Claims

1. An interlock for use in a process for degassing of a polymer powder in a degassing vessel, which interlock is an instrumented system which is designed to act in response to a condition within the process which indicates a potentially dangerous situation or consequence, and to thereby prevent or mitigate said situation or consequence, which interlock comprises:

(i)~~1.~~ measuring the temperature of the polymer powder within or exiting the degassing vessel,

(ii)~~2.~~ comparing said measured value to a threshold value in order to ascertain whether it is lower than the threshold value or not, which threshold value is below the normal range of temperature expected for the polymer powder during degassing of said powder, and

(iii)~~3.~~ if the measured temperature is lower than said threshold value taking one or more actions to reduce the concentration of hydrocarbons in the polymer powder exiting the degassing vessel and/or to stop the polymer powder withdrawal from the degassing vessel.

2. An interlock according to claim 1 wherein the powder temperature is measured within the degassing vessel and in the half of the degassing vessel closest to the polymer powder exit.

3. An interlock according to claim 1 wherein the degassing vessel is a purge vessel in which polymer is contacted with a purge gas to remove monomers and other entrained hydrocarbons, and the powder temperature is measured by measurement of the temperature of the purge gas after contact with the polymer powder.

4. An interlock according to any one of the preceding claims wherein the threshold value is adjusted depending on the polymer to be degassed and is defined by a fixed temperature differential between an upstream process condition and the temperature of the polymer powder within or exiting the degassing vessel.

5. An interlock according to claim 4 wherein the threshold value is adjusted if reaction temperature is changed in order to maintain a fixed differential to the reaction temperature.

6. An interlock according to any one of the preceding claims wherein the one or more actions to reduce the concentration of hydrocarbons in the polymer powder exiting

the degassing vessel include increasing the flow rate and/or temperature of any purge gas entering the degassing vessel, increasing the residence time of the polymer powder in the degassing vessel and increasing the temperature of the polymer powder entering the degassing vessel.

7. A process for the degassing of the polymer powder in a degassing vessel, which process comprises using the interlock according to any one of claims 1 to 6.

8. A process according to claim 7 wherein the polymer powder particles to be degassed are obtained from a gas phase polymerisation process or a slurry polymerisation process.

9. A process according to claim 7 or claim 8 wherein the polymer powder particles are polyethylene or polypropylene formed by polymerisation of ethylene or propylene respectively with one or more comonomers.

10. A process according to any one of claims 7 to 9 wherein the degassing vessel is a purge vessel in which polymer is contacted with a purge gas to remove monomers and other entrained hydrocarbons.

11. A process according to any one of claims 7 to 10 wherein degassing vessel in which the interlock is applied is one in an overall two-stage degassing process with a first degassing vessel at a relatively elevated pressure compared to a subsequent second degassing vessel at a relatively lower pressure.

12. A process according to claim 11 wherein the degassing vessel in which the interlock is applied is the first degassing vessel.