[0004] Although Type IA and Type IB glass compositions are commonly used in pharmaceutical packages, they do suffer from several deficiencies, including a tendency for the inner surfaces of the pharmaceutical package to shed glass particulates or "delaminate" following exposure to pharmaceutical solutions.

[0005] In addition, use of glass in pharmaceutical packaging may also be limited by the mechanical performance of the glass. Specifically, the high processing speeds utilized in the manufacture and filling of glass pharmaceutical packages may result in mechanical damage on the surface of the package, such as abrasions, as the packages come into contact with processing equipment, handling equipment, and/or other packages. This mechanical damage significantly decreases the strength of the glass pharmaceutical package resulting in an increased likelihood that cracks will develop in the glass, potentially compromising the sterility of the pharmaceutical contained in the package or causing the complete failure of the package.

[0006] Accordingly, a need exists for alternative glass containers for use as pharmaceutical packages which exhibit a combination of at least two of improved resistance to delamination, increased strength, and/or damage tolerance.

SUMMARY

[0007] ~~According to a first embodiment, a~~A glass container may include a body having an inner surface, an outer surface and a wall thickness extending between the outer surface and the inner surface. At least the inner surface of the body may have a delamination factor less than or equal to 10. A tenacious inorganic coating may be positioned around at least a portion of the outer surface of the body. The outer surface of the body with the tenacious inorganic coating may have a coefficient of friction less than or equal to 0.7.

[0007a] In an aspect, there is provided a glass container comprising:

a body having an inner surface, an outer surface and a wall thickness extending between the outer surface and the inner surface, wherein at least the inner surface of the body has a delamination factor less than or equal to 10; and

a coating positioned around at least a portion of the outer surface of the body, wherein the coating is a tenacious inorganic coating and the outer surface of the body with the tenacious inorganic coating has a coefficient of friction less than or equal to 0.7.

[0008] ~~In another embodiment, a~~A glass container may include a body having an inner surface, an outer surface and a wall thickness extending between the outer surface and the inner surface. At least the inner surface of the body may have a delamination factor less than or equal to 10. A transient coating may be positioned around at least a portion

of the outer surface of the body. The outer surface of the body with the transient coating may have a coefficient of friction less than or equal to 0.7.

[0008a] In another aspect, there is provided a glass container comprising:

a body having an inner surface, an outer surface and a wall thickness extending between the outer surface and the inner surface, wherein at least the inner surface of the body has a delamination factor less than or equal to 10; and

a coating positioned around at least a portion of the outer surface of the body, wherein the coating is a transient coating and the outer surface of the body with the transient coating has a coefficient of friction less than or equal to 0.7.

[0009] ~~In another embodiment, a~~A glass container may include a body having an inner surface, an outer surface and a wall thickness extending between the outer surface and the inner surface. At least the inner surface of the body has a delamination factor less than or equal to 10. A tenacious organic coating may be positioned around at least a portion of the outer surface of the body. The outer surface of the body with the tenacious organic coating may have a coefficient of friction less than or equal to 0.7.

[0009a] In yet another aspect, there is provided a glass container comprising:

a body having an inner surface, an outer surface and a wall thickness extending between the outer surface and the inner surface, wherein at least the inner surface of the body has a delamination factor less than or equal to 10; and

a coating positioned around at least a portion of the outer surface of the body, wherein the coating is a tenacious organic coating and the outer surface of the body with the tenacious organic coating has a coefficient of friction less than or equal to 0.7.

[0010] In another embodiment, a glass container may include a body having an inner surface, an outer surface and a wall thickness extending between the outer surface and the inner surface. The body may be formed from a Type I, Class B glass according to ASTM Standard E438-92. A barrier coating may be positioned on the inner surface of

the body such that a composition contained in the glass container does not contact the inner surface of the body. A lubricous coating may be positioned around at least a portion of the outer surface of the body. The outer surface of the body with the lubricous coating may have a coefficient of friction less than or equal to 0.7.

[0011] In another embodiment, a glass container may include a body having an inner surface, an outer surface and a wall thickness extending from the outer surface to the inner surface. The body may have a hydrolytic resistance of at least HGB2 or better according to the ISO 719 standard. The body may be formed from a glass composition which is free from constituent components which form species that volatilize significantly at temperatures corresponding to a viscosity in a range from about 200 poise to about 100 kilopoise. A lubricous coating may be positioned around at least a portion of the outer surface of the body. The outer surface of the body with the lubricous coating may have a coefficient of friction less than or equal to 0.7.

[0012] In another embodiment, a glass container may include a body having an inner surface, an outer surface and a wall thickness extending between the outer surface and the inner surface. The body may be formed from a Type I, Class B glass according to