CLAIMS

1. A process for producing carbon black, comprising:
   a) pyrolising a plastic feed comprising polyethene (PE), polypropylene (PP), or combination thereof, to produce a plastic pyrolytic char;
   b) pre-washing the plastic pyrolytic char with an aqueous solution (such as water);
   c) washing the pre-washed plastic pyrolytic char with acid; and
   d) washing the acid-washed plastic pyrolytic char with base.

2. The process according to Claim 1, wherein the plastic feed comprises less than 20 wt%, preferably less than 10 wt%, more preferably less than 5 wt% and even more preferably is substantially free from carbon black.

3. The process according to Claim 1, wherein at least 50 wt%, preferably at least 60 wt%, more preferably at least 70 wt% of the plastic feed is made up of PE (such as high-density polyethylene (HDPE) or low-density polyethylene (LDPE)) and/or PP.

4. The process according to any of Claims 1 to 3, wherein the plastic feed comprises less than 0.1 wt%, preferably less than 0.07 wt%, more preferably less than 0.05 wt% polyvinyl chloride (PVC).

5. The process according to any of Claims 1 to 4, wherein pre-washing in step b) is performed at a temperature of from 5 to 50 °C, preferably from 10 to 40 °C, more preferably from 15 to 30 °C.

6. The process according to any of Claims 1 to 5, wherein pre-washing in step b) is performed for a duration of 10 minutes to 3 hours, preferably 30 minutes to 2 hours, more preferably 45 minutes to 1.5 hours.

7. The process according to any of Claims 1 to 6, wherein the acid is selected from HCl, HNO_3, H_3PO_4 and mixtures thereof, preferably HCl.

8. The process according to any of Claims 1 to 7, wherein the weight ratio of acid to

pre-washed plastic pyrolytic char used in step c) is from 0.1:1 to 4:1, preferably 0.5:1 to 3:1, more preferably 1:1 to 2:1.

9. The process according to any of Claims 1 to 8, wherein washing in step c) is performed at a temperature of from 30 to 150 °C, preferably from 60 to 130 °C, more preferably from 90 to 110 °C.

10. The process according to any of Claims 1 to 9, wherein washing in step c) is performed for a duration of 10 minutes to 3 hours, preferably 30 minutes to 2 hours, more preferably 45 minutes to 1.5 hours.

11. The process according to any of Claims 1 to 10, wherein step c) further comprises washing the acid-washed plastic pyrolytic char with water.

12. The process according to any of Claims 1 to 11, wherein the base is selected from KOH, NaOH and mixtures thereof, preferably NaOH.

13. The process according to any of Claims 1 to 12, wherein the weight ratio of base to acid-washed plastic pyrolytic char used in step d) is from 0.1:1 to 4:1, preferably 0.5:1 to 3:1, more preferably 1:1 to 2:1.

14. The process according to any of Claims 1 to 13, wherein washing in step d) is performed at a temperature of from 30 to 150 °C, preferably from 60 to 130 °C, more preferably from 90 to 110 °C.

15. The process according to any of Claims 1 to 14, wherein washing in step d) is performed for a duration of 10 minutes to 3 hours, preferably 30 minutes to 2 hours, more preferably 45 minutes to 1.5 hours.

16. The process according to any of Claims 1 to 15, wherein step d) further comprises washing the base-washed plastic pyrolytic char with water.

17. The process according to any of Claims 1 to 16, further comprising reducing the particle size of the plastic pyrolytic char following pre-washing in step b) and/or

following acid washing in step c) and/or following base washing in step d), preferably by grinding.

18. The process according to any of Claims 1 to 17, wherein the carbon black comprises at least 70 wt.% carbon, preferably at least 75 wt.% carbon, more preferably at least 80 wt.% carbon and even more preferably at least 85 wt.% carbon.

19. The process according to any of Claims 1 to 18, wherein the carbon black has a total metal content of below 50,000 mg/kg, preferably below 20,000 mg/kg, more preferably below 15,000 mg/kg.

20. The process according to any of Claims 1 to 19, wherein the carbon black has an ash content below 5 wt.%, preferably below 3 wt.%, more preferably below 1 wt.% and even more preferably below 0.5 %.

21. The process according to any of Claims 1 to 20, wherein the carbon black has a surface area of from 20 to 200 m^2/g, preferably from 40 to 150 m^2/g, more preferably from 60 to 100 m^2/g.

22. The process according to any of Claims 1 to 21, wherein the carbon black has a pore volume of at least 0.06 cm^3/g, preferably at least 0.9 cm^3/g, more preferably at least 0.13 cm^3/g, even more preferably at least 0.16 cm^3/g.