CLAIMS

What is claimed is:

~~1. A facility for handling plastic solids separated from a mixed plastic waste, the facility comprising:~~

~~an enclosed structure; and~~

~~an elongate overhead conveyor associated with said enclosed structure,~~

~~the overhead conveyor being configured to selectively deposit a stream of particulate plastic solids into (a) a plastic solids transport system and/or (b) at least one particulate plastic solids inventory pile at one or more locations along the length of said overhead conveyor.~~

~~2. The facility according to claim 1, wherein said overhead conveyor extends substantially the length of said enclosed structure.~~

~~3. The facility according to claim 1, wherein the particulate plastic solids stream comprises one of a PET-enriched stream and a PET-depleted stream generated by a waste plastic separation system.~~

~~4. The facility according to claim 3, wherein the particulate plastic solids stream comprises a PET-enriched stream comprising greater than 70% by weight polyethylene terephthalate and~~

~~(a) from 0.1% to 4% by weight halogens, and having a microorganism content of less than 10^9 CFU/g of said plastic solids; or~~

~~(b) from 0.1% to 4% by weight polyvinyl chloride, and at least 0.1% by weight of solid materials that do not phase change below 270°C and 1 atm; or~~

~~(c) from 0.1% to 4% by weight halogens; or~~

~~(d) from 0.1% to 10% by weight polyvinyl chloride, and a moisture content of less than 4% by weight; or~~

~~(e) a nylon content of not more than 1% by weight; or~~

~~(f) a multilayered plastics content of not more than 10% by weight.~~

~~5. The facility according to 3, wherein said facility is located within l 1609.34 m (one mile) of said waste plastic separation system.~~

~~6. The facility according to claim 1, wherein the particulate plastic solids stream comprises one of:~~

~~(a) a stream that is enriched in PET and depleted in nylon;~~

~~(b) a stream that is enriched in PET and depleted in multilayered plastics;~~

~~(c) a stream that is enriched in PET and enriched in PVC;~~

~~(d) a stream that is enriched in olefins and enriched in nylon; and~~

~~(e) a stream that is enriched in olefins and enriched in multilayered plastics.~~

~~7. The facility according to claim 1, wherein said elongate overhead conveyor comprises a belt conveyor, a pneumatic conveyor, a vibrating conveyor, or a screw conveyor.~~

~~8. The facility according to any of claims 1-7, wherein said particulate plastic solids transport system is located between said enclosed structure and a plastic chemical recycling facility.~~

~~9. The facility according to claim 8, wherein the plastic chemical recycling facility comprises at least one of a solvolysis facility, a POX gasifier facility, an energy generation/production facility, and a pyrolysis facility.~~

~~10. The facility according to claim 8, wherein the plastic chemical recycling facility is located within one mile of said enclosed structure.~~

~~11. The facility according to claim 1, wherein within said enclosed structure is located at least one particulate plastic solids inventory pile that is~~

~~enriched in PET, and at least one particulate plastic solids inventory pile that is depleted in PET.~~

~~12. The facility according to claim 1, wherein said particulate plastic solids deposited into the plastic solids transport system and/or at least one particulate plastic solids inventory pile do not comprise an antimicrobial agent.~~

~~13. A facility for handling a polyethylene terephthalate (PET)-enriched stream and a PET- depleted stream received from a mixed plastic waste separation system comprising:~~

~~first and second enclosed structures; and~~

~~first and second elongate overhead conveyors associated with said~~ a ~~first and second enclosed structures, respectively,~~

~~said elongate overhead conveyors being configured to selectively deposit said PET-enriched and depleted streams~~

~~received from the mixed plastic waste separation system into respective (a) first and second plastic solids transport systems and/or (b) first and second particulate plastic solids inventory piles at one or more locations along the length of said overhead conveyors.~~

~~14. The facility according to claim 13, wherein the PET-enriched stream comprises greater than 70% by weight polyethylene terephthalate and~~

~~(a) from 0.1% to 4% by weight halogens, and having a microorganism content of less than 10^9 CFU/g of said plastic solids; or~~

~~(b) from 0.1% to 4% by weight polyvinyl chloride, and at least 0.1% by weight of solid materials that do not phase change below 270°C and 1 atm; or~~

~~(c) from 0.1% to 4% by weight halogens; or~~

~~(d) from 0.1% to 10% by weight polyvinyl chloride, and a moisture content of less than 4% by weight; or~~

~~(e) a nylon content of not more than 1% by weight; or~~

(f) a multilayered plastics content of not more than 10% by weight.

15. The facility according to 13, wherein said facility is located within 1609.34 m (one mile) of said waste plastic separation system.

16. The facility according to any of claims 13-15, wherein the PET-depleted stream is enriched in nylon and/or enriched in multilayered plastics relative to the PET-enriched stream.

17. The facility according to claim 13, wherein said first and second elongate overhead conveyors extend substantially the length of said first and second enclosed structures, respectively.

18. The facility according to claim 13, wherein said first and second elongate overhead conveyors individually comprise a belt conveyor, a pneumatic conveyor, a vibrating conveyor, or a screw conveyor.

19. The facility according to claim 13, wherein said first particulate plastic solids transport system is located between said first enclosed structure and a first plastic chemical recycling facility.

20. The facility according to claim 19, wherein said first plastic chemical recycling facility comprises a solvolysis facility.

21. The facility according to claim 13, wherein said second particulate plastic solids transport system is located between said second enclosed structure and a second plastic chemical recycling facility.

22. The facility according to claim 21, wherein said second plastic chemical recycling facility comprises at least one of a POX gasifier facility and a pyrolysis facility.

23. The facility according to claim 13, wherein said first and second enclosed structures are located within 1609.34 m (one mile) of each other.

24. The facility according to claim 13, wherein said PET-enriched and depleted streams received from the mixed plastic waste separation system and deposited into respective first and second plastic solids transport systems and/or first and second particulate plastic solids inventory piles do not comprise an antimicrobial agent.

25. A plastic material transport system comprising:

a first transport system configured to transport a polyethylene terephthalate (PET)-enriched stream in between a particulate plastic solids handling facility and a solvolysis facility; and

a second transport system configured to transport a PET-depleted stream in between said particulate plastic solids handling facility and at least one of a partial oxidation gasification facility and a pyrolysis facility.

26. The plastic material transport system according to claim 25, wherein said first transport system comprises at least one of a hopper, a blower, and a pneumatic plastic-conveying conduit.

27. The plastic material transport system according to claim 25, wherein said second transport system comprises a least one of a hopper, a blower, and a pneumatic plastic-conveying conduit.

28. The plastic material transport system according to any of claims 25-27, wherein the particulate plastic solids handling facility comprises first and second enclosed structures and first and second elongate overhead conveyors associated with said first and second enclosed structures, respectively,

wherein said first elongate overhead conveyor is configured to selectively deposit the PET-enriched stream of particulate plastic solids into

~~(a) said first transport system and/or (b) at least one PET-enriched particulate plastic solids inventory pile at one or more locations along the length of said first elongate overhead conveyor, and~~

~~wherein said second elongate overhead conveyor is configured to selectively deposit the PET-depleted stream of particulate plastic solids into (a) said second transport system and/or (b) at least one PET-depleted particulate plastic solids inventory pile at one or more locations along the length of said second elongate overhead conveyor.~~

~~29. The plastic material transport system according to claim 28, wherein said first and second elongate overhead conveyors individually comprise a belt conveyor, a pneumatic conveyor, a vibrating conveyor, or a screw conveyor.~~

~~30. The plastic material transport system according to claim 28, wherein at least one of said first and second elongate overhead conveyors is located inside its respective enclosed structure.~~

~~31. The plastic material transport system according to claim 25, wherein said solvolysis facility, partial oxidation gasification facility and/or pyrolysis facility are each located within 1609.34 m (one mile) of said particulate plastic solids handling facility.~~

~~32.~~ 1. A method of handling particulate plastic solids separated from a mixed plastic waste, the method comprising~~:~~

loading onto an elongate overhead conveyor associated with an enclosed structure said particulate plastic solids received from a mixed plastic waste separation system;

transporting with said overhead conveyor said particulate plastic solids along the length of said enclosed structure; and

selectively depositing said particulate plastic solids into at least one of (a) a plastic solids transport system and (b) at least one particulate plastic

solids inventory pile at one or more locations along the length of said conveyor and within said enclosed structure.

~~33.~~ 2. The method according to claim ~~32~~1, wherein said particulate plastic solids comprise one of a PET-enriched stream and a PET-depleted stream generated by the mixed plastic waste separation system.

~~34.~~ 3. The method according to claim ~~33~~2, wherein said particulate plastic solids comprise a PET-enriched stream comprising greater than 70% by weight polyethylene terephthalate and

(a) from 0.1% to 4% by weight halogens, and having a microorganism content of less than 10^9 CFU/g of said plastic solids; or

(b) from 0.1% to 4% by weight polyvinyl chloride, and at least 0.1% by weight of solid materials that do not phase change below 270°C and 1 atm; or

(c) from 0.1% to 4% by weight halogens; or

(d) from 0.1% to 10% by weight polyvinyl chloride, and a moisture content of less than 4% by weight; or

(e) a nylon content of not more than 1% by weight; or

(f) a multilayered plastics content of not more than 10% by weight.

~~35. The method according to claim 33, wherein neither said PET-enriched stream nor said PET-depleted streams, nor their respective inventory piles, have been treated with an antimicrobial agent.~~

~~36. The method according to claim 32, wherein said particulate plastic solids comprise one of:~~

~~(a) a stream that is enriched in PET and depleted in nylon;~~

~~(b) a stream that is enriched in PET and depleted in multilayered plastics;~~

~~(c) a stream that is enriched in PET and enriched in PVC;~~

~~(d) a stream that is enriched in olefins and enriched in nylon; and~~

~~(e) a stream that is enriched in olefins and enriched in multilayered plastics.~~

~~37. The method according to claim 32, wherein said method further comprises the step of densifying said particulate plastic solids prior to loading said particulate plastic solids onto said elongate overhead conveyor.~~

~~38. The method according to claim 32, wherein said elongate overhead conveyor comprises a belt conveyor, a pneumatic conveyor, a vibrating conveyor, or a screw conveyor.~~

~~39.~~ 4. The method according to ~~any of~~ claim~~s 32-38~~2, wherein particulate plastic solids from said elongate overhead conveyor and/or from said at least one particulate plastic solids inventory pile are deposited in said particulate plastic solids transport system and transported from said enclosed structure to a plastic chemical recycling facility comprising at least one of a solvolysis facility, a POX gasifier facility, an energy generation/production facility, and a pyrolysis facility.

~~40. The method according to claim 39, wherein the plastic chemical recycling facility comprises at least one of a solvolysis facility, a POX gasifier facility, an energy generation/production facility, and a pyrolysis facility.~~

~~41.~~ 5. The method according to claim ~~39~~4, wherein the plastic chemical recycling facility is located within 1609.34 m (one mile) of said enclosed structure.

~~42. The method according to claim 39, wherein said particulate plastic solids are deposited into said at least one inventory pile when said chemical plastic recycling facility is not in operation.~~

~~43. The method according to claim 39, wherein said particulate plastic solids are loaded into the particulate plastic solids transport system from said at least one inventory pile while said plastic chemical recycling facility is in operation.~~

~~44.~~ 6. The method according to claim ~~39~~4, wherein said particulate plastic solids are deposited into said at least one inventory pile while said plastic chemical facility is in operation.

~~45.~~ 7. The method according to claim ~~39~~4, wherein said particulate plastic solids are simultaneously deposited into said particulate plastic solids transport system from said overhead conveyor and from said at least one inventory pile.

~~46. The method according to claim 32, wherein said particulate plastic solids are deposited into said particulate plastic solids transport system from said at least one inventory pile using a front-end loader or a belt loader.~~

~~47. The method according to claim 32, wherein said particulate plastic solids are deposited batchwise into said particulate plastic solids transport system from said at least one inventory pile.~~

~~48.~~ 8. A method of handling a polyethylene terephthalate (PET)-enriched solids stream and a-PET-depleted solids stream received from a mixed plastic waste separation system comprising:

loading said PET-enriched solids stream onto a first elongate conveyor associated with a first enclosed structure, said first conveyor being located overhead within said first enclosed structure;

transporting with said first conveyor said PET-enriched solids stream within said first enclosed structure;

selectively depositing said PET-enriched solids stream into at least one of (a) a PET-enriched solids transport system and (b) at least one PET-

enriched solids inventory pile at one or more locations along the length of said conveyor and within said first enclosed structure;

loading the PET-depleted solids stream onto a second elongate conveyor located within a second enclosed structure, said second conveyor being located overhead within said second enclosed structure and extending substantially the length thereof;

transporting with said second conveyor said PET-depleted solids stream within said second enclosed structure; and

selectively depositing said PET-depleted stream into at least one of (a) a PET-depleted solids transport system and (b) at least one PET-depleted solids inventory pile at one or more locations along the length of said conveyor and within said second enclosed structure.

~~49.~~ 9. The method according to claim ~~48~~8, wherein said depositing of said PET-enriched stream occurs simultaneously with said depositing of said PET-depleted stream.

~~50.~~ 10. The method according to claim ~~48~~8, wherein at least one of said PET-enriched solids and PET-depleted solids transport systems comprises a hopper and a pneumatic plastic-conveying conduit.

~~51. The method according to claim 48, wherein said first and second enclosed structures are located within 1609.34 m (one mile) of each other.~~

~~52.~~ 11. The method according to claim ~~48~~8, wherein PET-enriched solids from said PET-enriched solids stream and/or said PET-enriched solids inventory pile are deposited into said PET-enriched first particulate plastic solids transport system and transported from said first enclosed structure to a solvolysis facility located within 1609.34 m (one mile) of said first enclosed structure.

~~53. The method according to claim 52, wherein said solvolysis facility is located within 1609.34 m (one mile) of said first enclosed structure.~~

~~54.~~ 12. The method according to claim ~~48~~8, wherein PET-depleted solids from said PET-depleted solids stream and/or said PET-depleted solids inventory pile are deposited into said PET-depleted solids transport system and transported from said second enclosed structure to at least one of a POX gasifier facility, an energy generation/production facility, and a pyrolysis facility.

~~55. The method according to claim 54, wherein said at least one of a POX gasifier facility and a pyrolysis facility is located within 1609.34 m (one mile) of said second enclosed structure.~~

~~56. The method according to claim 48, wherein PET-enriched solids from said PET-enriched solids stream and/or said PET-enriched solids inventory pile are transported to a solvolysis facility, wherein PET-depleted solids from said PET-depleted solids stream and/or said PET-depleted solids inventory pile are transported to at least one of a POX gasifier facility, an energy generation/production facility, and a pyrolysis facility, and wherein said solvolysis facility is located within 3,218.678 m (2 miles) of said at least one of a POX gasifier facility and a pyrolysis facility.~~

~~57.~~ 13. The method according to claim ~~48~~8, wherein the mode of depositing is different for said PET-enriched stream than for said PET-depleted stream.

~~58.~~ 14. The method according to claim ~~48~~8, wherein neither the PET-enriched nor PET-depleted streams, nor their respective inventory piles, have been treated with an antimicrobial agent other than a density separation medium employed in a density separation process.

~~59.~~ 15. A method of distributing streams comprising particulate plastic solids to one or more plastic chemical recycling facilities comprising:

conducting a polyethylene terephthalate (PET)-enriched solids stream from a particulate plastic solids handling facility to a solvolysis facility; and conducting a PET-depleted solids stream from said particulate plastic solids handling facility to at least one of a partial oxidation gasification facility, an energy generation/production facility, and a pyrolysis facility.

~~60.~~ 16. The method according to claim ~~59~~15, wherein the particulate plastic solids handling facility comprises first and second enclosed structures and first and second elongate overhead conveyors associated with said first and second enclosed structures, respectively,

wherein said PET-enriched solids stream is carried by said first elongate overhead conveyor and selectively deposited into (a) a PET-enriched solids stream transport system and/or (b) at least one PET-enriched particulate plastic solids inventory pile at one or more locations along the length of said first elongate overhead conveyor, and

wherein said PET-depleted stream is carried by said second elongate overhead conveyor and selectively deposited into (a) a PET-depleted solids stream transport system and/or (b) at least one PET-depleted particulate plastic solids inventory pile at one or more locations along the length of said second elongate overhead conveyor.

~~61. The method according to claim 60, wherein at least one of said first and second overhead conveyors is located inside its respective enclosed structure.~~

~~62.~~ 17. The method according to claim ~~61~~16, wherein said first and second elongate overhead conveyors individually comprise a belt conveyor, a pneumatic conveyor, a vibrating conveyor, or a screw conveyor.

~~63.~~ 18. The method according to claim ~~59~~15, wherein said solvolysis facility and/or said at least one of a partial oxidation gasification facility and a

pyrolysis facility are each located within 1609.34 m (one mile) of said particulate plastic solids handling facility.

~~64. The method according to claim 59, wherein said PET-enriched solids stream is depleted in nylon relative to said PET-depleted solids stream.~~

~~65.~~ 19. The method according to claim ~~59~~15, wherein said PET-enriched solids stream is depleted in multilayered plastics relative to said PET-depleted solids stream.

~~66.~~ 20. The method according to claim ~~59~~15, wherein said PET-enriched solids stream is conducted from said particulate plastic solids handling facility to said solvolysis facility using a PET-enriched solids transport system, and wherein said PET-depleted solids stream is conducted from said particulate plastic solids handling facility to said at least one of a partial oxidation gasification facility, an energy generation/production facility, and a pyrolysis facility using a PET-depleted solids transport system, wherein each of said transport systems comprise at least one of a hopper, a blower, and a pneumatic plastic-conveying conduit.