the available anti-fog coatings in the market. Another advantage of the disclosed coating composition or kit is that they have a long pot life, greater than 24 hours, which allows for easier implementation, less material waste and limits the risk of a coating seizing up and damaging application machinery. The disclosed composition or kit can be stored completely or partly in water as a carrier which reduces VOC emissions and flammability concerns and therefore is less toxic and more environmentally friendly. Finally, the disclosed coating provides strong and long-lasting anti-fogging properties to the substrate on which it is applied on.

[0014] The features and advantages of the compounds, compositions, kits, coatings, and methods disclosed herein are illustrated by the following examples, which are not to be construed as limiting the scope of the present disclosure in any way.

Summary

[0014a] In an aspect, there is provided a composition for forming a crosslinked film that imparts anti-fog properties, the composition comprising:

at least one prepolymer comprising (a) one or more charged monomer residues; (b) one or more uncharged monomer residues; and (c) one or more amine reactive monomer residues; and

at least one amine bearing crosslinker,

wherein the crosslinked film has a change in haze value, as measured per ASTM D1003, of less than 30% when exposed to fog conditions for a period longer than 30 seconds.

[0015] In view of the foregoing, in one example, there is described a composition for forming a crosslinked film that imparts anti-fog

properties. In some examples, the composition comprises a prepolymer comprising (a) one or more charged monomer residues, which may be hydrophilic (b) one or more hydrophilic uncharged monomer residues, and (c) one or more amine reactive monomer residues; and at least one amine bearing crosslinker. The described crosslinked film has a change in haze value of less than 30% when exposed to fog conditions for a period longer than 30 seconds.

[0015a] In another aspect, there is provided an anti-fog film comprising a crosslinked polymer, said crosslinked polymer comprising the composition as defined above.

[0016] In another example, there is described an anti-fog film comprising a crosslinked polymer. In some examples, the crosslinked polymer comprises: (a) one or more charged monomer residues, which may be hydrophilic; (b) one or more

hydrophilic uncharged monomer residues; (c) one or more amine reactive monomer residues; and (d) at least one amine bearing crosslinker residue. The described anti-fog film exhibits a change in haze values of less than 30% when exposed to fog conditions for a period longer than 30 seconds.

[0016a] In another aspect, there is provided a coated article comprising a substrate and a coating, said coating comprising the composition as defined above.

[0017] In another example, there is described a coated article comprising: a substrate and a coating. In some examples, the coating comprises: a crosslinked polymer comprising (a) one or more charged monomer residues, which may be hydrophilic; (b) one or more uncharged monomer residues; (c) one or more amine reactive monomer residues; and (d) at least one amine bearing crosslinker residue, wherein the coated article exhibits a change in haze value of less than 30% when exposed to fog conditions for a period of time longer than 30 seconds.

[0017a] In another aspect, there is provided a method of making a surface of a substrate resistant to fogging, said method comprising:

applying to the surface of the substrate a compound comprising the composition as defined above.

[0018] In yet another example, there is described a method of making a surface of a substrate resistant to fogging. In some examples, the described method comprises applying to the surface of the substrate a compound comprising: a first composition and a second composition. In some examples, the first composition is made from a prepolymer that comprises (a) one or more charged monomer residues, which may be hydrophilic; (b) one or more uncharged monomer residues; and (c) one or more

amine reactive monomer residues. In some examples, the second composition comprises at least one amine bearing crosslinker. Once treated, the substrate exhibits a change in haze value of less than 30% when exposed to fog conditions for a period longer than 30 seconds.

[0019] In yet another example, there is described a kit for forming a hydrophilic, crosslinked film. In some examples, the kit comprises: (A) a first component and (B) a second component, wherein the hydrophilic, crosslinked film exhibits a change in haze value of less than 30% when exposed to fog conditions for

a period longer than 30 seconds. The first component (A) comprises a first composition comprising a prepolymer. The prepolymer comprises (a) one or more charged monomer residues, which may be hydrophilic; (b) one or more uncharged monomer residues; and (c) one or more amine reactive monomer residues. The second component (B) comprises a second composition comprising at least one amine bearing crosslinker.

[0020] As described in more detail below, the various examplesmay include at least one additive that aids in resulting properties of the composition, film, coated article or method, such as an additive that aids adhesion, anti-freeze, crosslinking, film-forming, mechanical or rheological properties.

Detailed Description of the Invention

Definitions:

[0021] As used herein, “Haze value” refers to a number representing the scattering of light due to inhomogenities or discontinuities in a material which could lead to unfavorable optical properties such as a reduction in clarity. A haze measurement device such as a haze meter can be used to measure this number. The term “Δ Haze” refers to the change in haze values or haze measurements performed according to ASTM D1003 from before and after steam exposure. For example, the haze value of a sample equilibrated at 25 ºC was measured as per ASTM D1003. Then, the sample was held over a beaker of boiling water for 60 seconds and the haze value of the sample was evaluated again using ASTM D1003. The first measurement subtracted from the second measurement is defined as "Δ Haze." In general, Haze value is measured as the percentage of incoming light scattered and has no specific unit and is expressed in percentage. Per the ASTM