CLAIMS

1. ~~A~~An air separation column comprising a packing and a plate-style liquid distributor for distribution of a liquid ~~in a mass transfer column,~~to the packing, said plate-style distributor comprising:

at least one riser comprising at least one riser wall, wherein the at least one riser wall extends from a first surface of the liquid distributor in a first direction of the ~~mass transfer~~ column;

at least one shield, wherein the at least one shield extends from a second surface of the liquid distributor opposite the first surface and extending in a second direction of the ~~mass transfer~~ column opposite the first direction; and

at least one liquid distribution aperture extending from the first surface of the liquid distributor through the second surface of the liquid distributor,

wherein the at least one shield has a length extending in the second direction such that a gap is created between the at least one shield and ~~a~~the packing, and wherein the height of the gap between the shield and the packing is about 10 mm to 75 mm~~, and~~.

~~wherein the liquid distributor comprises a trough style or plate style distributor.~~

~~2. The liquid distributor of claim 1, wherein the mass transfer column is an~~ air separation column~~.~~

~~3.~~2. ~~The liquid distributor~~ of claim 1, wherein the packing is structured packing.

~~4.~~3. The ~~liquid distributor~~air separation column of claim 1, wherein the height of the gap between the shield and the packing is about 40 mm to 50 mm.

~~5.~~4. The ~~liquid distributor~~air separation column of claim 1, wherein the at least one shield is positioned such that the at least one shield extends from the second surface equidistant from the at least one liquid distribution aperture and the at least one riser.

~~6.~~5. The ~~liquid distributor~~air separation column of claim 1, wherein the at least one shield is positioned such that the at least one shield extends from the second surface directly adjacent to the at least one riser.

~~7.~~6. The ~~liquid distributor~~air separation column of claim 1, wherein the at least one riser extends substantially across the entire cross-section of the ~~mass transfer~~ column

in a third direction perpendicular to the first direction and the second direction, and wherein the at least one shield extends across the entire cross-section of the ~~mass transfer~~ column in the third direction.

~~8.~~7. The ~~liquid distributor~~air separation column of claim 1, wherein the at least one riser extends substantially across the entire cross-section of the ~~mass transfer~~ column in a third direction perpendicular to the first direction and the second direction, and wherein the at least one shield extends substantially across the entire cross-section of the ~~mass transfer~~ column in the third direction.

~~9.~~8. The ~~liquid distributor~~air separation column of claim 1, wherein the at least one liquid distribution aperture is located between the at least one shield and an outer wall of the ~~mass transfer~~ column.

~~10.~~9. The ~~liquid distributor~~air separation column of claim 1, wherein the at least one liquid distribution aperture is located at a bottom of the liquid distributor and the at least one shield extends in the second direction from the bottom of the liquid distributor.

~~11.~~10. A method for the distribution of a liquid in ~~a mass transfer~~an air separation column, comprising the steps of:

a. introducing the liquid into an upper portion of the ~~mass transfer~~air separation column;

b. positioning within the ~~mass transfer~~air separation column at least one ~~mass transfer~~air separation column section;

c. positioning within the at least one ~~mass transfer~~air separation column section a plate-style liquid distributor to receive a downwardly flowing stream of liquid and an upwardly flowing stream of vapor, the liquid distributor comprising:

i. at least one riser comprising at least one riser wall, wherein the at least one riser wall extends upwardly from a first surface of the liquid distributor;

ii. at least one shield, wherein the at least one shield extends from a second surface of the liquid distributor opposite the first surface and extending downwardly; and

iii. at least one liquid distribution aperture extending from the first surface of the liquid distributor through the second surface of the liquid distributor,

wherein the at least one shield has a length extending downwardly such that a gap is created between the at least one shield and a packing positioned below the liquid distributor in the ~~mass transfer~~air separation column, and wherein the height of the gap between the shield and the packing is about 10 mm to 75 mm, ~~and~~

~~wherein the liquid distributor comprises a trough style or plate style distributor,~~

d. collecting the downwardly flowing stream of liquid from the upper portion of the ~~mass transfer~~air separation column on the first surface of the liquid distributor;

e. passing the upwardly flowing stream of vapor from the lower portion of the ~~mass transfer~~air separation column through the risers of the liquid distributor; and

f. distributing the downwardly flowing stream of liquid from at least one liquid distribution aperture in the liquid distributor on to the packing.

~~12. The method of claim 11, wherein the mass transfer column is an air separation column.~~

~~13.~~11. ~~The method of claim 11~~10, wherein the packing is structured packing.

~~14.~~12. The method of claim ~~11~~10, wherein the height of the gap between the shield and the packing is about 40 mm to 50 mm.

~~15.~~13. The method of claim ~~11~~10, wherein the at least one shield is positioned such that the at least one shield extends from the second surface equidistant from the at least one liquid distribution aperture and the at least one riser.

~~16.~~14. The method of claim ~~11~~10, wherein the at least one shield is positioned such that the at least one shield extends from the second surface directly adjacent to the at least one riser.

~~17.~~15. The method of claim ~~11~~10, further comprising:

g. creating a static pressure zone located between the at least one shield wall and an outer wall of the ~~mass transfer~~air separation column, the static pressure zone having a lower vapor velocity than the at least one vapor riser and the at least one liquid distribution aperture being located between the at least one shield and the outer wall.