

CLAIMS:

1. A catalyst comprising noble metal particles and titanium-containing particles, wherein the noble metal particles and titanium-containing particles are disposed on an outer surface of a support, wherein at least 20% by weight of the total weight of noble metal particles are adjacent to at least one titanium-containing particle, wherein the noble metal particles have an average diameter of less than 15 nm, and wherein the catalyst has an average diameter of at least 200 microns.
2. The catalyst of claim 1, wherein the noble metal particles comprise at least one noble metal selected from gold and palladium.
3. The catalyst of claim 2, wherein the noble metal particles comprise gold.
4. The catalyst of any one of the preceding claims, wherein the titanium-containing particles comprise a titanium oxide.
5. The catalyst of any one of the preceding claims, wherein the support comprises silica.
6. The catalyst of any one of the preceding claims, wherein at least 25% by weight of the total weight of the noble metal particles are present as single particles or agglomerates of noble metal particles having an average diameter of less than 15 nm.
7. The catalyst of claim 6, wherein at least 40% by weight of the total weight of the noble metal particles are present as single particles or agglomerates of noble metal particles having an average diameter of less than 15 nm.
8. The catalyst of any one of the preceding claims, wherein at least 40% by weight of the total weight of noble metal particles are adjacent to at least one titanium-containing particle.
9. The catalyst of any one of the preceding claims, wherein the titanium-containing particles have an average diameter less than 5 times greater than the average diameter of the noble metal particles.
10. The catalyst of any one of the preceding claims, wherein the noble metal particles comprise gold and at least 25% by weight of the total weight of noble-metal particles have an average diameter of less than 15 nm after 1000 hours of use as a catalyst in an oxidative esterification reaction.

11. A method for preparing methyl methacrylate from methacrolein and methanol; said method comprising contacting in a reactor a mixture comprising methacrolein, methanol and oxygen in the presence of a catalyst according to any one of the preceding claims.