

Celebrating the 70th Anniversary of the Commercialization of KURALON™

In 2020, Kuraray's KURALON™ (PVA fiber) business celebrates its 70th anniversary. We look back at the commercialization of the world's first synthetic fiber, KURALON™, the origin of the Kuraray Group.

The World's First Commercialization of KURALON™ Served as a Springboard for Japan's Restoration

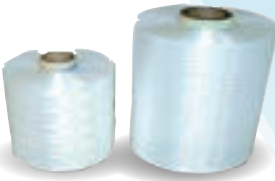
Kuraray commercialized synthetic fiber, KURALON™, for the first time in the world in 1950. It was Kuraray's second President, Soichiro Ohara, who decided to work on the commercialization of KURALON™, which became the first synthetic fiber made in Japan, by using Japan-made carbide rather than depending on the introduction of overseas technologies. The commercialization of KURALON™, for which funds totaling as much as six times the amount of Kuraray's capital stock at that time were invested, helped Japanese people to regain the confidence that they had lost due to World War II. The Company achieved mass production of PVA resin, a material for KURALON™, and succeeded in developing an extra strength KURALON™ fiber after proprietary research. It established an impregnable position in the uses for clothing, and in the agricultural and fishing industries, such as "KURALON™ student uniforms" and "CREMONA™ fishing nets," and grew to account for more than half of the Company's total revenue in 1959.

The Company exported integrated PVA/PVA fiber plants to China in 1965, before the normalization of diplomatic ties. Behind this was President Ohara's desire to provide a source of livelihood for people in China, which had a shortage of fiber, and to help China rebuild after the war.


Subsequently, the Company worked aggressively to develop new uses of KURALON™ by capitalizing on its properties, such as high tenacity, a high elasticity rate, hydrophilicity, and resistance to chemicals and weather, which has led to an expansion of demand in the industrial materials sector in particular, including for uses in FRC (fiber-reinforced cement) as a substitute for asbestos, the use of which is increasingly restricted globally led by Europe, paper manufacturing (such as use in alkaline manganese battery separator), rubber reinforcement for automotive oil brake hoses, etc., and as fire-resistant agents.

History of KURALON™ (The Road to the Development and Evolution of Its Uses)


- 1924** — PVA was discovered by German Nobel Laureate Dr. Hermann Staudinger
- 1939** — Water-soluble polyvinyl alcohol fiber was invented and named "Synthetic No. 1"
- 1940** — Installed a trial production facility at a laboratory within the Okayama Plant
- 1949** — The Company was designated as a focus production company of PVA fiber
- 1950** — Started operation of five metric tons per day at Okayama Plant
- 1953** — Growth in demand for KURALON™ was triggered by the government and public sectors
- 1963** — Signed the integrated PVA/PVA Fiber Plants Export Agreement with Chinese National Technical Import Corp.
- 1983** — Developed KURALON™ for cement reinforcement and entered into a long-term export agreement with Eternit (Schweiz) AG in Switzerland
- Today**
 - The demand for KURALON™ for use in FRC is expanding as a substitute for asbestos, primarily in Europe
 - Increasing demand is also expected in Southeast Asia, Eastern Europe, and Central and South America going forward




KURALON™ filament



PVA



Prime Minister Shigeru Yoshida, who visited the KURALON™ textile exhibition (front, second from the right)



Emperor Showa, who visited the Okayama Plant



Business Development of the Kuraray Group, Which Was Transformed with KURALON™ as a Starting Point

While other companies introduced technologies from overseas and the demand for other synthetic fibers such as nylon was growing and such fibers were profitable, Kuraray chose to maintain a policy of integrated production starting with materials for KURALON™ in order to accomplish mass production of KURALON™ and its material, PVA resin. Those products that were created by sticking to our own development, rather than copying others, became the origin of the present Kuraray Group and led to the birth of PVA film, EVAL™, which came to have a large market share later on. Starting from packaging film to optical-use PVA film for LCD displays, the uses of PVA film made of PVA resin expanded. In addition, EVAL™, which copolymerizes ethylene, capitalizes on its high gas barrier performance in being used widely in food packaging materials, plastic fuel tanks for automobiles, and others. The suite of products was subsequently expanded through the acquisition of the PVB film business, making the vinyl acetate segment the core business of the present Kuraray Group. The Company acquired MonoSol, LLC, which manufactures and sells water-soluble PVA film used in unit dose detergents, etc., in 2012, and Plantic Technologies Limited, which manufactures

and sells biomass-derived barrier film, in 2015, to continue expanding its businesses.

Meanwhile, the techniques for applying polymer to fiber, film, and sheet, which had been nurtured through efforts aiming at the commercialization of KURALON™, led to the development of fiber products, such as man-made leather CLARINO™ and high-strength polyarylate fiber VECTRAN™. Such expertise has also been utilized in the development of film, including acrylic film/sheet and liquid crystalline polymer film VECSTAR™.

The accomplishment of the commercialization of KURALON™ through our own R&D as well as its development of the vinyl acetate business, which uses vinyl acetate as a material, and a variety of products helped us to hone our polymer processing techniques and accumulate them as foundational technology that became the cornerstone of the present Kuraray Group. Further, this created a corporate culture of pursuing unique technologies as represented by “For people and the planet—to achieve what no one else can,” which has been passed down through the Kuraray Group until today.

Commercialization of KURALON™, Which Became the Origin of Independent In-House R&D

