

# Saint-Gobain Seals Group's OmniSeal® Spring-Energized Seals Installed in Industrial Dyeing Machines

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/EINPresswire.com/ -- [Saint-Gobain Seals Group](#) has been working closely with DyeCoo Textile Systems B.V. (Netherlands), the world's first supplier of industrial CO2 dyeing equipment, to develop a sealing solution for a new technology where carbon dioxide substitutes water in the dyeing process.

Over the past few years, Saint-Gobain Seals Group has been working closely with DyeCoo Textile Systems B.V. (based in the Netherlands), the world's first supplier of industrial CO2 dyeing equipment, to develop a sealing solution for a new technology where carbon dioxide substitutes water in the dyeing process (the method used to add color to textile products such as fibres, yarns and fabrics). With this innovative, waterless dyeing technology, industrial dye machines heat carbon dioxide until it has the properties of both a liquid and a gas, at which point it penetrates the fabric and diffuses pigment throughout the material. As it returns to its gaseous state, 95% of the CO2 can be recycled for further use, saving billions of liters of water as well as billions of gallons of toxic chemicals dumped into waterways.

Textile environmental safety and control has attracted the attention of the textiles industry, rising in recent years, especially in Asia where much of the world's textile dyeing occurs, due to the massive amount of water required in these processes per day. Temperature and time management are two key factors in dyeing where water is used to clean equipment, as cooling waters, and for rinsing and processing dyes and products. It is estimated that on average, almost 100 liters of water is used to process only 1 kg of textile goods, making water utilization a prime concern for the industry. Furthermore, wastewater carries a host of different chemicals from the processing of dyes and The World Bank estimates that 17 to 20 percent of industrial water pollution comes from textile dyeing and treatment (a fifth of the world's industrial water pollution). Humans then ingest the contaminated water or food irrigated by the water.

Saint-Gobain Seals Group was approached by DyeCoo to find a solution to seal CO2 under high



OmniSeal Spring-Energized Seals for environmental friendly industrial dyeing machines

pressures of up to 400 bars and temperatures up to 120°C, which poses a major challenge for ordinary seals. In most cases, seals will fail when exposed to extreme conditions such as high pressure which cause their applications and products to fail.

Using their [OmniSeal® spring-energized seal](#) technology, Saint-Gobain Seals Group engineers developed a custom version where the seal jacket is manufactured from the Seals Group's proprietary [Fluoroloy® PTFE compound](#), and features a special formed spring to activate the seal. These custom seals are used on the doors of the industrial dye machines and prevents the growing extrusion gap whenever the vessel gains pressure, essentially solving big tolerance issues due to the high pressure. Rigorous testing confirmed that the OmniSeal® solution produced optimum results and DyeCoo is currently using this robust solution in all of their machines. Notable companies such as Nike and Adidas have taken note of this more sustainable option and have sold clothing that were made of fabric dyed in these environmentally-friendly machines. IKEA GreenTech, an IKEA Group venture capital company, has also invested an undisclosed sum in the Dutch dyeing equipment company. By using this sealing solution, DyeCoo has been able to continue their mission of contributing to a sustainable environment in terms of water consumption, energy consumption, CO2 emissions and waste disposal.

The above custom solution demonstrates Saint-Gobain Seals Group's business model in which they focus on co-development relationships, engineer-to-engineer direct collaboration and more than 93% of their products are custom engineered to the customers' applications. For more information about the group's capabilities in the Industrial market or other markets, please visit [www.seals.saint-gobain.com](http://www.seals.saint-gobain.com) or go to the SG2 Communications Network to find out what other interesting places their sealing and polymers solutions have been used.

## About Saint-Gobain Seals Group

Saint-Gobain Seals Group is a business unit under Saint-Gobain Performance Plastics' Engineered Components division, offering a diverse range of innovative sealing and polymer solutions:

- OmniSeal® Spring-Energized Seals
- OmniLip™ PTFE Rotary Shaft Seals
- OmniFlex™ Fluoroelastomer Seals
- OmniShield® EMI / RFI Shielding Solutions
- Rulon® High-Performance Fluoropolymer Compounds
- Meldin® 7000 Thermoset Polyimide Materials
- Meldin® HT High-Performance Thermoplastic Materials

Other products include Fluoroloy® (high-performance custom-formulated compounds and alloys), cup seals, hydraulic seals, metal seals, v-packings, piston rings, Marathon® (valves and vacuum pump diaphragms), Transband® (PTFE creepage band), custom parts, polymer bearings and stock shapes.

The majority of seals and polymer components manufactured are custom designed and matched with the best materials to optimize their performance in various applications and markets.

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