CLAIMS

What is claimed is:

1. A method for processing waste plastic, said method comprising:

introducing a glycol column bottoms coproduct stream from a solvolysis facility into at least one of the following: (i) a partial oxidation (POX) gasification facility; (ii) a pyrolysis facility; (iii) a cracker facility; and (iv) an energy generation/energy production facility.

2. The method of claim 1, further comprising introducing another process stream into at least one of the following: (i) said partial oxidation (POX) facility; (ii) said pyrolysis facility; (iii) said cracker facility; (iv) said energy generation/energy production facility; and (v) a solidification facility, wherein said glycol column bottoms coproduct stream and said another process stream are introduced into different ones of (i) through (v).

3. The method of claim 2, wherein said another process stream comprises a PO-enriched waste plastic stream.

4. The method of claim 1, wherein at least a portion of said glycol column bottoms coproduct stream is introduced into a POX gasification facility.

5. The method of claim 1, withdrawing said glycol column bottoms coproduct stream from a solvolysis facility used to process PET-containing waste plastic.

6. The method of claim 1, wherein said glycol column bottoms coproduct stream comprises at least 60 weight percent of oligomers comprising moieties of polyester, based on the total weight of said composition; a principal glycol; and at least one glycol other than said principal glycol, wherein the weight ratio of said at least one glycol other than said principal glycol to said principal glycol is at least 0.5:1.

7. The method of claim 1, wherein said solvolysis facility produces a principal terephthalyl and a principal glycol, wherein said glycol column bottoms coproduct stream comprises at least about 40 percent of components having a boiling point higher than said principal glycol, wherein said glycol column bottoms coproduct stream comprises not more than about 60 weight percent of components having a boiling point lower than said principal glycol, based on the total weight of the glycol column bottoms coproduct stream, wherein said glycol column bottoms coproduct stream comprises at least about 90 weight percent oligomers, wherein said oligomers have an average chain length of 2 to 25, and wherein said oligomers comprise polyester moieties, and wherein said glycol column bottoms coproduct stream has a total solids content of not more than 10 weight percent, based on the total weight of the stream.

8. The method of claim 1, wherein said solvolysis facility is a methanolysis facility.

9. A method for processing waste plastic, said method comprising:

(a) separating a stream of mixed plastic waste (MPW) into a polyethylene terephthalate-enriched (PET-enriched) stream and a polyolefin-enriched stream (PO-enriched) stream;

(b) subjecting at least a portion of said PET-enriched stream to solvolysis in a solvolysis facility to form a principal glycol product, a principal terephthalyl product, and at least one coproduct stream, wherein said coproduct stream comprises a glycol column bottoms coproduct stream; and

(c) introducing at least a portion of said coproduct stream from said solvolysis facility into at least one of the following: (i) a partial oxidation (POX) gasification facility; (ii) a pyrolysis facility; (iii) a solidification facility; (iv) a cracker facility; and (v) an energy generation/energy production facility.

10. The method of claim 9, wherein said PET-enriched stream comprises at least 60 weight percent PET and not more than 40 weight percent of polyolefins, based on the total weight of said PET-enriched stream, wherein said PO-enriched stream

comprises at least 60 weight percent polyolefins and not more than 40 weight percent of PET, based on the total weight of said PO-enriched stream, and wherein said PET-enriched stream comprises not more than 10 weight percent of halogens, based on the total weight of said PET-enriched stream.

11. The method of claim 9, wherein said glycol column bottoms coproduct stream comprises at least about 90 weight percent oligomers having an average chain length of 2 to 25, and wherein said oligomers comprise polyester moieties.

12. The method of claim 9, further comprising introducing said glycol column bottoms coproduct stream into at least two of facilities (i) through (v).

13. The method of claim 9, wherein said method is carried out as a continuous process.

14. The method of claim 9, wherein said solvolysis facility comprise a methanolysis facility.

15. The method of claim 9, wherein said method is carried out in a commercial-scale facility.

16. The method of claim 9, wherein said solvolysis facility is co-located with said at least one of said other facilities (i) through (v), and wherein at least one of the following statements (A) through (F) are true –

(A) said solvolysis facility and said other facility share at least one utility;

(B) said solvolysis facility and said other facility share at least one service group;

(C) said solvolysis facility and said other facility are owned and/or operated by parties that share at least one boundary;

(D) said solvolysis facility and said other facility are connected by at least one conduit;

(E) said solvolysis facility and said other facility share energy via an energy exchange zone; and

(F) said solvolysis facility and said other facility are within 50 miles from one another, measured from their geographical center.

17. A solvolysis coproduct composition formed within a solvolysis facility for processing polyester terephthalate-containing waste plastic to form a principal glycol and a principal terephthalyl using a principal solvent, said composition comprising:

at least 60 weight percent of oligomers comprising moieties of the polyester, based on the total weight of said composition;

said principal glycol; and

at least one glycol other than said principal glycol,

wherein the weight ratio of said at least one glycol other than said principal glycol to said principal glycol is at least 0.5:1.

18. The composition of claim 17, wherein said composition has a mid-range boiling point higher than the boiling point of said principal glycol.

19. The composition of claim 17, wherein said composition has a viscosity of at least 0.01 poise (P) and not more than 15 P, measured using a Brookfield R/S rheometer with V80-40 vane spindle operating at a shear rate of 10 rad/s and a temperature of 250°C.

20. The composition of claim 17, wherein said glycol other than said principal glycol is present in said composition in an amount of at least 15 and not more than 99 weight percent, based on the total weight of glycols in said composition and wherein said composition comprises not more than 10 weight percent of said principal glycol.