



ERIK FREYSER

President and COO at Polywater

Good isn't enough

Polywater was founded in Stillwater, Minnesota, USA, in 1973 by Nelson Jonnes, who was a product development chemist with 15 patents to his name. The company invented a revolutionary new polymerized lubricant with numerous potential uses.

At that time, a significant new market for our water-based, polymer lubricant was found: pulling cable into conduit in the telecommunications industry, which at the time used primarily bentonite clay—essentially mud—an inexpensive, ineffective method of reducing friction. The lubricant, named Polywater® A, represented a technological leap forward,

forever changing industrial cable pulling lubrication by allowing the lubricant to pull itself farther into the duct where needed most.

A philosophy of our founder that still guides Polywater is: good isn't enough; a product must be superior. Forty-seven years later, we offer a full-range of specialty-chemical products.

Polywater is a mid-sized, employee-owned (privately held) manufacturer for electrical and communications infrastructure construction and maintenance. We work with engineers to help them solve specific, field-based, infrastructure problems. Whether it's new construction, infrastructure upgrades,

or grid and network repair and maintenance, companies can expect to receive the total support needed to help them find the right solution for specific challenges in the field—from the start.

Markets

We are a global company and Polywater products are stocked and sold in most countries around the globe. We are based in the U.S., so our position in North America is very strong. We also have strengths in Europe, operating from our wholly-owned subsidiary in the Netherlands with local sales representatives and distribution in each European country. Our European subsidiary supports the Middle East, including a UAE hub.

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Erik Freyser has been President and Chief Operating Officer at Polywater in Stillwater, MN, USA, since 2014. In this position his objectives are:

- Visionary leadership
- Scalable and sustainable company expansion
- Intuitive employee management to build performance and career growth
- Strategic marketing and sales growth strategies
- Excellent customer service skills based on collaboration and passion for problem solving

He studied mechanical engineering while gathering marketing knowledge through evening and weekend classes

There is an increasing realization by customers that extending the lifespan of critical assets requires preventative maintenance practices and reliable, high-quality and environmentally friendly repair solutions that minimize downtime

In countries like New Zealand, Australia, South Korea and Japan, we have a well-developed sales support and product distribution infrastructure.

Our customers are a mix of utility companies, larger industrial companies, service companies and transformer OEMs – basically, any company that owns and/or services a **transformer** in the electrical infrastructure space.

There is an increasing realization by customers that extending the lifespan of critical assets requires preventative maintenance practices and reliable, high-quality and environmentally friendly repair solutions that minimize downtime. We work with our customers to use our product solutions to proactively manage repairs while controlling downtime and decreasing sudden incidents.

Collaboration with customers

Our approach is all about collaboration with our customers. We don't sell generic sealant or adhesive products with broad industrial applications, rather, we create products to solve specific customer needs. So, it all starts by listening to our customers very well. Polywater's products for transformer repair are developed for this single niche.

During the product development process, we can adjust product formulations and specifications, application methods and usage safety parameters so that field users recognize that these solutions are tailored to their specific transformer maintenance needs. In addition to our internal quality control process, we realize that product testing and customer feedback are both critical to developing high-performing products. We also support our on-the-ground partners

who provide product and application knowledge and best practices at the local level.

Product solutions for transformers

Our goal is to help our customers address specific field challenges. Serving customers within the transformer's space means that our product solutions ensure the transformer's long-term performance while protecting the environment from oil and SF₆ leaks.

Polywater's PowerPatch® offers the following key benefits that are important to transformer repair and maintenance:

- High adhesion of the sealant and resistance to extreme pressure
- Seals active leaks within minutes
- High breakdown voltage to avoid partial discharge
- Compatible with both mineral and ester-based insulation fluids
- Adheres to a variety of materials like copper, brass, steel, rubber and gasket materials
- UV and weather-resistant seal for long-term durability

Polywater products are high-quality solutions developed to address our customers' specific needs and common field challenges. However, our offering goes beyond products. We help our customers solve challenges using our industry knowledge + technical expertise + planning resources + specialty-chemical products.

It's a combination of elements that allow us to find the right solution for customers. We spend a lot of time sharing knowledge and technical information during our collaboration. Additionally, we feel that it's important for us to be in the field working alongside our cus-

tomers to truly understand their challenges and how we can help them be successful.

Customer case uses for The PowerPatch® Sealant system

The PowerPatch® system provides a fast and effective "in-field" leak repair for transformers, PILC cables and other oil and gas insulated electrical equipment. This durable solution to repair transformers is faster and easier than welding.

One of the largest U.S. investor-owned utilities

In 2014, PowerPatch was specified and included in the operation and maintenance procedures of a top U.S. utility, which is based on the U.S. East Coast. This investor-owned utility has approx-



imately \$12 billion in annual revenues as of 2017, and over \$48 billion in assets.

PowerPatch was approved by the utility to repair underground transformers. The PowerPatch product is valued because it eliminates immediate emergency changeouts and keeps equipment in service for long periods of time, allowing for managed and controlled maintenance.

City Power, Johannesburg Pty Ltd, South Africa

City Power Johannesburg serves the wider Johannesburg area as a distributor of electric energy. To prepare for the 2010 FIFA World Cup championship in South Africa, City Power needed a high-quality repair solution for its Cydina Substation, since replacement was not an option at that time. The 22 kV

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40 MVA substation transformer, which was originally installed in 1932, and was leaking large quantities of oil from the lids and doors. The maintenance team estimated that it was leaking between 700 and 800 liters of oil each week.

Because of the magnitude of the leaks and the surface areas involved, the team decided to use both slow-cure and fast-cure PowerPatch™ formulations. Slow-cure was used to repair the long gas-

keted seams that required more application time to complete. Fast-cure kits addressed leaks emanating from small holes.

New products

We will continue to listen to our partners in the field and develop products that help them address challenges by continuously reviewing product formulations and specific field needs.



We are developing a flexible sealant for transformer parts and areas that experience higher levels of movement

We've put PowerPatch in a new package for larger repair applications that is just entering the market. This product now comes in a two-part caulking tube and uses a standard, high-ratio caulking tool. We worked with our customers to develop a material that is thin enough to pump through a static mixer but will not drip or sag when applied to a vertical surface. Our early users love the convenience of this package. It allows them to seal longer seams and reach into difficult-to-reach areas.

We are also developing a flexible sealant for transformer parts and areas that experience higher levels of movement. This innovation provides a way to seal the gap between two different components or parts in the system. The product concept is to replace standard caulking compounds with a product that has higher adhesion and better durability.

We have also been using some of our duct seal products as potting compounds. This is an excellent end use for these products as they expand and fill all kinds of shapes and they act to protect and seal electrical components.

Protecting critical assets

The need to protect critical assets and maximize the lifetime of power equipment is increasing worldwide. Polywater's products and know-how have a solid reputation globally. We are committed to working alongside our customers to provide solutions and help them proactively manage their infrastructure and critical assets.

The trends impacting energy transmission and distribution coupled with the need to build and maintain infrastructure to ensure increased and reliable

power make Polywater's industry role and products critically important. While markets have ups and downs, the overall need to support a reliable energy supply will continue to increase.

We see growth in markets where the life span of critical assets needs to be extended by intermediate repair. There is an increase in demand in India and the Middle East region, which means we will expand our presence on the ground. We also plan to grow our global network of subsidiaries and local partners.

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