



**POWERFUL POLYMERS
PAINLESS PROCEDURES
RAPID RESULTS**

Specialty Waterproofing at Hydroelectric Dam

The John Day Dam is located in the state of Oregon on the Columbia River. In 2020 the Army Corps of Engineers put a repair job out to bid to address a variety of situations, including leaks that were occurring in a number of the galleries (openings or passageways within the dam). The general contractor that won the bid brought in a specialty waterproofing contractor for the leak seal portion of the job.



POWERFUL POLYMER

The Army Corp of Engineers specified a flexible polyurethane for the specialty waterproofing due to the fact that it would be injected into dynamic joints and cracks (joints and cracks that contract and expand with weather conditions).

The leak seal technicians chose Spetec PUR F400 from Alchemy-Spetec. This product features 100% elongation. If you install a rigid product in a dynamic joint or crack it will fail at the first movement. In addition to its flexible nature, Spetec PUR F400 is also hydrophobic. Hydrophobic polyurethanes have excellent chemical resistance and superior longevity. In addition, Spetec F400 features a field adjustable set time (when you have cold water, with varying volumes, this is essential so you can either penetrate small cracks with a slower set time or shut down gushing leaks with a faster set time).

The Bureau of Reclamation and the Army Corp of Engineers have approved Spetec PUR F400 for use on their structures. This durable repair material has been successfully installed in many of their dams and locks.

Physical Properties - Uncured - (appearance white liquid)

SPETEC PUR F400		
Viscosity at 77°F (25°C)	(ASTM D4878-98)	±340cps (±0.34 Pa·s)
Flash Point	(ASTM D1310-86)	>302°F (>150°C)
Density	(ASTM D3505-96 [2000])	1.067 ± 0.005 oz/ft ³ (1.068 ± 5.006 g/m ³)

Physical Properties - Cured

SPETEC PUR F400		
Tensile Strength	(ASTM D3574-03)	290psi (20 bar)
Elongation at break	-	±100%

Properties will vary depending on application conditions.

PAINLESS PROCEDURE

One of the classic rules of grouting cracks and joints is to pull off the crack or joint half the thickness of the wall and drill at a 45° angle. However, when you get over 3' thick it is not necessary to pull off the crack or joint more than 1.5'. The crew followed these guidelines when injecting the resin.

On thicker structures leaking cold water at high volumes, it is imperative to be able to adjust the set times in the field. Gen ACC is the accelerator for Spetec PUR F400 and is added at a ratio of 1% all the way up to 10%. The more you add the quicker the product polymerizes. The crew adjusted the set times according to properties of each leak.

They also soaked AP Oakum in Spetec PUR F400, and packed it into the wider cracks and high volume leaks. Depending on the situation, the oakum is sometimes packed in before the injection or packed in simultaneously as a second crew member fills the void with the first crew member is injecting the resin.

RAPID RESULT

Within a matter of days, the leaks in the galleries were successfully remediated. The general contractor was then able to move on to other parts of their project, on budget and on schedule.

About Alchemy-Spetec

The Leak Seal Division

The Alchemy-Spetec Leak Seal Product Line combines a full-system offering of polymer chemical grouts and equipment with perhaps the most experienced technical team in the industry. For any concrete leak seal application, lean on the Alchemy-Spetec team for phone, field, or engineering support. Our growing network of Regional Managers, Independent Representation, and Nationwide Distribution offers industry professionals many levels of opportunity worth discussing with our team. Consultants at Alchemy-Spetec pride themselves on rapid, powerful, and painless scheduling of field and technical support. We invite you to inquire about our bi-annual factory training held at the Tucker, GA-based manufacturing facility where they can learn from the 20+ year average industry experience of our Regional Management and Technical Team.

The Geotech Division

The Alchemy-Spetec Geotech Product Line offers industry-leading quality, full chemical grout lifting rig training and support, and unmatched contractor support in the field and with sales and marketing. Contact us today to learn about the tangible benefits of joining the Alchemy-Spetec network of geotech contractors. The Alchemy-Spetec MixMaster Pro Gun is a maintenance and production cost-saver for any lifting contractor, while the flagship lifting foams have helped many contractors reduce volume usage while eliminating call-backs. From the Polybadger machine that fits into a pickup truck, to custom boxtruck and trailer rig buildouts, Alchemy-Spetec is widely considered the premier geotechnical chemical grout & equipment supplier. With the additions of ground penetrating radar and penetrometer equipment and support, Alchemy-Spetec is truly on the cutting-edge of the chemical grouting industry.