CLAIMS

1. A solid inert residue (SIR) dryer, comprising:

said dryer having one or more heating units and one or more drying substrates, said dryer capable of heating and drying a SIR on said substrate and removing an amount of volatile organic material therefrom;

said substrate capable of transferring said dried SIR to a collection area;

said collection area comprising a compaction system for compacting said dried SIR;

wherein a first valve is present at an entrance to the collection area which is selectively switchable to form a seal that isolates the collection area from the volatile organic material in the dryer; and

wherein said compaction system comprises at least one cylinder having a piston.

2. The SIR dryer of claim 1, wherein said substrate comprises a container, a metal tray, a metal sheet, a screen, or a conveyor belt, or any combination thereof.

3. The SIR dryer of claim 2, wherein said substrate is said conveyor belt.

4. The SIR dryer of claim 1, wherein said piston is capable of compacting said dried SIR in said at least one cylinder.

5. The SIR dryer of claim 4, wherein said collection area comprises a multiple compaction system including at least a second cylinder having a piston, said second piston capable of further compacting said compressed SIR.

6. The SIR dryer of claim 1, wherein a second valve is present downstream from the first valve and the at least one cylinder having the piston which forms a second seal at an outlet of the collection area.

7. The SIR dryer of claim 6, wherein a third valve is present between the first valve at the second valve which forms a third seal downstream from the at least one cylinder having a piston.

8. The SIR dryer of claim 5, wherein a second valve is present downstream from the first valve and the at least one cylinder having the piston which forms a second seal at an outlet of the collection area.

9. The SIR dryer of claim 8, wherein a third valve is present between the first valve at the second valve which forms a third seal downstream from the at least one cylinder having a piston, and upstream from the second cylinder having the piston.

10. The SIR dryer of claim 5, wherein the first cylinder is a horizontal cylinder and the second cylinder is a vertical cylinder.

11. The SIR dryer of claim 9, wherein the first cylinder is a horizontal cylinder and the second cylinder is a vertical cylinder.

12. A solid inert residue (SIR) dryer, comprising:

said dryer having one or more heating units and one or more drying substrates, said dryer capable of heating and drying a SIR on said substrate and removing an amount of volatile organic material therefrom;

said substrate capable of transferring said dried SIR to a collection area;

said collection area comprising a container having an inert gas therein; and

wherein a first valve is present at an entrance to the collection area which is selectively switchable to form a seal that isolates the container in the collection area from the volatile organic material in the dryer.

13. A process for removing a volatile organic material from the SIR according to claim 1, comprising the steps of:

adding the SIR to the dryer;

heating said dryer and removing said volatile organic material from said SIR;

transferring said dried SIR material to the collection area; and

collecting said dried SIR.

14. The process of claim 13, including compacting said collected dried SIR in said collection area.

15. The process of claim 14, including compressing said collected dried SIR in said at least one cylinder.

16. The process of claim 15, including a second cylinder having a piston, and subsequently compacting said compressed SIR in said second cylinder.

17. The process of claim 16, wherein said dryer further comprises a substrate, said substrate transferring said SIR to the collection area.

18. The process of claim 13, wherein said SIR comprises one or more polymers, or one more hydrocarbonateous materials, or any combination thereof.

19. The process of claim 18, including transferring said SIR from said collection area to a conveyance dispensing apparatus, said conveying dispensing apparatus comprising a first plunger, a second plunger, and a third plunger, wherein each of said plungers, independently, is located in a conveying tube, and wherein each said tube, independently, comprises a conveying valve.

20. The process of claim 19, wherein each said conveying valve, independently, is capable of forming a vapor seal.

21. The process of claim 19, wherein each said plunger, independently, comprises a piston, or an auger.

22. The process of claim 21, including said plunger compacting said SIR and removing a vapor therefrom.