CLAIMS

1. A method of controlling a preform for stretch blow-moulding a container with an integrally formed handle; the preform comprising a body portion and the integrally formed handle; the preform transferred from a perform supply source to a blow moulding die for blowing the container; the method including the steps of

- passing the preform through a preform handle orientating apparatus,
- transferring the preform to a preform transportation system,
- maintaining orientation of the preform handle imposed by the perform handle orientating apparatus during transfer to the perform transportation system and transfer to the blow moulding die,
- rotating the preforms during transport along the transportation system past an array of preform heating elements while shielding the integrally formed handle from excessive exposure to the heating elements,
- transferring the preform from the transportation system to the blow moulding die, and

wherein the handle comprises a loop of orientable material extending ~~from at least~~ between an upper connection region and a lower connection region on the body portion of the preform; characterised in that the handle including a straight section angling downwardly from the lower connection region and an arcuate section extending from an end of the straight section to the upper connection regions; the handle changing from a generally uniform cross section from proximate the lower connection region to a gradually widening cross section approaching the upper connection region; the cross section reaching and maintaining a maximum width proximate the upper connection region; the cross section extending from opposing outer edges towards a central line and increasing in thickness progressively from the outer edges to a maximum thickness at the central line; the handle further including integrally moulded first, second and third strengthening elements respectively at ~~least~~each of the upper connection region and the lower connection region and at the junction between the straight section and the arcuate section; the first strengthening element at the upper connection region comprising a first curved element conforming generally in width and in cross section to a width and cross section of the handle proximate the upper connection region; curved element of the first strengthening feature extending from a first separate connection region on the body of the preform below the upper connection region to merge with the

handle proximate to a first end of a maximum width of the handle; the second strengthening element at the lower connection region comprising a straight element extending between the straight section of the handle and a separate connection region on the body of the preform above the lower connection region of the handle; the third strengthening element at the junction of the straight and arcuate section of the handle comprising a further curved element extending between the straight section and the arcuate section of the handle; each of the first, second and third strengthening elements conforming generally in width and in cross section with adjacent straight and arcuate sections of the handle; each of the strengthening elements including a web of orientable material within boundaries formed respectively between the body of the perform and the first and second strengthening elements and between the third strengthening element and the straight and arcuate sections; each web of orientable material aligned with and extending equally in both directions from the central line.

2. A method of reducing strain on a supporting finger of a hand lifting a blow-moulded container by means of the preform of claim 1; the container provided with an integral handle; the method including:

- stretch blow-moulding the container from a preform which includes an integral loop of orientable material forming the handle; the loop of orientable material extending ~~from at least~~between an upper connection region and a lower connection region,
- forming the handle with a straight section angling downwardly from the lower connection region and an arcuate section extending from an end of the straight section to the upper connection region,
- widening a cross section profile of the arcuate section proximate the upper connection region to a maximum width of the handle; the cross section of the handle extending from opposing outer edges of the handle towards a centreline; the cross section increasing in thickness progressively from the outer edges to a maximum thickness at the centreline,
- providing a first strengthening element proximate the upper connection region, a second strengthening element proximate the lower connection region and a third strengthening element at a junction of the straight and arcuate sections;

the first strengthening element comprises a first curved element conforming generally in width and in cross section to a width and cross section of the handle proximate the upper connection region; the first curved element extending from a first separate connection region below the upper connection region to merge with the handle proximate to a first end of a maximum width of the handle.

3. The method of claim 2 wherein curvature of the strengthening element is selected for fitting an average index finger of a human hand.

4. A blown container formed according to the method of any one of claims 1 to 3.

5. An injection moulded preform having an integral handle: the preform being formed in a first production step of a stretch blow moulded container; the container blown from the preform including the handle as an integral loop of orientable material extending from ~~at least~~ an upper connection region to a lower connection region; the handle including a straight lower section and an arcuate section extending from an end of the straight lower section to the upper connection region; the handle of the preform changing from a generally uniform cross section from proximate the lower connection region to a gradually widening cross section approaching the upper connection region; the cross section extending from opposing outer edges of the handle to a central line and increasing in thickness progressively from the outer edges to a maximum thickness at the central line; the cross section reaching and maintaining a maximum width proximate the upper connection region, the handle further provided with a strengthening element at the upper connection region; the strengthening element comprising a curved element conforming generally in width and in cross section to the width and cross section of the handle proximate the upper connection region; the curved element extending from a first separate connection region below the upper connection region to merge with the handle proximate to a first end of the maximum width of the handle.