

ABSTRACT

METHOD TO MONITOR AND CONTROL THE POLYMERIZATION OF A POLYMER

5 A process to obtain a real-time measurement of a monomer concentration and/or a
real-time measurement of a comonomer concentration in at least one process stream of a
solution polymerization to form a polymer, said process comprising analyzing the amount of
the monomer and/or the comonomer in a polymer solution downstream from the exit of at
least one reactor, using at least one fiber optic sensor coupled to a light source, or using at
least one flow cell coupled to a light source, and wherein the light source is connected to a
10 spectrometer; and wherein at least one of the following takes place:

- A) a portion of the polymer solution exits the reactor, and then comes into contact
with the fiber optic sensor or the flow cell, and a spectrum is generated, and then the solution
flows through a densitometer; or
- 15 B) a portion of the polymer solution exits the reactor, and then flows through a
densitometer, and then the solution comes into contact with the fiber optic sensor or the flow
cell, and a spectrum is generated; or
- C) a portion of the polymer solution exits the reactor, and is split into at least two
streams, and wherein one stream flows through a densitometer, and wherein another stream
comes into contact with the fiber optic sensor or flow cell, and a spectrum is generated.

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Fig. 1