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(54) **RECYCLE GAS COOLER SYSTEMS FOR GAS-PHASE POLYMERIZATION PROCESSES**

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(57) **ABSTRACT**

Disclosed herein are improvements in recycle gas cooler systems in gas-phase polymerization processes that reduce the tendency for cooler fouling, including a recycle gas cooler system comprising a shell-and-tube heat exchanger. One or more of the tubes of the shell-and-tube heat exchanger may have a flared tube inlet at the tube sheet. The shell-and-tube heat exchanger may also be coupled to a straight inlet pipe having a length that is either at least about 5 times the inner diameter of the straight inlet pipe or at least about 15 feet, whichever is greater.

**18 Claims, 3 Drawing Sheets**

