CLAIMS

What is claimed is:

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

contacting the process stream with a medium comprising a reactant and a solid porous substrate retainer, wherein the substrate retainer is a reticulate or a monolith or a fibrous solid or a particle bonded solid;

reacting the chloride species in the process stream with the medium to produce an essentially chloride-free process stream and neutralized chloride salts; and

attracting and retaining the neutralized chloride salts on the solid, porous substrate retainer;

wherein the reactant comprises at least one non-acidic carrier and an active oxide comprising tribasic potassium phosphate; and

wherein the non-acidic carrier comprises titanium dioxide.

2. The method of claim 1, wherein the process stream contains up to 3 wt% chloride species.

3. The method of claim 1, wherein the non-acidic carrier has a surface area of up to 300 square meters per gram.

4. The method of claim 1 or 2, wherein the reactant is disposed on or impregnated into the surface of the substrate retainer.

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5. The method of claim 1 or 2, wherein the physical composition of the substrate retainer includes the reactant.

6. The method of claim 1, wherein the process stream is associated with a continuous or a batch process in an industrial process facility.

7. The method of claim 6, wherein the industrial process facility performs one or more of refining, processing and manufacturing of petroleum products, biofuels and biolubricants, petrochemicals, chemicals or natural gas and its components.

8. The method of claim 1, wherein the reaction occurs at ambient temperature and pressure.

9. A medium for treating chloride species in a process stream, the medium comprising a reactant and a solid, porous substrate retainer, wherein the substrate retainer is a reticulate or a monolith or a fibrous solid or a particle bonded solid, and wherein the reactant comprises at least one non-acidic carrier and an active oxide comprising tribasic potassium phosphate, and wherein the non-acidic carrier comprises titanium dioxide.

10. The medium of claim 9, wherein the reactant is incorporated onto the surface of the substrate retainer.

11. The medium of claim 9 or 10, wherein the physical composition of the substrate retainer includes the reactant.