



# Case Study: Compressor Station

## The Multiple Failures of Phenolic Gaskets

### PROBLEM

A long-established midstream oil and gas operator had been experiencing long term issues with Phenolic isolation gaskets. They approached GPT seeking a solution that would give them longer service life at several compressor stations with differing pipeline sizes, ranging from 4" to 20" NPS. The issues encountered came as no surprise to GPT, Phenolic insulation gaskets have been persistently plagued by several failure modes. Namely: embrittlement, permeation, poor dielectric values, electrical bridging and cracking due to over torquing.

### SIGNIFICANCE

The Cathodic Protection (CP) team identified that a year after installation, which was challenging due to issues with gaskets cracking, that the isolation gaskets were not isolating. On closer inspection, it was established that bridging issues due to conductive media (Iron Sulphide) was the route cause for the electrical isolation failures. In addition, the CP team noticed that the gasket was leaking from within the gasket itself – the media was permeating through the body of the gasket.

While the client was aware of the issues, they were unable to replace the gaskets until a scheduled shutdown of the lines was planned.

### OPERATING CONDITIONS

Temperature:	Less than 300F
Pressure:	#600
Media:	Natural gas (High Sour Content)
Size:	Multiple sizes ranging from 4" - 20"



Phenolic isolation gasket removed from flange

### SOLUTION

We introduced EVOLUTION<sup>®</sup> to the operator, it was clear that the benefits and design EVOLUTION provides would address all the issues encountered, with the added value of being a Fire Safe gasket.

EVOLUTION<sup>®</sup> is designed with a GYLON<sup>®</sup> inside diameter seal, which provides resistant to typical oil and gas chemicals including Iron Sulphide (FeS). The unique properties of the GYLON seal do not allow for particles to build up on the seal, which is one of the causes of electrical bridging. GPT worked with the client to ensure the seals matched the pipe bores, another significant factor which contributes to electrical bridging. All GPT isolation kits are matched to the pipe bore as standard.

After successful installation, made easier by the robustness of the gasket, the operator has irradiated the electrical issues previously encountered.

For more information, please visit: <http://www.gptindustries.com>