Claims

1. An electrical apparatus, wherein the electrical apparatus is an integrated circuit, comprising:

at least first and second components, and

an interface between the first and second components,

wherein the apparatus further comprises:

a coating of ta-C at the interface to seal the interface against ingress and/or egress of fluids, and wherein

the integrated circuit is sealed with encapsulation, wherein the encapsulation comprises a coating of ta-C, and wherein

the coatings of ta-C are deposited by Filtered Cathodic Vacuum Arc (FCVA).

2. An electrical apparatus according to claim 1, wherein the coating of ta-C has an sp^3 content of 50% or higher.

3. An electrical apparatus according to claim 1, wherein the coating of ta-C has an sp^3 content of 60% or higher.

4. An electrical apparatus according to any preceding claim, wherein the electrical apparatus is an encapsulated electrical apparatus having a sealed interior and wherein the coating of ta-C at the interface seals the interface against ingress of water and/or oxygen into the sealed interior.

5. An electrical apparatus according to any preceding claim, wherein the electrical apparatus is sealed by encapsulation, and comprises a coating of ta-C on the encapsulation.

6. An electrical apparatus according to claim 4 or 5, wherein the encapsulation comprises thermosetting polymer or resin.

7. An electrical apparatus according to any preceding claim, wherein the coating of ta-C has a density of 2.5g/cm^3 or greater and a thickness of 1-50nm.

8. An electrical apparatus according to any preceding claim, wherein the coating of ta-C is substantially silicon-free and oxygen-free.

9. A method of making an electrical apparatus according to any preceding claim, the method comprising:

(i) providing a first and second component,

(ii) connecting the first and second components to each other, and optionally attaching the first and second components together, so there is an interface between the components,

(iii) applying a layer comprising ta-C to the interface between the first and second components,

(iv) sealing the electrical apparatus within encapsulation, and

(v) applying a coating of ta-C to the encapsulation,

wherein the coatings of ta-C are deposited by Filtered Cathodic Vacuum Arc (FCVA).

10. A method according to claim 9 , wherein the coating of ta-C has an sp^3 content of 50% or higher.

11. A method according to any of claims 9 or 10, wherein the coating of ta-C has a density of 2.5g/cm^3 or greater and a thickness of 1-50nm.