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(54) Title: PROCESS FOR DETECTING, AND MONITORING CHANGES IN PROPERTIES OF FLUIDIZED BED SOLIDS BY MEASUREMENT OF PRESSURE DIFFERENCE FLUCTUATION

(57) **Abstract**

A process for detecting, and monitoring, changes in the properties of a fluidized bed of particulate solids, especially a fluidized bed of particulate catalytic solids at elevated temperature wherein a low molecular weight hydrocarbon is converted, in the presence of steam and oxygen, to synthesis gas. Measurement is made of the magnitude of differential pressure fluctuations taken at different levels of bed elevation and these are recorded as a standard deviation, or normalized standard deviation, and directly related to particle size changes caused by agglomeration (growth) and/or attrition (size reduction). Operation of the process requires the use of fast response pressure transducers that are located in the bed and connected to an A/D board of a PC which records and accumulates the data for processing, and analysis. In a preferred process, the method is applied to the fluidized bed production of synthesis gas.

