CLAIMS

What is claimed is –

1. A method of recycling a plastic waste comprising:

(a) feeding a quantity of PET-containing solidified purge material separated from said plastic waste to a chemical recycling facility; and

(b) depolymerizing in said chemical recycling facility at least a portion of said purge material.

2. The method of claim 1, wherein the feeding (a) comprises feeding said quantity of solidified purge material directly into a solvolysis facility within said chemical recycling facility.

3. The method of claim 1, further comprising reducing the size of said quantity of solidified purge material to form a quantity of plastic particulate solids before said depolymerizing (b).

4. The method of claim 3, wherein said reducing comprises a mechanical size reduction process.

5. The method of claim 4, wherein the mechanical size reduction process comprises shredding, chopping, grinding, guillotine, dropping, and/or smashing said quantity of solidified purge material to form said quantity of plastic particulate solids.

6. The method of claim 5, wherein the mechanical size reduction process comprises shredding, and wherein said plastic particulate solids have a D90 particle size of less than 5.08 cm (2 inches).

7. The method of claim 6, wherein no grinder is used to reduce the size of said solidified purge material.

8. The method of claim 6, further comprising one or both of:

(i) recovering a quantity of plastic fines produced from said shredding and having a D90 of less than 0.32 cm (1/8 inches), and densifying at least a portion of said plastic fines into plastic particles having a D90 particle size of 0.32 cm (1/8 inches) to 2.54 cm (1 inch) before depolymerizing (b); and/or

(ii) recovering a quantity of large plastic particulates produced from said shredding and having a D90 of greater than 2.54 cm (1 inch), and shredding at least a portion of said large plastic particulates into plastic particles having a D90 particle size of 0.32 cm (1/8 inches) to 2.54 cm (1 inch) before depolymerizing (b).

9. The method of claim 3, wherein said plastic particulate solids have a D90 particle size of less than 15.2 cm (6 inches).

10. The method of claim 3, wherein said reducing produces a quantity of dry fines, strings, strands, and/or fibrous materials.

11. The method of claim 10, wherein said quantity of dry fines, strings, strands, and/or fibrous materials is recovered and densified into plastic particles having a D90 particle size of 0.32 cm (1/8 inches) to 2.54 cm (1 inch) before said depolymerizing (b).

12. The method of any one of claims 1 to 11, wherein said quantity of solidified purge material comprises at least 90 weight percent PET on a dry basis.

13. The method of any one of claims 1 to 11, wherein said quantity of solidified purge material comprises not more than 50 weight percent polyolefins.

14. The method of any one of claims 1 to 11, wherein said quantity of solidified purge material comprises not more than 20 weight percent PVC.

15. The method of any one of claims 1 to 11, wherein said quantity of solidified purge material comprises at least 0.1 weight percent co-polyesters on a dry basis.

16. The method of any one of claims 1 to 11, wherein said quantity of solidified purge material comprises at least 95 weight percent of materials that are solid at the processing temperature of the molten polymer processing apparatus from which the quantity of solidified purge material is produced.

17. The method of claim 16, wherein said solid materials comprise glass, metals, and/or other fillers.

18. The method of any one of claims 1 to 11, wherein said quantity of solidified purge material is produced by a PET reclaimer facility, a manufacturer of PET articles, and/or a polymer manufacturing facility.

19. The method of any one of claims 1 to 11, wherein said quantity of solidified purge material comprises clear plastics and/or colored plastics.

20. Use of PET-containing solidified purge material separated from plastic waste as a feedstock to a chemical recycling facility, wherein at least a portion of said purge material is depolymerized in said chemical recycling facility.