shipped. Furthermore, vial labels often separate from the surface of the vials when stored at cryogenic temperatures due to a loss of adhering properties of the labels at low temperatures. Additionally, difficulties have been encountered when using traditional labeling techniques to apply labels to vials at cryogenic temperatures due to the buildup of frost on the surface of the vials in addition to the loss of adhering properties of labels at low temperatures. Consequently, there is a need for a better solution for labelling vials stored at cryogenic temperatures such that the labeling can be applied at cryogenic temperatures and the labels remain adhered throughout storage and transport.

SUMMARY ~~OF THE INVENTION~~

[0005] Accordingly, an object of the ~~invention~~disclosure is to provide users with a vial jacket that can receive a label and maintain the label adhered at a cryogenic temperature range. It is an object of the ~~invention~~disclosure to provide users with systems and methods to permit the user to securely surround a vial with the vial jacket during storage and transportation. It is an object of the ~~invention~~disclosure to provide users with systems and methods to permit the user to inspect the contents of the vial through a viewing window in the vial jacket.

[0006] In some ~~aspect~~examples, a vial jacket configured to receive a label includes a plastic material, a hinge formed in the plastic material, a locking mechanism, and an opening formed in the plastic material. The plastic material has a cryogenic operating temperature range and is dimensioned to surround at least a portion of a vial. The hinge defines a first half shell having a first edge and a second half shell having a second edge. The locking mechanism is configured to secure the first edge of the first half shell to the second edge of the second half shell. The opening has an axial length and a transverse length.

[0006a] In one aspect, the present disclosure refers to a vial jacket configured to receive a label, the vial jacket comprising: a plastic material having a cryogenic operating temperature range, the plastic material dimensioned to surround at least a portion of a vial; a hinge formed in the plastic material, the hinge defining a first half shell comprising a first edge and a second half shell comprising a second edge; a locking mechanism configured to secure the first edge of the first half shell to the second edge of the second half shell; and an opening formed in the plastic material having an axial length and a transverse length.

[0007] In some ~~embodiment~~examples, the cryogenic operating temperature range comprises a range of about -150°C to about 0°C. In some ~~embodiment~~examples, the cryogenic operating temperature range comprises a range of about -190°C to about 0°C. In some ~~embodiment~~examples, the cryogenic operating temperature range comprises a range of about -190°C to about -135°C. In some ~~embodiment~~examples, the cryogenic operating temperature range comprises a range of about -150°C to

about -135°C. In some ~~embodiment~~examples, the cryogenic operating temperature range comprises about one of the group consisting of -190°C, -180°C, -135°C, -80°C, and 0°C.

[0008] In some ~~embodiment~~examples, the hinge is formed by a thinning of the plastic material. In some ~~embodiment~~examples, the plastic material comprises at least one of HDPE, polypropylene, or other suitable plastic.

[0009] In some ~~embodiment~~examples, the locking mechanism secures the vial jacket to the vial. In some ~~embodiment~~examples, the locking mechanism is configured to snap fit the first edge of the first half shell to the second edge of the second half shell.

[00010] In some ~~embodiment~~examples, the axial length of the opening is different than the transverse length of the opening. In some ~~embodiment~~examples, the axial length of the opening is greater than the transverse length of the opening. In some ~~embodiment~~examples, the transverse length of the opening is greater than the axial length of the opening. In some ~~embodiment~~examples, the opening is proximate to at least one of the first edge of the first half shell or the second edge of the second half shell.

[00011] In some ~~aspect~~examples, a vial assembly includes a vial and a vial jacket configured to receive a label. The vial jacket includes a plastic material, a hinge formed in the plastic material, a locking mechanism, and an opening formed in the plastic material. The plastic material has a cryogenic operating temperature range and is dimensioned to surround at least a portion of the vial. The hinge defines a first half shell having a first edge and a second half shell having a second edge. The locking mechanism is configured to secure the first edge of the first half shell to the second edge of the second half shell. The opening has an axial length and a transverse length.

[0011a] In another aspect, the present disclosure refers to a vial assembly comprising a vial and a vial jacket configured to receive a label, the vial jacket comprising: a plastic material having a cryogenic operating temperature range, the plastic material dimensioned to surround at least a portion of the vial; a hinge formed in the plastic material, the hinge defining a first half shell comprising a first edge and a second half shell comprising a second edge; a locking mechanism configured to secure the first edge of the first half shell to the second edge of the second half shell; and an opening formed in the plastic material having an axial length and a transverse length.

[00012] In some ~~embodiment~~examples, the cryogenic operating temperature range comprises a range of about -150°C to about 0°C. In some ~~embodiment~~examples, the cryogenic operating temperature range comprises a range of about -190°C to about 0°C. In some ~~embodiment~~examples, the cryogenic operating temperature range comprises a range of about -190°C to about -135°C. In some ~~embodiment~~examples, the cryogenic operating temperature range comprises a range of about -150°C to

about -135°C. In some ~~embodiment~~examples, the cryogenic operating temperature range comprises about one of the group consisting of -190°C, -180°C, -135°C, -80°C, and 0°C.

[00013] In some ~~embodiment~~examples, the hinge is formed by a thinning of the plastic material. In some ~~embodiment~~examples, the plastic material comprises at least one of HDPE, polypropylene, or other suitable plastic.

[00014] In some ~~embodiment~~examples, the locking mechanism secures the vial jacket to the vial. In some ~~embodiment~~examples, the locking mechanism is configured to snap fit the first edge of the first half shell to the second edge of the second half shell.

[00015] In some ~~embodiment~~examples, the axial length of the opening is different than the transverse length of the opening. In some ~~embodiment~~examples, the axial length of the opening is greater than the transverse length of the opening. In some ~~embodiment~~examples, the transverse length of the opening is greater than the axial length of the opening. In some ~~embodiment~~examples, the opening is proximate to at least one of the first edge of the first half shell or the second edge of the second half shell.

[00016] Other ~~aspect~~examples and advantages of the ~~invention~~disclosure can become apparent from the following drawings and description, all of which illustrate the principles of the ~~invention~~disclosure, by way of example only.

BRIEF DESCRIPTION OF THE DRAWINGS

[00017] The advantages of the invention described above, together with further advantages, may be better understood by referring to the following description taken in conjunction with the accompanying drawings. The drawings are not necessarily to scale, emphasis instead generally being placed upon illustrating the principles of the invention.

[00018] FIG. 1A is an isometric view of an exemplary vial assembly according to an embodiment of the invention.

[00019] FIG. 1B is an isometric view of an exemplary vial assembly according to an embodiment of the invention.