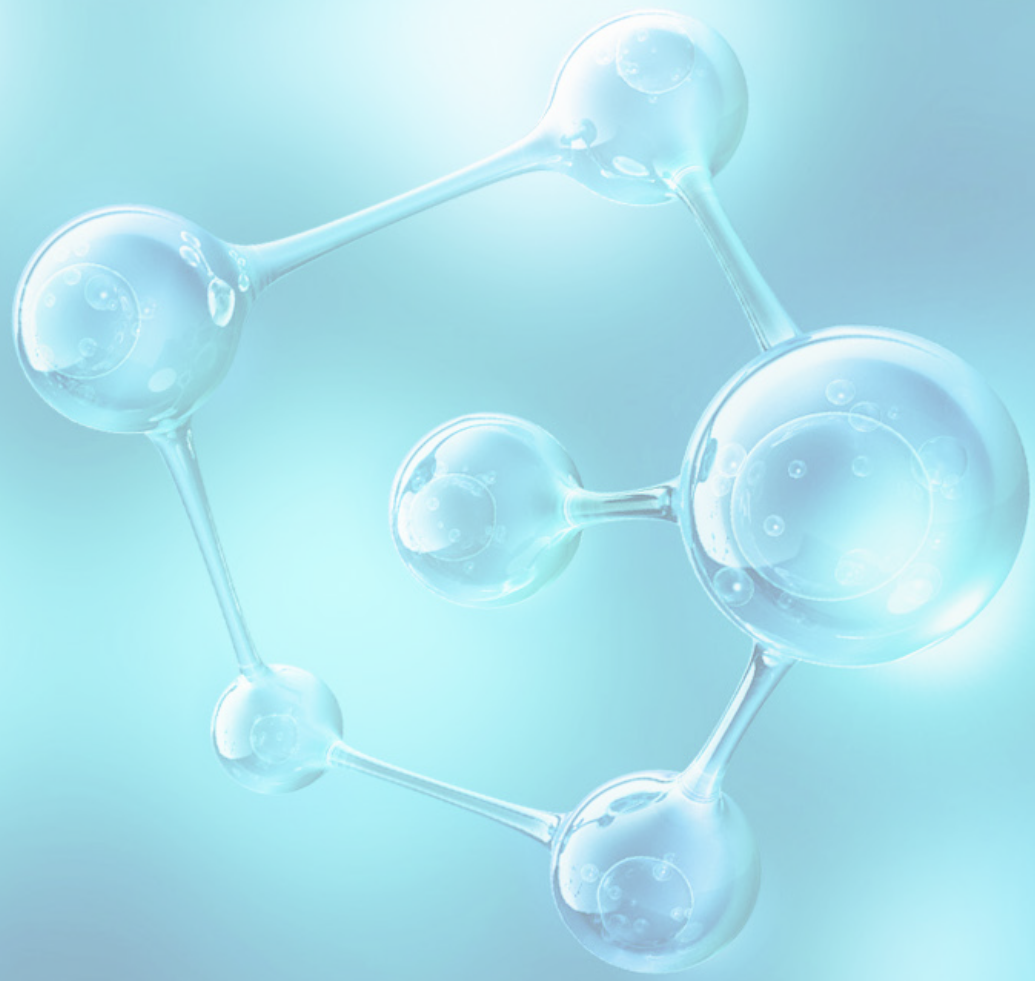

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