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CLAIMS

1. A method for carrying out an hexothermal reaction of nickel and hydrogen, **characterized in that**
5 said method comprises the steps of providing a metal tube, introducing into said metal tube a nanometric particle nickel powder and injecting into said metal tube a hydrogen gas having a temperature much greater than 150°C and a pressure much greater than 2 bars.
- 10 2. A method according to claim 1, **characterized in that** said hydrogen temperature varies in a range from 150 to 500°C.
3. A method according to claim 1, **characterized in that** said nickel powder is a nickel isotope powder.
- 15 4. A method according to claim 1, **characterized in that** said hydrogen is injected into said tube under a pulsating pressure.
5. A method according to claims 1 and 2, **characterized in that** said hydrogen temperature is a
20 variable temperature which varies in said range from 150 to 500°C.
6. A method according to claim 1, **characterized in that** said metal tube is a copper metal tube.
7. A modular apparatus for providing a
25 hexothermal reaction by carrying out the method according to claim 1, **characterized in that** said apparatus comprises a metal tube (2) including a nanometric particle nickel powder (3) and a high temperature and pressure hydrogen gas.
- 30 8. A method according to claim 1, **characterized in that** in said method catalyze materials are used.
9. An apparatus method according to claim 7, **characterized in that** said nickel powder filled metal

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tube (2) is a copper tube, said copper tube further including at least a heating electrical resistance, said tube being encompassed by a jacket (7) including either water and boron or only boron, said jacket (7) being encompassed by a further lead jacket (8) in turn optionally encompassed by a steel layer (9), said jackets (7, 8) being adapted to prevent radiations emitted from said copper tube (2) from exiting said copper tube (2), thereby also transforming said radiations into thermal energy.

10. An apparatus according to claim 1, **characterized in that** said apparatus comprises, encompassing said nickel powder, hydrogen and electric resistance (101) containing copper tube (100) a first steel-boron armored construction (102) encompassed by a second lead armored construction (103) for protecting said copper tube (100), a hydrogen bottle connection assembly (106) and a hydrogen bottle (107), said apparatus further comprising, outside of said lead armored construction (103), a cooling water steel outer pipe assembly (105).