Claims

1. A vacuum pump lubricant comprising a solid and a liquid component, wherein the solid component is held in a suspension in the liquid component, and wherein the liquid component is a perfluoropolyether (PFPE) lubricant and characterised in that the solid component is graphene which, for improved dispersion in the liquid component, is functionalised with fluorinated long chain hydrocarbons including fluorinated organothiol.

2. A vacuum pump comprising:
a rotor mounted inside a stator;
at least one roller bearing arrangement disposed on a shaft of the rotor to allow rotation of the rotor with respect to the stator;
a vacuum pump lubricant according to claim 1, and
a lubrication supply arranged to supply the lubricant to the roller bearing

3. A vacuum pump according to claim 2, wherein the roller bearing arrangement comprises metal ball bearings disposed between inner and outer races, said races being made from metal.

4. A vacuum pump according to claim 2, wherein the liquid component comprises a PFPE compound having a low vapour pressure for use at sub-atmospheric pressures.

5. A vacuum pump according to claim 2, wherein the functionalised graphene comprises, between 0.001% to 10% of total weight of the lubricant.

6. A vacuum pump according to claim 5, wherein the functionalised graphene comprises, between 0.01% to 1% of total weight of the lubricant.