



FLUOROCARBON CASE STUDY

H₂

PEEK LABYRINTH SEALS FOR HYDROGEN CENTRIFUGAL COMPRESSOR

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THE CHALLENGE

Our customer required a Sealing Solution for a Hydrogen centrifugal compressor prototype, a dynamic application.

With a temperature range of -46°C to 200°C, the process gas is almost 100% Hydrogen at approximately 70 bar pressure in the presence of KOH (Potassium Hydroxide) in water vapours.

Their main concern was to find a material that also had suitable working limitations from a low temperature perspective.

THE SOLUTION

Ferrous or non-ferrous metals are usually recommended for Labyrinth Seals; however, depending on the gas conditions and compositions, they may not always have enough endurance when exposed to harsh corrosive environments. PEEK material can be a viable alternative in certain circumstances.

Our FL354 shows no adverse reactions with Potassium Hydroxide and Hydrogen, so we were able to machine and supply PEEK Labyrinth Seals for the H₂ compressor.

THE OUTCOME

We selected a suitable material from our Fluorinoid Material Register, which includes more than 500 materials with exceptional characteristics that can operate in demanding environmental conditions.

Our team analysed the design of the Labyrinth Seal provided by the customer to ensure its integrity and longevity before confirming the suitability of our FL354 material.