CLAIMS:

1. A sodium-ion secondary cell comprising a cathode, an anode, and an electrolyte comprising sodium tetrafluoroborate ($NaBF_4$) or sodium hexafluorophosphate ($NaPF_6$), wherein the cathode comprises a layer of one or more positive electrode active materials disposed on a cathode substrate, and the anode comprises a layer of negative electrode active material disposed on an anode substrate; wherein the negative electrode active material comprises one or more disordered carbon-containing materials; characterised in that:

    i) the mass of the layer of the negative electrode active material is from 25 to ≤80 g per square metre of the anode substrate;

    ii) the ratio of the mass of the layer of positive electrode active material to the mass of the layer of negative electrode active material is from 0.1 to 10; and

    iii) the thickness of the layer of negative electrode active material on the anode substrate is ≤80μm.

2. A sodium-ion secondary cell according to claim 1 wherein the mass of the layer of negative electrode active material per square metre of the anode substrate is from 40 gm^{-2} to 75 gm^{-2}.

3. A sodium-ion secondary cell according to claim 1 wherein the ratio of the mass of the layer of positive electrode active material to the mass of the layer of negative electrode active material is from 0.5 to 10.

4. A sodium-ion secondary cell according to any preceding claim wherein one or more of the positive electrode active materials is a compound of the general formula:

    $A_{1\pm\delta}\, M^1_V M^2_W M^3_X\, M^4_Y M^5_Z O_{2-c}$

    wherein

    A is one or more alkali metals selected from sodium, potassium and lithium;

    M^1 comprises one or more redox active metals in oxidation state +2,

    M^2 comprises a metal in oxidation state greater than 0 to less than or equal to +4;

    M^3 comprises a metal in oxidation state +2;

    M^4 comprises a metal in oxidation state greater than 0 to less than or equal to +4;

    M^5 comprises a metal in oxidation state +3;

    wherein

$0 \leq \delta \leq 1$;

V is > 0;

W is ≥ 0;

X is ≥ 0;

Y is ≥ 0;

at least one of W and Y is > 0

Z is ≥ 0;

C is in the range $0 \leq c < 2$

wherein V, W, X, Y, Z and C are chosen to maintain electrochemical neutrality.

5. A sodium-ion secondary cell according to claim 1 wherein the structure of the disordered carbon-containing negative electrode active material is a non-graphitizable, non-crystalline amorphous structure.

6. A sodium-ion secondary cell according to claim 1 wherein the negative electrode active material comprises hard carbon.

7. A sodium-ion secondary cell according to claim 1 wherein the negative electrode active material comprises a hard carbon/X composite, wherein X is one or more selected from phosphorus, sulfur, indium, antimony, tin, lead, iron, manganese, titanium, molybdenum and germanium, either in elemental form or in compound form.

8. A sodium-ion secondary cell according to claim 1 wherein the negative electrode active material comprises one or more further materials which are capable of storing sodium ions, selected from a non-metal, a non-metal-containing compound, a metal, a metal-containing compound and a metal containing alloy.

9. A sodium-ion secondary cell according to claim 1 wherein the layer of negative electrode active material is a uniform layer of negative electrode active material.

10. A sodium-ion secondary cell according to claim 1 wherein the layer of negative electrode active material has a volume specific surface area (VSSA) of above 0.8.

11. A method of manufacturing a sodium-ion secondary cell according to any of claims 1 to 10, comprising:

    a. assembling a cathode comprising a cathode substrate coated with a layer of one or more positive electrode active materials, together with an anode comprising an anode substrate coated with a layer of negative electrode active material, wherein the negative electrode active material comprises one

or more disordered carbon-containing materials, and an electrolyte comprising sodium tetrafluoroborate ($NaBF_4$) or sodium hexafluorophosphate ($NaPF_6$), to form a sodium-ion secondary cell; and

b. cycling the sodium-ion secondary cell to a first voltage;

characterised in that:

i) the mass of the layer of negative electrode active material per square metre of the anode substrate is from 25 to ≤80 gm^{-2};

ii) the ratio of the mass of the layer of positive electrode active material to the mass of the layer of negative electrode active material is from 0.1 to 10, and

iii) the thickness of the layer of negative electrode active material on the anode substrate is ≤ 80µm.

12. A battery comprising at least two sodium-ion secondary cells according to any of claims 1 to 10.