C L A I M S

1. A method for preparing coated binder units wherein the coated binder units comprise a core of binder coated with a layer of coating material, wherein the binder is a bituminous binder or a synthetic binder comprising a resin, an oil and optionally a polymer, which method comprises the steps of:

(a) supplying the binder and the coating material to an co-extrusion device which comprises an even number of pairs of inner and outer dies, whereby the binder is supplied to the inner dies and the coating material is supplied to the outer dies;

(b) co-extruding the binder and the coating material by means of the co-extrusion device, thereby producing streams of extrudate in which the binder is coated with a layer of the coating material; and

(c) optionally, shaping the streams of extrudate, into coated binder units.

2. A method according to claim 1, wherein the even number of pairs of the inner and outer dies is in the range of from 2-40.

3. A method according to claim 1 or 2, wherein the inner and outer dies have concentrically arranged extrusion orifices.

4. A method according to any one of claims 1-3, wherein there is an insulating gap between each pair of inner and outer dies, and a coolant material is circulated in the insulating gap.

5. A method according to any one of claims 1-4, wherein the co-extrusion device comprises one inlet for the binder and one inlet for the coating material.

6. A method according to any one of claims 1-5, wherein the coextrusion device contains flow valves that ensure balanced flow at the various die exits.

7. A method according to any one of claims 1-6, wherein the binder is a bituminous binder.

8. A method according to any one of claims 1-6, wherein the binder is a synthetic binder, comprising a resin, an oil and optionally a polymer.

9. A method according to any preceding claim, wherein the coating material is chosen from the group consisting of a polymer, bitumen having a penetration at 25°C of less than 5dmm, sulphur, blends of these materials with filler materials, blends of these material with fibre materials, and blends of two or more of these materials.

10. A method according to claim 9, wherein the coating material is a polymer or a blend comprising at least 50wt% polymer.

11. A method according to any preceding claim, wherein the units are pellets, and the average longest dimension of the pellets is less than 100mm.

12. A method according to any one of claims 1-10, wherein the units are rods, the average hydraulic diameter of the rods is less than 200mm.

13. A method according to claim 12, wherein the average diameter of the core of binder is in the range of from 10 to 100mm and the average thickness of the layer of the coating material is in the range of from 0.05 to 5mm.

14. A method according to any one of claims 1-10, wherein the extrudates have a non-circular profile, having an average hydraulic diameter of less than 150mm.

15. A co-extrusion device which comprises an inlet for a first material and an inlet for a second material, an

even number of pairs of inner and outer dies, and a number of outlets for streams of extrudate.

16. A device according to claim 15, wherein the even number of pairs of the inner and outer dies is in the range of from 2-40.

17. A device according to claim 15 or 16, wherein the inner and outer dies have concentrically arranged extrusion orifices.

18. A device according to any one of claims 15-17, wherein there is an insulating gap between each pair of inner and outer dies.

19. A device according to any one of claims 15-18 comprising one inlet for the binder and one inlet for the coating material.

20. A device according to any one of claims 15-19, wherein in one or more pairs of inner and outer dies the size of the gap between the inner and outer die is adjustable.

21. A device according to any one of claims 15-20, wherein the dimensions of one or more outer dies are adjustable.

22. A device according to any one of claims 15-21, wherein the dimensions of one or more inner dies are adjustable.

Claims

1. A method for preparing coated binder units wherein the coated binder units comprise a core of binder coated with a layer of coating material, wherein the binder is a bituminous binder or a synthetic binder comprising a resin, an oil and optionally a polymer, which method comprises the steps of:

(a) supplying the binder and the coating material to a co-extrusion device which comprises one inlet for the binder and one inlet for the coating material, an even number of pairs of inner and outer dies and flow valves that ensure balanced flow at the various die exits, whereby the binder is supplied to the inner dies and the coating material is supplied to the outer dies;

(b) co-extruding the binder and the coating material by means of the co-extrusion device, thereby producing streams of extrudate in which the binder is coated with a layer of the coating material; and

(c) optionally, shaping the streams of extrudate, into coated binder units.

2. A method according to claim 1, wherein the even number of pairs of the inner and outer dies is in the range of from 2-40.

3. A method according to claim 1 or 2, wherein the inner and outer dies have concentrically arranged extrusion orifices.

4. A method according to any one of claims 1-3, wherein there is an insulating gap between each pair of inner and outer dies, and a coolant material is circulated in the insulating gap.

5. A method according to any one of claims 1-4, wherein the binder is a bituminous binder.

6. A method according to any one of claims 1-4, wherein the binder is a synthetic binder, comprising a resin, an oil and optionally a polymer.

7. A method according to any preceding claim, wherein the coating material is chosen from the group consisting of a polymer, bitumen having a penetration at 25°C of less than 5dmm, sulphur, blends of these materials with filler materials, blends of these material with fibre materials, and blends of two or more of these materials.

8. A method according to claim 7, wherein the coating material is a polymer or a blend comprising at least 50wt% polymer.

9. A method according to any preceding claim, wherein the units are pellets, and the average longest dimension of the pellets is less than 100mm.

10. A method according to any one of claims 1-8, wherein the units are rods, the average hydraulic diameter of the rods is less than 200mm.

11. A method according to claim 10, wherein the average diameter of the core of binder is in the range of from 10 to 100mm and the average thickness of the layer of the coating material is in the range of from 0.05 to 5mm.

12. A method according to any one of claims 1-8, wherein the extrudates have a non-circular profile, having an average hydraulic diameter of less than 150mm.