Diaphragms with Alcohol Problems?

Viton® and Aflas® are not the best for Methanol or Ethanol

A PUZZLER

Recently this question was phoned in, "We installed a low pressure motor valve with a Viton diaphragm. The temperature of the gas stream was no more than 125 degrees F. The diaphragm failed in three weeks. We replaced the diaphragm with Aflas. It lasted three days! What should we do?"

You would normally think that if Viton wasn't good enough, then Aflas would be the material to try, right? I would have figured it that way. So what was the problem? Alcohol.

THE ANSWER

In desperation I suggested that the only thing that might be present which would have such an affect on both Viton and Aflas would be if a significant amount of alcohol was in the stream. (I had only learned of this potential problem a few days earlier.)

When asked about the possibility of methanol injection, the operator said, "Oh yes, we're injecting tons of the stuff!" There it was.

WHAT WE HAVE LEARNED

When alcohol (this would include methanol or ethanol) is included in the mix, Viton® and Aflas® are not recommended. It is not uncommon to have methanol injected into a gas stream to keep ice from forming.

Small levels of alcohol may not pose a problem, but at this point we are not able to predict the concentration level at which damage to Viton® and Aflas® will occur.

THE SOLUTION

When the presence of alcohol is a concern the best elastomer we have to offer is **HSN, Highly Saturated Nitrile.** Second best is Nitrile, otherwise known as Buna. This is our standard diaphragm material.