CLAIMS

1. A coating composition comprising

an epoxy resin comprising poly(phenyl glycidyl ether)-co-formaldehyde and a curing agent;

a fluoro-substituted poly(alkyl siloxane) resin; and

a solvent mixture comprising

a first solvent with Hansen solubility parameters of $14 \leq \delta_D \leq 17$, $6 \leq \delta_P \leq 13$, and $4 \leq \delta_H \leq 8$; and

a second solvent with Hansen solubility parameters of $16 \leq \delta_D \leq 19$, $4 \leq \delta_P \leq 9$, and $11 \leq \delta_H \leq 15$.

2. The coating composition of claim 1, wherein the epoxy resin has a glass transition temperature of less than 153 °C.

3. The coating composition of claim 1 or 2, wherein the epoxy resin and fluoro-substituted poly(alkyl siloxane) resin are soluble in the solvent mixture.

4. The coating composition of any one of claims 1-3, having a weight ratio of the epoxy resin to the fluoro-substituted poly(alkyl siloxane) resin from 85:15 to 60:40.

5. The coating composition of any one of claims 1-4, having a volume ratio of first solvent to the second solvent from 90:10 to 98:2.

6. A method of forming a coated article comprising applying the coating composition of any one of claims 1-5 to at least a portion of the surface of the article.

7. The method of claim 6, further comprising preparing the coating composition prior to applying the coating composition, wherein preparing the coating composition comprises the following:

providing a mixed solvent comprising the first solvent and second solvent,

dissolving the fluoro-substituted poly(alkyl siloxane) resin in the mixed solvent, and followed by

dissolving the epoxy resin in the mixed solvent.

8. The method of claim 7, wherein the solution comprises up to 1.25 wt% of dissolved fluoro-substituted poly(alkyl siloxane) resin.

9. The method of any one of claims 6-8, wherein applying the coating composition comprises spraying, dipping, spinning, wiping, rolling, or a combination thereof.

10. The method of any one of claims 6-9, wherein the coating composition is subjected to curing after applying the coating composition.

11. The method of claim 10, wherein the curing takes place after a majority of the first solvent has evaporated from the coating composition.

12. A coated filter comprising a porous medium having an upstream surface and a downstream surface, wherein the upstream surface has a coating formed from the coating composition of any one of claims 1-5.

13. The coated filter of claim 12, wherein the coating has a thickness of 1-500 μm.

14. The coated filter of claim 12 or 13, wherein the coating comprises an outermost layer opposite of the upstream surface comprising a majority of the fluoro-substituted poly(alkyl siloxane) resin, an inner most layer adjacent to the upstream surface comprising a majority of the epoxy resin, and an intervening layer between the outermost layer and innermost layer comprising a mixture of the fluoro-substituted poly(alkyl siloxane) resin and epoxy resin.

15. A method of inhibiting ice formation on a surface of an article comprising:

applying the coating composition of any one of claims 1-5 to at least a portion of the surface of the article, and

curing the coating composition to provide a coating comprising different layers with differing compositions.

16. The method of claim 15, wherein the coating comprises an outermost layer opposite of the surface comprising a majority of the fluoro-substituted poly(alkyl siloxane) resin, an inner most layer adjacent to the surface comprising a majority of the epoxy resin, and an intervening layer between the outermost layer and innermost layer comprising a mixture of the fluoro-substituted poly(alkyl siloxane) resin and epoxy resin.

17. The method of claim 15 or 16, further comprising preparing the coating composition prior to applying the coating composition, wherein preparing the coating composition comprises the following:

providing a mixed solvent comprising the first solvent and second solvent,

dissolving the fluoro-substituted poly(alkyl siloxane) resin in the mixed solvent, and followed by

dissolving the epoxy resin in the mixed solvent.

18. The method of any one of claims 15-17, wherein the article is a filter device.

19. The method of claim 18, wherein the filter device comprises a porous medium and a housing having an inlet and an outlet and defining a fluid flow path between the inlet and the outlet with the porous filter element arranged in the housing across the fluid flow path.