Claims

1. The use in a cryogenic separation process of structured packing having a corrugation angle of at least 50° in a column or column division having at least one pair of converging walls or wall portions within at least a region of the column or column division bounded by at least one pair of converging walls or wall portions.

2. An apparatus for a cryogenic separation process, comprising a column or column division having at least one pair of converging walls or wall portions and, within at least a region of the column or column division bounded by at least one pair of converging walls or wall portions, a structured packing having a corrugation angle of at least 50°.

3. A method of cryogenic separation, comprising supplying one or more fluids to a column or column division having at least one pair of converging walls or wall portions and which, within at least a region of the column or column division bounded by at least one pair of converging walls or wall portions, contains a structured packing having a corrugation angle of at least 50° such that the one or more fluids contact the structured packing in order to effect cryogenic separation.

4. A method of installation of structured packing into an apparatus for a cryogenic separation process, which apparatus comprises a column or column division having at least one pair of converging walls or wall portions, comprising the steps of:

providing a structured packing having a corrugation angle of at least 50°, and

installing the said structured packing into at least a

region of the column or column division bounded by at least one pair of converging walls or wall portions.

5. The use, apparatus or method according to any preceding claim, wherein the corrugation angle of the structured packing is from 55° to 65°.

6. The use, apparatus or method according to claim 5, wherein the corrugation angle of the structured packing is 60°.

7. The use, apparatus or method according to any preceding claim, wherein the at least one pair of converging walls or wall portions converges towards an internal angle of less than or equal to 120°.

8. The use, apparatus or method according to any preceding claim, in which the column cross-section or column division cross-section comprises at least one corner or angle.

9. The use, apparatus or method according to claim 8, wherein the at least one corner or angle is an internal angle of less than or equal to 120°.

10. The use, apparatus or method according to any preceding claim, in which the column or column division is a column division formed within a column having a circular cross-section by providing at least one dividing wall within the column which divides the cross-section of the column into at least two divisions such that the dividing wall converges with the wall of the column to form at least one angle.

11. The use, apparatus or method according to any preceding claim, wherein the column size is greater than 0.5 m in

diameter, where the column is of circular cross-section, or of greater than the equivalent cross-sectional area where the cross-section is of another shape.

12. The use, apparatus or method according to any preceding claim, in which the cryogenic separation process is a process of separation of air into nitrogen-, oxygen- and argon-enriched streams.

13. The use, apparatus or method according to any preceding claim, wherein the structured packing has a surface area density of from 350 to 800 m^2/m^3.

Claims

1. The use in a heat and/or mass transfer process of structured packing having a corrugation angle of at least 50° in a column or column division having at least one pair of converging walls or wall portions within at least a region of the column or column division bounded by at least one pair of converging walls or wall portions.

2. An apparatus for a heat transfer or mass transfer process, comprising a column or column division having at least one pair of converging walls or wall portions and, within at least a region of the column or column division bounded by at least one pair of converging walls or wall portions, a structured packing having a corrugation angle of at least 50°.

3. A method of heat and/or mass transfer, comprising supplying one or more fluids to a column or column division having at least one pair of converging walls or wall portions and which, within at least a region of the column or column division bounded by at least one pair of converging walls or wall portions, contains a structured packing having a corrugation angle of at least 50° such that the one or more fluids contact the structured packing in order to effect heat transfer and/or mass transfer.

4. A method of installation of structured packing into an apparatus for a heat and/or mass transfer process, which apparatus comprises a column or column division having at least one pair of converging walls or wall portions, comprising the steps of:
providing a structured packing having a corrugation angle of at least 50°, and
~~installing the said structured packing into at least a~~

region of the column or column division bounded by at least one pair of converging walls or wall portions.

5. The use, apparatus or method according to any preceding claim, wherein the corrugation angle of the structured packing is from 55° to 65°.

6. The use, apparatus or method according to claim 5, wherein the corrugation angle of the structured packing is 60°.

7. The use, apparatus or method according to any preceding claim, wherein the at least one pair of converging walls or wall portions converges towards an internal angle of less than or equal to 120 °.

8. The use, apparatus or method according to any preceding claim, in which the column cross-section or column division cross-section comprises at least one corner or angle.

9. The use, apparatus or method according to claim 8, wherein the at least one corner or angle is an internal angle of less than or equal to 120°.

10. The use, apparatus or method according to any preceding claim, in which the column or column division is a column division formed within a column having a circular cross-section by providing at least one dividing wall within the column which divides the cross-section of the column into at least two divisions such that the dividing wall converges with the wall of the column to form at least one angle.

11. The use, apparatus or method according to any preceding claim, wherein the column size is greater than 0.5 m in

diameter, where the column is of circular cross-section, or of greater than the equivalent cross-sectional area where the cross-section is of another shape.

12. The use, apparatus or method according to any preceding claim, wherein the mass transfer process is a cryogenic separation process.

13. The use, apparatus or method according to claim 12, in which the cryogenic separation process is a process of separation of air into nitrogen-, oxygen- and argon-enriched streams.