CLAIMS

1. A coated article that is resistant to erosion by halogen-containing plasmas, the coated article comprising an article and a ceramic coating formed on the article, wherein the ceramic coating comprises:

yttrium oxide at a concentration from 65.9 mole % to 80 mole %; and

zirconium oxide at a concentration from 34.1 mole % to 20 mole %.

2. The coated article of claim 1, wherein the ceramic coating consists essentially of:

the yttrium oxide at a concentration from 65.9 mole % to 80 mole %; and

the zirconium oxide at a concentration from 34.1 mole % to 20 mole %.

3. The coated article of claim 1, wherein the ceramic coating consists of:

the yttrium oxide at a concentration from 65.9 mole % to 80 mole %; and

the zirconium oxide at a concentration from 34.1 mole % to 20 mole %.

4. The coated article of claim 1, wherein the ceramic coating comprises:

the yttrium oxide at a concentration from 65.9 mole % to 73.2 mole %; and

the zirconium oxide at a concentration from 34.1 mole % to 26.8 mole %.

5. The coated article of claim 1, wherein the ceramic coating consists essentially of:

yttrium oxide at a concentration from 65.9 mole % to 73.2 mole %; and

zirconium oxide at a concentration from 34.1 mole % to 26.8 mole %.

6. The coated article of claim 1, wherein the ceramic coating consists of:

the yttrium oxide at a concentration from 65.9 mole % to 73.2 mole %; and

the zirconium oxide at a concentration from 34.1 mole % to 26.8 mole %.

7. The coated article of claim 1, wherein the ceramic coating comprises a solid solution of the yttrium oxide and the zirconium oxide.

8. The coated article of claim 1, wherein the article is a semiconductor processing chamber component selected from a group consisting of a lid, a lid liner, a nozzle, a gas

distribution plate, a shower head, an electrostatic chuck component, a shadow frame, a substrate holding frame, a processing kit, and a chamber liner.

9. The coated article of claim 1, wherein the ceramic coating is formed on the article using a technique selected from a group consisting of thermal spraying, plasma spraying, sputtering, and chemical vapor deposition.

10. A semiconductor processing apparatus adapted to have at least one surface exposed to a halogen-comprising plasma during a process performed in a semiconductor processing chamber, the semiconductor processing apparatus comprising the coated article of claim 1.