

Claims

1. A haemostatic device comprising:
a substrate; and
5 a surface formed on the substrate, the surface comprising at least one of micro- and nano-sized materials, the materials being partially embedded in a base, the surface substantially preventing wetting of the substrate.
2. The haemostatic device of claim 1, wherein the materials are
10 hydrophobic.
3. The haemostatic device of claim 2, wherein the materials comprise hydrophobic nanofibers immobilized in the base.
- 15 4. The haemostatic device of claim 3, wherein the nanofibers are carbon nanofibers.
5. The haemostatic device of any one of claims 1 to 4, wherein the surface has random surface morphology to obtain a water contact angle of at least 130°.
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6. The haemostatic device of any one of claims 1 to 5, wherein the surface morphology entrains air pockets between the surface and a liquid coming into contact with the surface.
- 25 7. The haemostatic device of any one of claims 1 to 6, wherein the surface, once formed, has a random surface morphology of one of micro-roughness and nano-roughness.
8. The haemostatic device of claim 3 or 4, wherein the nanofibers have a
30 diameter of about 5-1000 nm and/or a length of about 5 to 500µm.

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9. The haemostatic device of any one of claims 1 to 8, wherein the base is hydrophobic.

10. The haemostatic device of any one of claims 1 to 9, wherein the base is
5 an organic or polymeric matrix.

11. The haemostatic device of claim 9 or 10, wherein the matrix is a biocompatible polymer capable of immobilizing the materials.

10 12. The haemostatic device of claim 9 or 11, wherein the biocompatible polymer is at least one of polytetrafluoroethylene (PTFE), beeswax and polydimethylsiloxane (PDMS).

13. The haemostatic device of any one of claims 1 to 12, being one of a wound
15 dressing, catheter-based stent, coil or graft.

14. A haemostatic coating dispersion comprising at least one of micro- and nano-sized materials, and a base in a dispersion, for depositing on a substrate to form a hydrophobic surface comprising the materials partially embedded in
20 the base, the surface substantially preventing wetting of the substrate.

15. The haemostatic coating dispersion of claim 14, wherein the materials, when at least partially embedded, are hydrophobic.

25 16. The haemostatic coating dispersion of claim 15, wherein the materials comprise nanofibers immobilized in the hydrophobic base on formation of the surface.

17. The haemostatic device of claim 16, wherein the nanofibers are carbon
30 nanofibers.

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18.The haemostatic coating dispersion of any one of claims 14 to 17, wherein the surface morphology entrains air pockets between the surface and a liquid coming into contact with the surface.

5 19.The haemostatic coating dispersion of any one of claims 12 to 15, wherein the surface, once formed, has a random surface morphology of one of micro-roughness and nano-roughness.

20.The haemostatic coating dispersion of claim 14, wherein the materials
10 comprise nanofibers having a diameter ranging from about 5nm to 1 micron or micro-sized materials having a diameter from about 1 μm to 200 μm .

21.The haemostatic coating dispersion of claim 20, wherein the materials
15 have a length of about 5 to 500 μm .

22.The haemostatic coating dispersion of any one of claims 14 to 21, wherein the base is.

23.The haemostatic coating dispersion of any one of claims 14 to 22, wherein
20 the base hydrophobic base is an organic or polymeric matrix.

24.The haemostatic coating dispersion of claim 22 or 23, wherein the matrix
is at least one of polytetrafluoroethylene (PTFE) and polydimethylsiloxane (PDMS), or other biocompatible polymers capable of immobilizing the
25 nanofibers.

25.A hydrophobic surface formed by applying the haemostatic coating dispersion of any one of claims 14 to 24 to a substrate.

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