

ABSTRACT OF THE DISCLOSURE

A magnetic separator for use in conjunction with a fluid catalytic cracking system has roller devices incorporating permanent magnets with a moving device that receives catalyst particles and passes over the magnets.

5 The permanent magnets may be incorporated into a roller device which moves a flexible belt that receives catalyst particles from the fluid catalytic cracking system and passes them over the magnets. The particles are deposited on the belt and travel to the roller having the magnets. Older, less effective catalyst particles are attracted to the magnets on which the belt is

10 rotated and are held by the magnets longer than newer, more effective catalyst particles. The permanent magnets are high strength neodymium/iron/boron magnets in one embodiment and samarium/cobalt magnets in a second embodiment. The magnets are stacked S-NN-SS-NN-SS-N to provide a more effective magnetic field. In the first embodiment,

15 high strength magnets made from neodymium/iron/boron operate efficiently at 250°F without extensive cooling equipment. In the second embodiment, high strength magnets made from samarium/cobalt operate efficiently at 450°F without extensive cooling equipment.

