Belzona Modified SF6-FIX Repair

ID: 10365

Industry:	*Power*	Customer Location:	*Quincy, MA*
Application:	*VPF-Valves, Pipes and Fittings*	Application Date:	*September 2026*
Substrate:	*Stainless-steel*		
Products:	*Belzona 1212,Belzona 7311,Accessories,Belzona 9611 (ES-Metal)*		

Problem

The Customer has multiple small pipes in the switch yard with active 70+ psi SF6 leaks. SF6 leaks are a serious issue in the power industry and naturally downtime and a quick fix that can cater to the customers schedule is essential. Replacement of the pipes and degassing the whole system was out of the question, so the customer reached out to Molecular Systems of New England for a solution. They were able to isolate the pipe sections where the leaks were happening, and bring the pressure down to 0 psi. The customer needed a quick return to service, with back online time within 24 hours. Having a solution that could be built around the current pipe geomoetries, not taking anything down or removing structures was an important piece of the puzzle to allow for the customer to keep the switch active.

Sulfur hexafluoride (SF_6) is widely used as an insulating and arc-quenching gas in high-voltage electrical equipment because of its excellent dielectric properties. Sealing SF_6 gas leaks is critically important for environmental, economic, and operational reasons. SF_6 is one of the most potent greenhouse gases known, with a global warming potential thousands of times greater than carbon dioxide and an atmospheric lifetime of several thousand years. Even small leaks can significantly contribute to climate change.

From an operational perspective, maintaining the correct SF_6 pressure ensures the safe and reliable performance of switchgear, circuit breakers, and transformers. Gas leaks can reduce insulation strength, increasing the risk of electrical faults, equipment failure, and costly outages. Additionally, replacing lost SF_6 gas increases maintenance expenses and regulatory compliance costs.

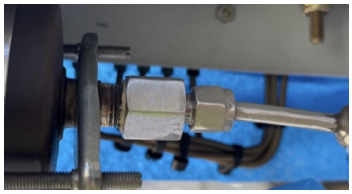
Effective leak detection, timely repairs, and proper sealing practices help protect the environment, enhance equipment reliability, reduce operating costs, and support compliance with environmental regulations, making SF_6 leak prevention a critical responsibility for utility and industrial operators.



Leak 1, AFTER



Leak 2, AFTER



Leak 1, BEFORE



Leak 2, BEFORE

Application Situation

The customer was looking for a fast return to service, looking to be back online within 24hrs. The Belzona solution was to modify the SF6 Fix system to fit the smaller pipe geometries. The pipes were small, ~ 1 inch in diameter, and were able to be isolated and degassed for surface prep and application. The customer is "under pressure" to fix these active leaks as SF6 is a significant environmental concern. Finding a system that was both cost effective, and didn't involve replacement of piping was crucial to quick

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return to service.

Application Method

A modified SF6 Fix system was developed to ensure a sealed leak on unique pipe geometries. After hand tool surface prep, Belzona 9611 Stick was used to seal the leak point initially. Belzona 1212 was then applied to provide a thin film of encapsulation and prepare the surface for Belzona 7311 and Belzona 9341 Polyester Mesh (wetted out in 7311) to complete 5-6 wraps around the pipe geometry. The combination of these products allowed for a fast return to service, a space heater was added into the switch box overnight to maintain high temps for a back into service the very next morning.

Belzona Facts

The Belzona System was prepped and applied in about an hour total, proving a fast application, and return to service was successful the next morning allowing cure overnight. The cost savings for only one kit of 7311, 9611 stick, and 1212 was pennies to the dollar compared to the replacement and downtime of the switch system. A fast return to service within 24 hrs ensured no more downtime than scheduled was needed, and the switch was back online in less than 24 hours. The customer has lined up and identified 25 sites across New England with similar leaks both large standard SF6 Leaks, and smaller "mini" leaks like these shown in this KHIA.

ISO 9001:2015
FS 695214
ISO 14001:2015
EMS 695213

Belzona products are manufactured under an ISO 9000 Registered Quality Management System.

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