CLAIMS:

1. A heterogeneous catalyst comprising a support and a noble metal, wherein said support comprises silicon, and wherein said catalyst comprises from 0.1 to 40 mol% titanium and from 0.1 to 10 mol% of at least one noble metal, wherein mole percentages are based on total moles of silicon atoms and metal atoms, wherein the amount of noble metal as a percentage of the noble metal and the support is from 0.2 to 2.5 wt%.

2. The catalyst of claim 1 in which the noble metal is selected from the group consisting of gold, palladium and combinations thereof.

3. The catalyst of claim 2 in which the catalyst has an average diameter from 60 microns to 10 mm.

4. The catalyst of claim 3 in which the catalyst comprises 0.1 to 8 mol% of at least one noble metal, 60 to 95 mol% silicon, 0.1 to 20 mol% titanium and 0.1 to 20 mol% alkali metal or alkaline earth metal.

5. The catalyst of claim 4 in which the support is silica.

6. The catalyst of claim 5 in which the noble metal is gold.