

S2.3.4 BECHTEL SULFUR ADSORBENT TECHNOLOGY

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Natural gas pipelines commonly transport small amounts of sulfur as hydrogen sulfide (H₂S) and mercaptans (RSH) of various types. The mercaptans are added as a safety precaution due to their distinct odors. Because elemental sulfur has a vapor pressure, it can also be transported in the gas phase. The solubility is quite low and therefore the amount transported is also very low, typically in the parts per billion range. However, it is not uncommon for operators to observe a yellow or grey colored powder wherever pressure and temperature changes occur, such as filter elements, filter housing outlet nozzles, flow meters, control valves, and inlet guide vanes of compression equipment. The phenomenon is known as ESD or Elemental Sulfur Deposition. The theoretical understanding of how gases carry elemental sulfur started in the 1960's and is increasing even today. Correlations and prediction methods are becoming more common. Cleaning solvents and cleaning methods abound, but what is lacking is a means of preventing the deposition.

This paper presents test results for a new process for removing elemental sulfur being developed by Bechtel Hydrocarbon Technology Solutions, Inc. (BHTS).