What is claimed is:

1. A composition comprising a mixed oxide core comprising about 15 wt% to about 25 wt% cerium oxide based on the total weight of the mixed oxide core; about 70 wt% to about 85 wt% zirconium oxide based on the total weight of the mixed oxide core; optionally one or more of lanthanum oxide, neodymium oxide, praseodymium oxide, and yttrium oxide; and being free of alumina,

the mixed oxide core having a rare earth oxide coating, the rare earth of the rare earth oxide coating being selected from the group consisting of cerium, lanthanum, neodymium, praseodymium, yttrium, and mixtures thereof, and the composition having rhodium dispersed on the surface,

wherein the rhodium dispersion is about 18.5% to about 28.6% after calcination at 800°C in air for 2 hours, or about 14.3% to about 21.9% after calcination at 1000°C in air for 10 hours, or about 10.3% to about 16.5% after calcination at 1100°C in air for 10 hours.

2. A composition comprising a mixed oxide core comprising about 35 wt% to about 60 wt% cerium oxide based on the total weight of the mixed oxide core; about 40 wt% to about 65 wt% zirconium oxide based on the total weight of the mixed oxide core; optionally one or more of lanthanum oxide, neodymium oxide, praseodymium oxide, and yttrium oxide, and being free of alumina,

the mixed oxide core having a rare earth oxide coating, the rare earth of the rare earth oxide coating being selected from the group consisting of cerium, lanthanum, neodymium, praseodymium, yttrium, and mixtures thereof; and the composition having palladium dispersed on the surface,

wherein the palladium dispersion is about 35.0% to about 46.1% after calcination at 800°C in air for 2 hours, or about 8.5% to about 13.0% after calcination at 1000°C in air for 10 hours, or about 3.9% to about 6.0% after calcination at 1100°C in air for 10 hours.

3. The composition of claim 1, wherein the mixed oxide core comprises about 15 wt% to about 25 wt% cerium oxide, about 70 wt% to about 85 wt% zirconium

oxide, and one or more of lanthanum oxide, neodymium oxide, praseodymium oxide, and yttrium oxide; the composition having rhodium on the surface and having higher rhodium dispersion versus a composition with a mixed oxide core without a rare earth oxide coating.

4. The composition of claim 2, wherein the mixed oxide core comprises about 35 wt% to about 60 wt% cerium oxide, about 40 wt% to about 65 wt% zirconium oxide, and one or more of lanthanum oxide, neodymium oxide, praseodymium oxide, and yttrium oxide; the composition having palladium on the surface and having higher palladium dispersion versus a composition with a mixed oxide core without a rare earth oxide coating.

5. TA composition comprising a mixed oxide core consisting essentially of cerium oxide, zirconium oxide, and additional rare earth oxide selected from the group consisting of lanthanum oxide, neodymium oxide, praseodymium oxide, yttrium oxide, and mixtures thereof;

the rare earth oxide coating is one or two of cerium oxide, neodymium oxide, and praseodymium oxide;

when having palladium, the palladium dispersion is about 35.0% to about 46.1% after calcination at 800°C in air for 2 hours, or about 8.5% to about 13.0% after calcination at 1000°C in air for 10 hours, or about 3.9% to about 6.0% after calcination at 1100°C in air for 10 hours; or

when having rhodium, wherein the rhodium dispersion is about 18.5% to about 28.6% after calcination at 800°C in air for 2 hours, or about 14.3% to about 21.9% after calcination at 1000°C in air for 10 hours, or about 10.3% to about 16.5% after calcination at 1100°C in air for 10 hours.

6. The composition of claim 1, wherein the mixed oxide core consists essentially of cerium oxide, zirconium oxide, lanthanum oxide, and neodymium oxide, and

the rare earth coating is one or both of cerium oxide and neodymium oxide.

7. The composition of claim 2, wherein the mixed oxide core consists essentially of cerium oxide, zirconium oxide, lanthanum oxide, neodymium oxide, and praseodymium oxide, and

the rare earth coating is cerium oxide, neodymium oxide, or praseodymium oxide.

8. The composition of claim 2, wherein the mixed oxide core consists essentially of cerium oxide, zirconium oxide, lanthanum oxide, neodymium oxide, and yttrium oxide, and

the rare earth coating is cerium oxide or neodymium oxide.

9. The composition of claim 2, wherein the mixed oxide core consists essentially of cerium oxide, zirconium oxide, lanthanum oxide, and yttrium oxide, and

the rare earth coating is cerium oxide or neodymium oxide.

10. The oxide composition of claim 1, wherein the composition comprises about 20 wt% to about 25 wt% cerium oxide based on the total weight of the composition and about 1 wt% to about 10 wt% rare earth oxide coating based on the total weight of the composition; and having rhodium on the surface.

11. The composition of claim 2, wherein the composition comprises about 40 wt% to about 60 wt% cerium oxide based on the total weight of the composition and about 1 wt% to about 10 wt% rare earth oxide coating based on the total weight of the composition; and having palladium on the surface.

12. The composition of any one of claims 1, 2 or 5, wherein the rare earth oxide coating is about 1 wt% to about 10 wt% based on the total weight of the composition.

13. The composition of claim 12, wherein the rare earth oxide coating is a single rare earth oxide with the rare earth selected from the group consisting of cerium, lanthanum, neodymium, and praseodymium, and the rare earth oxide coating is about 1 wt% to about 5 wt% based on the total weight of the composition.

14. The composition of claim 12, wherein the rare earth oxide coating is two rare earth oxides with the rare earth selected from the group consisting of cerium, lanthanum, neodymium, and praseodymium, and each rare earth oxide in the coating being present in an amount of about 1 wt% to about 5 wt% based on the total weight of the composition.

15. The composition of claims 1 or 2, wherein the mixed oxide core comprises CeO_2 and ZrO_2 and one or more of La_2O_3, Y_2O_3, Nd_2O_3, and Pr_6O_{11}, and the rare earth oxide coating is one or two of CeO_2, Nd_2O_3, and Pr_6O_{11}.

16. The composition of claim 1, wherein the rhodium is present as oxides and the composition comprises about 0.5 wt% Rh_2O_3 based on the total weight of the composition; or

the composition of claim 2, wherein the palladium is present as oxides and the composition comprises about 1.6 wt% PdO based on the total weight of the composition.

17. A catalyst composition comprising the composition of any one of claims1, 2 or 5.

18. A process of producing a composition, the process comprising the steps of:

(a) providing mixed oxide powders of cerium oxide, zirconium oxide, and optionally one or more of rare earth oxides selected from the group consisting of neodymium, lanthanum, praseodymium, and yttrium;

(b) dissolving a rare earth salt in water wherein the rare earth of the salt is selected from the group consisting of cerium, lanthanum, neodymium, praseodymium, yttrium, and mixtures thereof to provide a rare earth solution;

(c) combining the rare earth solution with the mixed oxide powders and mixing to provide a homogeneous powder mixture;

(d) calcining the homogeneous powder mixture at about 400°C to about 600°C for about 2 to about 5 hours to provide a mixed oxide core with a a rare earth oxide coating on its surface, wherein the rare earth of the coating is selected from the group

consisting of cerium, lanthanum, neodymium, praseodymium, yttrium, and mixtures thereof;

(e) adding a rhodium or palladium salt solution to the mixed oxide core with a rare earth oxide coating; and

(f) calcining at about 500°C to about 650°C for about 2 hours to about 5 hours to provide a composition comprising a mixed oxide core having a rare earth oxide coating on the surface and having higher rhodium or palladium dispersion versus a composition comprising a mixed oxide core without a rare earth oxide coating.

19. The process of claim 18, wherein the rare earth salt of step (b) is a Ce salt, Nd salt, Pr salt, or mixtures thereof and the rare earth oxide coating is cerium oxide, neodymium oxide, praseodymium oxide, or a combination thereof.

20. The process of claim 19, wherein the salts are nitrates.

21. The process of claim 18, wherein:

the mixed oxide powders comprise cerium oxide, zirconium oxide, neodymium oxide, and lanthanum oxide and a rhodium salt is added in step (e); or

the mixed oxide powders comprise cerium oxide, zirconium oxide, neodymium oxide, lanthanum oxide, and praseodymium oxide, and a palladium salt is added in step (e); or

the mixed oxide powders comprise cerium oxide, zirconium oxide, neodymium oxide, lanthanum oxide, and yttrium oxide, and a palladium salt is added in step (e); or

the mixed oxide powders comprise cerium oxide, zirconium oxide, lanthanum oxide, and yttrium oxide, and a palladium salt is added in step (e)

22. The process of claim 18, wherein the calcining of step (d) is in a 2% O_2 and 98% N_2 gas mixture.