CLAIMS

1. A plastic conversion feed system for transporting a feedstock to a reactor vessel, comprising:

a homogenizer capable of breaking up said feedstock comprising plastic material or a hydrocarbonaceous material, or any combination thereof;

a pelletizer capable of reducing the size and densifying said homogenized feedstock; and

an extruder, said extruder capable of forming a continuous mass of feedstock that is fed to said reactor vessel.

2. The plastic conversion feed system of claim 1, including a shredder, said shredder capable of reducing the size of said feedstock.

3. The plastic conversion feed system of claim 2, including a heater and feeder system for heating said pelletized feedstock, said heater and feeder capable of transferring said feedstock to said extruder.

4. The plastic conversion feed system of claim 3, including a conduit that extends from said extruder to said reactor vessel.

5. The plastic conversion feed system of claim 4, including a plug of said feedstock that is located around said conduit at the entrance to said reactor vessel.

6. The plastic conversion feed system of claim 3, wherein said feedstock egressing from said extruder is a flowable, non-melted material

7. A process for transporting a feedstock to a reactor vessel using the plastic conversion feed system according to claim 1, comprising the steps of:

breaking up said feedstock in the homogenizer, said feedstock comprising a plastic, a hydrocarbonaceous material, or any combination thereof;

reducing the size of said feedstock with the pelletizer;

operatively connecting said extruder to said reactor with a feed conduit, and

extruding said feedstock into said reactor with the extruder via the feed conduit.

8. The process of claim 7, including, a heater, said heater heating said pelletized feedstock to a temperature of from about 200° F to about 500° F.

9. The process of claim 7, including forming a plug of said feedstock located around said conduit at the entrance to said reactor vessel.

10. A plastic conversion feed system for transporting a feedstock to a reactor vessel, comprising:

a size reduction device capable of reducing the size of and densifying said feedstock comprising a plastic, or a hydrocarbonaceous material, or any combination thereof;

a heating device capable of heating and transferring said reduced sized feedstock to an extruder, said extruder having an output axis; and

a feed conduit connecting said extruder to said vessel and capable of feeding said feedstock to said vessel, and said conduit optionally having an output axis of up to about a 5° radius angle with respect to said extruder device output axis.

11. The plastic conversion feed system of claim 10, wherein said size reduction device comprises a shredder, or a pelletizer, or both, and wherein said heating device comprises a feeder.

12. The plastic conversion feed system of claim 11, wherein said reactor vessel is a pyrolytic reactor.

13. The plastic conversion feed system of claim 11, wherein said size reducing is said pelletizer, and wherein said pelletizer is capable of densifying said feedstock to greater than about 15 pounds/cubic foot.

14. The plastic conversion feed system of claim 10, wherein said heating device is said extruder.

15. A process for transporting a feedstock to a reactor vessel with the plastic conversion feed system of claim 10, comprising the steps of:

reducing the size of said feedstock in the size reduction device, said feedstock comprising a plastic, or a hydrocarbonaceous material, or any combination thereof;

heating and blending said reduced size feedstock;

transferring said reduced size feedstock to the feed conduit,

wherein said feed conduit is connected to said vessel, and

feeding reduced size feedstock to said vessel via the feed conduit.

16. The process of claim 15, wherein said size reduction device comprises a pelletizer.

17. The process of claim 16, wherein said reduced size of said feedstock has a density of greater than about 25 pounds/cubic foot.

18. The process of claim 16, wherein said feed conduit has an output radial axis that can vary up to about 5° with respect to the axis of said extruder.

19. The process of claim 15, including a hopper system, said hopper system comprising an upper hopper and a lower hopper, feeding said feedstock to said upper hopper, and subsequently feeding said feedstock in said upper hopper to said lower hopper.

20. The process of claim 15, wherein said conduit is flexible and is heated.