BOTTLE WITH INSULATIVE BODY

The present disclosure is directed to containers and, more particularly, to bottles.

Background and Summary of the Disclosure

Bottles typically include a body, a shoulder, a neck, and a neck finish. U.S. Patent Application Publication 2012/0000878 illustrates an example glass bottle of this general type. Such bottles may be produced using a blow-and-blow manufacturing process or a press-and-blow manufacturing process, and typically have substantially uniform wall thicknesses. Moreover, longneck bottles are popular in the beverage packaging industry, particularly for packaging beer. U.S. Patent Application Publication 2010/0264107 illustrates example longneck bottles having necks with internal ribs produced by forming external ribs on necks of parisons and pushing the external ribs into the necks during blowing of the parisons into the bottles.

U.S. Patent Application Publication 2012/0091124 discloses a container including a sidewall with recessed portions and a label 62 carried by the container.

U.S. Patent 6,041,952 discloses an insulative sleeve disposed in a circumferentially extending recess of a container.

A general object of the present disclosure, in accordance with one aspect of the disclosure, is to provide a bottle that includes an insulative body for reduced heat transfer from a user's hand to improve insulation performance of the bottle.

The present disclosure embodies a number of aspects that can be implemented separately from or in combination with each other.

A bottle in accordance with one aspect of the disclosure extends along a longitudinal axis and includes a base, a neck, and an insulative body extending axially between the base and the neck. The body includes at least one radially outwardly facing first surface, and a radially outwardly facing second surface radially smaller than the first surface. The body also includes a radially outwardly facing third surface radially larger than the second surface and established collectively by

Claims

1.

A bottle extending along a longitudinal axis and that includes,

at least one radially outwardly facing first surface,

a radially recessed portion extending axially between the radially outwardly facing first surfaces, and including:

stepped portions extending axially and radially inwardly from the first surfaces,

an insulative portion extending axially between the stepped portions, and including:

a radially outwardly facing second surface radially smaller than the at least one radially outwardly facing first surface, **and**

a radially outwardly facing third surface axially between the first surfaces, and being radially larger than the second surface and established collectively by radially outwardly facing projection surfaces of a plurality of projections that project radially outwardly from the second surface, **and**

radially outwardly facing fourth surfaces axially between and radially smaller than the first surfaces but radially larger than the second surface, and

a pair of axially facing shoulders or bevelled portions between the second surface and the fourth surfaces;

wherein a continuous insulation volume is established radially between the fourth surfaces and the second surface and axially between the pair of axially facing shoulders or beveled portions, and extends continuously over more than 90 angular degrees around the bottle.

2.

The bottle set forth in claim 1 that further includes parting line bridges projecting radially outwardly from the second surface, diametrically opposed to one another, and extending axially between the first surfaces.

3.

The bottle set forth in claim 2 wherein the insulation volume extends continuously about 180 angular degrees around the bottle except for the parting line bridges.

4.

The bottle set forth in claim 1 that includes a label having axial ends, and axial margins adjacent the axial ends and carried on the fourth surfaces wherein surface contact between the axial margins and the fourth surfaces is circumferentially continuous.

5.

The bottle set forth in claim 4 wherein the insulation volume is at least 0.020 cubic inches per square inch of corresponding label area.

6.

The bottle set forth in claim 4 wherein the label has axial margins sealed to the bottle so that the continuous insulation volume is air-tight.

7.

The bottle set forth in claim 4 wherein surface contact between the label and the third surface is characterized by multiple discrete contact areas such that there is no continuous path of surface contact between the label and third surface 360 angular degrees around the bottle.

8.

The bottle set forth in claim 1 wherein the at least one radially outwardly facing first surface includes first surfaces spaced axially apart from one another, and wherein the second surface is axially between the first surfaces, and the bottle also includes a pair of axially facing shoulders between the first and fourth surfaces.

9.

The bottle set forth in claim 1 wherein third surface extends completely circumferentially around the bottle and is radially smaller than the first surface.

10.

The bottle set forth in claim 1 wherein the projections are axially and circumferentially spaced apart nubs with axial and circumferential space therebetween.

11.

The bottle set forth in claim 1 wherein the projections are axially spaced apart annular ribs to establish annular spaces therebetween.

12.

The bottle set forth in claim 11 wherein at least some of the annular ribs include reliefs to establish circumferential spaces between portions of the ribs.

13.

The bottle set forth in claim 1 wherein the bottle is a longneck bottle.

14.

The bottle set forth in claim 1 wherein said fourth surfaces are radially larger than said third surfaces.

15.

A bottle extending along a longitudinal axis and that includes,

radially outwardly facing first surfaces spaced axially apart from one another;

a radially outwardly facing second surface radially smaller than and located axially between the first surfaces;

a plurality of nubs projecting from the second surface and collectively establishing a radially outwardly facing third surface radially larger than the second surface; and

radially outwardly facing fourth surfaces axially between and radially smaller than the first surfaces but radially larger than the second surface,

wherein a continuous insulation volume is established between the fourth surfaces and the second surface, and extends continuously over more than 90 angular degrees around the bottle.

16.

The bottle set forth in claim 15 wherein the second surface is cylindrical, and the nubs are axially and circumferentially spaced apart from one another in an array of straight circumferentially spaced and axially offset columns wherein individual nubs of adjacent columns are axially staggered with respect to one another.

17.

The bottle set forth in claim 15 wherein the nubs are frustoconical and circular when viewed radially, and have a trapezoidal shape in longitudinal cross section.

18.

The bottle set forth in claim 15 wherein the nubs include radially outwardly facing faces that are at least one of faceted, crowned, semi-spherical, or part of a surface of revolution 360 angular degrees around the bottle.

19.

The bottle set forth in claim 15 wherein the at least one radially outwardly facing first surface includes first surfaces spaced axially apart from one another, and wherein the bottle further includes:

a radially recessed portion extending axially between the radially outwardly facing first surfaces, and including:

stepped portions extending axially and radially inwardly from the first surfaces, and

an insulative portion extending axially between the stepped portions, and including the second and third surfaces,

a pair of axially facing shoulders between the first and fourth surfaces, **and**

a pair of axially facing shoulders or bevelled portions between the second and fourth surfaces,

wherein the third surface is radially smaller than the first surfaces.

20.

The bottle set forth in claim 19 wherein the insulation volume extends continuously between the pair of axially facing shoulders or beveled portions.

21.

The bottle set forth in claim 19 wherein the third surface is cylindrical and radially substantially the same size as the fourth surfaces.

22.

The bottle set forth in claim 15 and that also includes parting line bridges projecting radially outwardly from the second surface, diametrically opposed to one another, and extending axially between the first surfaces.

23.

The bottle set forth in claim 22 wherein the insulation volume extends continuously about 180 angular degrees around the bottle except for the bridges.

24.

The bottle set forth in claim 15 further comprising a label carried over at least a portion of the third surface.

25.

The bottle set forth in claim 24 wherein the insulation volume is at least 0.020 cubic inches per square inch of corresponding label area.

26.

The bottle set forth in claim 24 wherein the label has axial margins sealed to the bottle so that the continuous insulation volume is air-tight.

27.

The bottle set forth in claim 24 wherein surface contact between the label and the third surface is characterized by multiple discrete contact areas such that there is no continuous path of surface contact between the label and third surface 360 angular degrees around the bottle.

28.

A bottle extending along a longitudinal axis and that includes,

radially outwardly facing first surfaces spaced axially apart from one another;

a radially outwardly facing second surface radially smaller than and located axially between the first surfaces;

a plurality of annular ribs projecting from the second surface and axially spaced apart with annular spaces therebetween and collectively establishing a radially outwardly facing third surface radially larger than the second surface, and wherein the third surface includes circumferential reliefs in at least some of the ribs that circumferentially interrupt the ribs to allow communication of air between the annular spaces; and

radially outwardly facing fourth surfaces axially between and radially smaller than the first surfaces but radially larger than the second surface,

wherein a continuous insulation volume is established radially between the fourth surfaces and the second surface and axially through the circumferential reliefs in the ribs, and extends continuously over more than 90 angular degrees around the bottle.

29.

The bottle set forth in claim 28 wherein each rib has a semi-spherical outer surface.

30.

The bottle set forth in claim 28 wherein the at least one radially outwardly facing first surface includes first surfaces spaced axially apart from one another, and wherein the bottle further includes:

a radially recessed portion extending axially between the radially outwardly facing first surfaces, and including:

stepped portions extending axially and radially inwardly from the first surfaces,

an insulative portion extending axially between the stepped portions, and including the second and third surfaces, and

a pair of axially facing shoulders between the first and fourth surfaces,

a pair of axially facing shoulders or bevelled portions between the second and fourth surfaces,

wherein the third surface is radially smaller than the first surfaces.

31.

The bottle set forth in claim 30 wherein the insulation volume extends continuously between the pair of axially facing shoulders or beveled portions.

32.

The bottle set forth in claim 28 and that also includes parting line bridges projecting radially outwardly from the second surface, diametrically opposed to one another, and extending axially between the first surfaces.

33.

The bottle set forth in claim 32 wherein the insulation volume extends continuously about 180 angular degrees around the bottle except for the parting line bridges.

34.

The bottle set forth in claim 28, further comprising a label carried over at least a portion of the third surface and having axial ends and axial margins adjacent the axial ends, wherein surface contact between the axial margins and the body is circumferentially continuous.

35.

The bottle set forth in claim 34 wherein the insulation volume is at least 0.020 cubic inches per square inch of corresponding label area.

36.

The bottle set forth in claim 34 wherein surface contact between the label and the third surface is characterized by multiple discrete contact areas such that there is no continuous path of surface contact between the label and third surface 360 angular degrees around the bottle.

37.

The bottle set forth in claim 34 wherein the label has axial margins sealed to the bottle so that the continuous insulation volume is air-tight.

38.

A bottle extending along a longitudinal axis and that includes,

outwardly facing first surfaces spaced axially apart from one another,

a radially outwardly facing second surface radially smaller than the first surfaces,

a radially outwardly facing third surface radially larger than the second surface and established collectively by radially outwardly facing projection surfaces of a plurality of projections that project radially outwardly from the second surface,

radially outwardly facing fourth surfaces axially between and radially smaller than the first surfaces but radially larger than the second surface,

parting line bridges projecting radially outwardly from the second surface, diametrically opposed to one another, and extending axially between the first surfaces, and

a relief extending circumferentially across and radially in at least one of the parting line bridges; and

wherein continuous insulation volumes are established between the fourth surfaces and the second surface, and extend continuously over more than 90 angular degrees around the bottle, wherein the relief connects the insulation volumes.

39.

The bottle set forth in claim 38 wherein the parting line bridges have outer surfaces coincident with the radially outwardly facing projection surfaces of the projections.

40.

The bottle set forth in claim 38 wherein the continuous insulation volume extends continuously about 180 angular degrees around the bottle except for the parting line bridges.

41.

The bottle set forth in claim 38 further comprising a label carried over at least a portion of the third surface.

42.

The bottle set forth in claim 41 wherein the insulation volume is at least 0.020 cubic inches per square inch of corresponding label area.

43.

The bottle set forth in claim 41 wherein the insulation volume extends continuously between axial margins of the label.

44.

The bottle set forth in claim 41 wherein surface contact between the label and the third surface is characterized by multiple discrete contact areas such that there is no continuous path of surface contact between the label and third surface 360 angular degrees around the bottle.