Claims

1.
Reactor for the manufacture of silicon by chemical vapour deposition (CVD), the reactor comprises a reactor body that during operation rotates around an axis with the help of a rotation device operatively arranged to the reactor, at least one sidewall that surrounds the reactor body, at least one inlet for reaction gas, at least one outlet for residual gas and at least one heat appliance operatively arranged to the reactor, **characterised in that** during operation for the manufacture of silicon by CVD, the reactor comprises a layer of loose particles on the inside of the at least one side wall, to simplify the removal of produced silicon from the reactor, the layer is held in position by said rotation.

2.
Reactor according to claim 1, characterised in that the layer of particles comprises material which, to the smallest extent possible, contaminates the produced silicon, the particles of silicon are preferably of a metallurgic quality or purer, most preferably silicon of the same purity as the silicon which is chemically vapour deposited.

3.
Reactor according to claim 1 or 2, characterised in that the layer of particles, at least across a part of the thickness, is comprised of, in the main, round particles.

4.
Reactor according to claims 1-3, characterised in that it is shaped as a pipe section, which is rotary around its own axis.

5.
Reactor according to claims 1-4, characterised in that it is formed as a standing conical pipe section that can rotate about the longitudinal axis, with a circular inner cross section and the largest diameter at an upper end.

6.
Reactor according to claims 1-5, characterised in that it is formed with an outer particle layer which is fastened to the sidewall of the reactor.

7.
Reactor according to claims 1-6, characterised in that it comprises an outlet and at least one inlet at the same end, the inlet or the inlets are arranged concentrically outside the outlet.

8.
Reactor according to claims 1-7, characterised in that it comprises a particle layer of silicon powder formed by operating the reactor containing reaction gas for chemical vapour deposition before the chemical vapour deposition is initiated.

9.
Method for the manufacture of silicon by chemical vapour deposition (CVD), preferably by the use of the reactor according to the claims 1-8, **characterised by** producing a particle layer from the reaction gas in the reactor or importing particles for the formation of an inner particle layer on the inner wall surface of the reactor, importing reaction gas for chemical vapour deposition, rotating the reactor for holding a particle layer on at least one sidewall of the reactor, whilst producing silicon by chemical vapour deposition on the particle layer, loosening the produced silicon from the particle layer and taking it out and carrying out any preparation of the inner surface of the reactor before the production of the silicon is continued by repeating the steps of the method.

10.
Method according to claim ~~8~~9, characterised in that the reactor is kept warm during the carrying out of the method steps and in rotation up to and including the step for chemical vapour deposition.

11.

Method according to claim 9 or 10, characterised in that a particle layer of silicon powder is formed during the operation of the reactor containing reaction gas for chemical vapour deposition, preferably silane, before starting up the chemical vapour deposition, by control of the concentration and pressure of the reaction gas, temperature and speed of rotation of the reactor so that, in the main, only silicon powder, amorphous and/or crystalline, is formed.

12.

Application of a reactor according to any of the claims 1-8 for the manufacture of silicon by chemical vapour deposition (CVD).

13.

Application of a loose ~~or easily disintegrating~~ particle layer on the inner reactor wall in a reactor for chemical vapour deposition (CVD) of silicon, the reactor rotates during the production of silicon and the loose particle layer is held in place by said rotation, to simplify the removal of produced silicon from the reactor.