CLAIMS

What is claimed is:

1. An isolated quantity of particulate plastic solids comprising greater than 70% by weight polyethylene terephthalate (PET), from 0.1% to 10% by weight polyvinyl chloride (PVC), and a moisture content of less than 4% by weight.

~~2. A quantity of particulate plastic solids comprising greater than 70% by weight polyethylene terephthalate (PET) and from 0.05% to 10% or 0.1% to 4% by weight halogens.~~

~~3.~~ 2. A quantity of particulate plastic solids comprising greater than 70% by weight polyethylene terephthalate (PET), from 0.1% to 4% by weight polyvinyl chloride (PVC), and at least 0.1% by weight of solid materials that do not phase change below 270°C and 1 atm.

~~4. The quantity of particulate plastic solids of claim 3, wherein said solid materials comprise glass, aluminum, ferrous and non-ferrous metals, rocks, minerals, crosslinked polyethylene (PEX), polytetrafluoroethylene, calcium carbonate, and/or PVC.~~

~~5.~~ 3. The quantity of particulate plastic solids according to claims 1~~, 2,~~ or ~~3~~2, wherein the quantity of particulate plastic solids has a microorganism content of less than 10^4 CFU/g of said particulate plastic solids.

~~6.~~ 4. The quantity of particulate plastic solids according to claim ~~5~~3, wherein the quantity of particulate plastic solids has not been treated with any antimicrobial agent other than an antimicrobial composition applied to the particulate plastic solids as a part of a density separation process~~.~~, and the antimicrobial composition applied to the particulate plastic solids as a part of the density separation process is a caustic solution.

~~7. The quantity of particulate plastic solids according to claim 6, wherein the antimicrobial composition applied to the particulate plastic solids as a part of the density separation process is a caustic solution.~~

~~8.~~ 5. The quantity of particulate plastic solids according to claim ~~7~~4, wherein no other antimicrobial agent has been used in the density separation process other than said caustic solution.

~~9. The quantity of particulate plastic solids according to claims 1, 2, or 3, wherein the quantity of particulate plastic solids has a microorganism content of not more than 10^2 CFU/g of said particulate plastic solids.~~

~~10. The quantity of particulate plastic solids according to claims 1, 2, or 3, wherein the particulate plastic solids are derived from a mixed plastic waste feed, and wherein the level of microorganism count in the quantity of particulate plastic has been reduced by at least 90% relative to the mixed plastic waste feed.~~

~~11. The quantity of particulate plastic solids according to claim 10, wherein the reduction in microorganism count is maintained within the quantity of particulate plastic for a period of at least 12 hours.~~

~~12.~~ 6. The quantity of particulate plastic solids according to claim ~~10~~5, wherein the reduction in microorganism count is obtained without application of any antimicrobial agent after a last density separation stage, or after a drying step through application of external heat energy in a vessel, or after a last liquid density separation step.

~~13. The quantity of particulate plastic solids according to claims 1, 2, or 3, wherein the quantity is greater than 76.5 m^3 (100 yd^3).~~

~~14. The quantity of particulate plastic solids according to claims 1, 2, or 3, wherein the average D90 particle size of the entire quantity is less than 2.54 cm (1 inch).~~

~~15.~~ 7. The quantity of particulate plastic solids according to claims 1~~, 2,~~ or ~~3~~2, wherein the monthly average D90 particle size within said quantity of particulate plastic solids having a volume of at least 765 m^3 (1000 yd^3) is less than 2.54 cm (1 inch).

~~16. The quantity of particulate plastic solids according to claims 1, 2, or 3, wherein said quantity of particulate plastic solids comprises at least 765 m^3 (1000 yd^3) of said particulate plastics solids that has been a part of said quantity for at least 24 hours.~~

~~17.~~ 8. The quantity of particulate plastic solids according to claims 1~~, 2,~~ or ~~3~~2, wherein a sampling of the airspace located no more than 3.0 m (10 feet) from the quantity of particulate plastic solids comprises less than 500 ppm of one or more of hydrogen sulfide, dimethyl sulfide, methanethiol, putrescine, cadaverine, trimethylamine, ammonia, acetaldehyde, acetic acid, butanoic acid, propanoic acid, and/or butyric acid.

~~18. The quantity of particulate plastic solids according to claims 1, 2, or 3, wherein said quantity of particulate plastic solids has a nylon content of not more than 1% by weight.~~

~~19. The quantity of particulate plastic solids according to claims 1, 2, or 3, wherein said quantity of particulate plastic solids has a multilayered plastics content of not more than 10% by weight.~~

~~20. The quantity of particulate plastic solids according to claims 1, 2, or 3 wherein the quantity of particulate plastic solids is unpackaged.~~

~~21. The quantity of particulate plastic solids according to claim 20, wherein the quantity of particulate plastic solids has a microorganism content of less than 10^4 CFU/g of said particulate plastic solids, or wherein the quantity of particulate plastic solids has a microorganism content of not more than 10^2 CFU/g of said particulate plastic solids.~~

~~22. The quantity of particulate plastic solids according to claims 1, 2, or 3 wherein the quantity of particulate plastic solids is obtained from waste plastic.~~

~~23. The quantity of particulate plastic solids according to claims 1, 2 or 3, wherein the quantity comprises a median quantity of at least 0.1 wt.% PVC (or its calculated equivalent halogen content or at least 0.05 wt%) on a dry plastic basis over a period of at least 10 days determined by taking one set of four samples daily of equal weight between 100 g to 1 kg from the quantity of particulate plastic solids and determining the median average of the samples over the days in the test period.~~

~~24. The quantity of particulate plastic solids according to claim 23, wherein said PVC or halogen content is determined on inventory piles having a volume of greater than 76.46 m^3 (100 yd^3).~~

~~25.~~ 9. The quantity of particulate plastic solids according to claims 1~~, 2~~ or ~~3~~2, wherein the quantity of particulate plastic solids is derived from a quantity of a mixed plastic waste having a volume of greater than 76.46 m^3 (100 yd^3).

~~26. The quantity of particulate plastic solids according to claims 1, 2 or 3, wherein the quantity of particulate plastic solids is produced by a continuous processing of mixed plastic waste at an average rate of at least 2,000 lb/hr.~~

~~27. The quantity of particulate plastic solids according to claims 1, 2, or 3, wherein the quantity of particulate plastic solids comprises from 0.5 to 8 wt.%~~

~~PVC, or its equivalent halogen count, or from or 0.08 to 4 wt.%, on a dry plastic basis.~~

~~28.~~ 10. A quantity of particulate plastic solids comprising at least 50% by weight polyolefins on a dry plastic basis, less than 10% by weight PET on a dry plastic basis, and less than 10,000 ppm of halogens, on a dry plastic basis.

~~29. A quantity of particulate plastic solids comprising at least 50% by weight polyolefins on a dry plastic basis, a moisture content of less than 4% by weight, and at least 0.1% by weight nylons and/or at least 0.001% by weight multicomponent polymers on a dry plastic basis.~~

~~30. A quantity of particulate plastic solids comprising at least 50% by weight polyolefins on a dry plastic basis, less than 10,000 ppm halogens on a dry plastic basis, and at least 0.1% by weight of solid materials that do not phase change below 270°C and 1 atm.~~

~~31.~~ 11. The quantity of particulate plastic solids according to claim~~s~~ 10 ~~28, 29, or 30~~, wherein the quantity of particulate plastic solids has a microorganism content of less than 10^4 CFU/g of said particulate plastic solids.

~~32.~~ 12. The quantity of particulate plastic solids according to claim ~~31~~11, wherein the quantity of particulate plastic solids has not been treated with any antimicrobial agent other than an antimicrobial composition applied to the particulate plastic solids as a part of a density separation process, and no other antimicrobial agent has been used in the density separation process other than a caustic solution.

~~33. The quantity of particulate plastic solids according to claim 32, wherein the antimicrobial composition applied to the particulate plastic solids as a part of the density separation process is a caustic solution.~~

~~34. The quantity of particulate plastic solids according to claim 32, wherein no other antimicrobial agent has been used in the density separation process other than said caustic solution.~~

~~35. The quantity of particulate plastic solids according to claims 28, 29, or 30, wherein the quantity of particulate plastic solids has a microorganism content of not more than 10^2 CFU/g of said particulate plastic solids.~~

~~36.~~ 13. The quantity of particulate plastic solids according to claim~~s~~ 10 ~~28, 29, or 30~~, wherein the particulate plastic solids are derived from a mixed plastic waste feed, and wherein the level of microorganism count in the quantity of particulate plastic has been reduced by at least 90% relative to the mixed plastic waste feed.

~~37. The quantity of particulate plastic solids according to claim 36, wherein the reduction in microorganism count is maintained within the quantity of particulate plastic for a period of at least 12 hours.~~

~~38. The quantity of particulate plastic solids according to claim 36, wherein the reduction in microorganism count is obtained without application of any antimicrobial agent after a last density separation stage, or after a drying step through application of external heat energy in a vessel, or after a last liquid density separation step.~~

~~39. The quantity of particulate plastic solids according to claims 28, 29, or 30, wherein the quantity is greater than 76.5 m^3 (100 yd^3).~~

~~40. The quantity of particulate plastic solids according to claims 28, 29, or 30, wherein the average D90 particle size of the entire quantity is less than 2.54 cm (1 inch).~~

~~41. The quantity of particulate plastic solids according to claims 28, 29, or 30, wherein the monthly average D90 particle size within said quantity of particulate plastic solids having a volume of at least 765 m^3 (1000 yd^3) is less than 2.54 cm (1 inch).~~

~~42. The quantity of particulate plastic solids according to claims 28, 29, or 30, wherein said quantity of particulate plastic solids comprises at least 765 m^3 (1000 yd^3) of said particulate plastics solids that has been a part of said quantity for at least 24 hours.~~

~~43.~~ 14. The quantity of particulate plastic solids according to claim~~s~~ 10~~28, 29, or 30~~, wherein a sampling of the airspace located no more than 3.0 m (10 feet) from the quantity of particulate plastic solids comprises less than 500 ppm of one or more of hydrogen sulfide, dimethyl sulfide, methanethiol, putrescine, cadaverine, trimethylamine, ammonia, acetaldehyde, acetic acid, butanoic acid, propanoic acid, and/or butyric acid.

~~44.~~ 15. The quantity of particulate plastic solids according to claim 10~~28, 29, or 30~~, wherein the quantity of particulate plastic solids is unpackaged.

~~45. The quantity of particulate plastic solids according to claim 28, 29, or 30, wherein the quantity comprises an median halogen content of less than 100 ppm halogens on a dry plastic basis over a period of at least 10 days determined by taking four samples of equal weight between 100 g to 1 kg from the quantity of particulate plastic solids with a minimum duration between samples of 24 hours over the test period and determining the median average of the samples over the days in the test period.~~

~~46. The quantity of particulate plastic solids according to claim 45, wherein said halogen content is determined on inventory piles having a volume of greater than 76.46 m^3 (100 yd^3).~~

~~47.~~ 16. The quantity of particulate plastic solids according to claim~~s~~ 10 ~~28, 29 or 30~~, wherein the quantity of particulate plastic solids is derived from a quantity of a mixed plastic waste having a volume of greater than 76.46 m^3 (100 yd^3).

~~48. The quantity of particulate plastic solids according to claims 28, 29, or 30, wherein the quantity of particulate plastic solids is produced by a continuous processing of mixed plastic waste at an average rate of at least 2,000 lb/hr.~~

~~49. The quantity of particulate plastic solids according to claims 28, 29, or 30, wherein the quantity of particulate plastic solids comprises from 10 ppm to 10,000 ppm of halogens, on a dry plastic basis.~~

~~50. At least first and second co-located quantities of plastic solids, wherein said first quantity of plastic solids comprises plastic solids that have not been processed to reduce the level of microorganisms thereon, and wherein said second quantity of plastic solids comprises plastic solids that have been processed to reduce the level of microorganism thereon.~~

~~51.~~ 17. At least first and second co-located quantities of plastic solids that have been processed to reduce the level of microorganisms thereon, wherein said first quantity of plastic solids is enriched in polyolefins relative to said second quantity of plastic solids, and wherein said second quantity of plastic solids is enriched in polyethylene terephthalate (PET) relative to said first quantity of plastic solids.

~~52. The at least first and second co-located quantities of plastic solids according to claims 50 or 51, wherein said first quantity of particulate plastic solids comprises plastic solids that have not been subjected to a mechanical comminution process, and wherein said second quantity of plastic solids comprises plastic solids that have been subjected to a mechanical comminution process.~~

~~53.~~ 18. The at least first and second co-located quantities of plastic solids according to claims ~~50 or 51~~17, wherein said first quantity of plastic solids is housed in at least one first enclosed structure or present as a non-enclosed pile, and wherein said second quantity of plastic solids is (a) present as a non-enclosed pile, or (b) also housed in said at least one first enclosed structure, or (c) housed in at least one separate, second enclosed structure.

~~54. The at least first and second co-located quantities of plastic solids according to claim 53, wherein said first enclosed structure comprises an overhead conveying system operable to deposit said first quantity of plastic solids into one or more piles or directly into a conveyor device.~~

~~55. The at least first and second co-located quantities of plastic solids according to claim 53, wherein said second enclosed structure comprises an overhead conveying system operable to deposit said second quantity of plastic solids into one or more piles or directly into a conveyor device.~~

~~56. The at least first and second co-located quantities of plastic solids according to claim 53, wherein the first enclosed structure is located less than 1609.34 m (one mile) from the second enclosed structure.~~

~~57. The at least first and second co-located quantities of plastic solids according to claims 50 or 51, wherein said first quantity of plastic solids is enriched in nylon and/or multilayered plastic relative to said second quantity of plastic solids.~~

~~58. The at least first and second co-located quantities of plastic solids according to claims 50 or 51, wherein at least said second quantity of plastic solids has a microorganism content of less than 10^4 CFU/g of said plastic solids.~~

~~59.~~ 19. The at least first and second co-located quantities of plastic solids according to claim ~~58~~18, wherein at least said second quantity of plastic solids has not been treated with any antimicrobial agent other than an antimicrobial composition applied to the particulate plastic solids as a part of a density separation process, and the antimicrobial composition comprises a caustic solution.

~~60. The at least first and second co-located quantities of plastic solids according to claim 59, wherein the antimicrobial composition applied to the at least second quantity of plastic solids plastic solids as a part of the density separation process is a caustic solution.~~

~~61.~~ 20. The at least first and second co-located quantities of plastic solids according to claim ~~60~~19, wherein no other antimicrobial agent has been used in the density separation process other than said caustic solution.

~~62. The at least first and second co-located quantities of plastic solids according to claims 50 or 51, wherein at least said second quantity of plastic solids has a microorganism content of not more than 10^2 CFU/g of said particulate plastic solids.~~

~~63. The at least first and second co-located quantities of plastic solids according to claims 50 or 51, wherein the plastic solids are derived from a mixed plastic waste feed, and wherein the level of microorganism count in the at least second quantity of plastic solids has been reduced by at least 90% relative to the mixed plastic waste feed.~~

~~64. The at least first and second co-located quantities of plastic solids according to claim 63, wherein the reduction in microorganism count is maintained within the at least second quantity of plastic solids for a period of at least 12 hours.~~

~~65. The at least first and second co-located quantities of plastic solids according to claim 63, wherein the reduction in microorganism count is obtained without application of any antimicrobial agent after a last density separation stage, or after a drying step through application of external heat energy in a vessel, or after a last liquid density separation step.~~