

CLAIMS

What is claimed is:

1. A method of treating halide species in a process stream, the method comprising:

contacting the process stream with a medium comprising a reactant and a solid porous substrate retainer;

reacting the halide species in the process stream with the medium to produce a halide-free process stream and neutralized halide salts; and

attracting and retaining the neutralized halide salts on the solid, porous substrate retainer.
2. The method of claim 1, wherein the reactant comprises one or more active oxides of Group 1 or Group 2 metals.
3. The method of claim 1, wherein the reactant comprises one or more active oxides of Group 1 or Group 2 metals and at least one non-acidic, high surface area carrier.
4. The method of claim 2, wherein the active oxides of Group 1 and Group 2 metals comprises phosphates of one or more of sodium, potassium, magnesium and calcium.
5. The method of claim 2, wherein the active oxide comprises tribasic potassium phosphate.
6. The method of claim 3, wherein the non-acidic, high surface area carrier comprises titanium dioxide.
7. The method of claim 1, wherein the reactant is combined with a liquid to form a slurry.

8. The method of claim 7, wherein the liquid comprises water.
9. The method of claim 7, wherein the slurry comprises an amount of a slurry binder.
10. The method of claim 1, wherein the process stream contains up to 3 wt% halide species.
11. The method of claim 3, wherein the non-acidic, high surface area carrier has a surface area of up to 300 square meters per gram.
12. The method of claim 1, wherein the reactant or the slurry is disposed on or impregnated into the surface of the substrate retainer.
13. The method of claim 1, wherein the physical composition of the substrate retainer includes the reactant or slurry.
14. The method of claim 1, wherein the reactant or slurry comprises the entirety of the substrate retainer.
15. The method of claim 1, wherein the substrate retainer is a reticulate.
16. The method of claim 1, wherein the substrate retainer is a monolith.
17. The method of claim 1, wherein the substrate retainer is a fibrous solid.
18. The method of claim 1, wherein the substrate retainer is a particle bonded solid.
19. A medium for treating halide species in a process stream, the medium comprising a reactant and a solid, porous substrate retainer, wherein the reactant comprises one or more active oxides of Group 1 or Group 2 metals.

20. The reaction medium of claim 19, wherein the reactant further comprises at least one non-acidic, high surface area carrier.
21. The reaction medium of claim 19, wherein the reactant is combined with a liquid to form a slurry.
22. The medium of claim 19, wherein the reactant or slurry is incorporated onto the surface of the substrate retainer.
23. The reaction medium of claim 19, wherein the physical composition of the substrate retainer includes the reactant or slurry.
24. The reaction medium of claim 19, wherein the reactant or slurry comprises the entirety of the substrate retainer.
25. The reaction medium of claim 19, wherein the active oxide comprises a phosphate of one or more of sodium, potassium, magnesium and calcium.
26. The reaction medium of claim 25, wherein the active oxide comprises tribasic potassium phosphate.
27. The reaction medium of claim 19, wherein the non-acidic, high surface area carrier comprises titanium dioxide.
28. The method of claim 19, wherein the halides comprise one or more of chlorides, bromides, fluorides and iodides.