

Filter Systems for IGCC and PFBC Applications

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Abstract

Pall Corporation through the Pall Advanced Separation Systems group is involved in filter systems for advanced coal-fired processes such as IGCC and PFBC. This paper provides information on the approach taken by Pall in selecting filter media from the available media, and designing the filter system to meet the process needs as well as meet the requirements for the filter media.

IGCC

For IGCC systems, Pall currently offers both metal and ceramic filter elements. Currently, metal filter elements are only suitable for application in low-sulfur (0 to 100 ppmv) environments. In applications with higher sulfur levels (H₂S, COS, etc.), we currently apply ceramic filters. However, we are developing an intermetallic filter media (iron aluminide) which will be available for use in high sulfur atmospheres. This media should be commercially available in the near future.

PFBC

For PFBC systems, Pall offers two ceramic media. Both media are silicon carbide based, but have different binder compositions. The Vitropore™ ceramic media is commercially available and has been widely used in demonstration projects. We are also developing a ceramic media with a new binder specifically formulated to enhance high temperature properties. This media is currently undergoing testing.

This paper presents information about the filter media mentioned here and the filter system designs for these two applications.