CLAIMS

1. A method of controlling a temperature in a column, the method comprising feeding a feed gas into a port of a sleeve disposed around at least a portion of a periphery of the column, wherein:

the sleeve comprises a space between an outer wall of the column and an inner wall of the column;

the sleeve is disposed around a zone of the column that is configured to freeze at least one component of the feed gas;

the port is disposed in an upper region of the sleeve;

the sleeve is configured to channel the feed gas downward around the periphery of the column; and

the sleeve is configured to release the feed gas into the column through an opening disposed at a point below the port where the feed gas is fed into the sleeve.

2. The method of claim 1, wherein the feed gas comprises a CO_2 concentration of less than about 16%.

3. The method of claim 1, wherein the flow of the feed gas in the sleeve is configured to melt a solid that has accumulated on the inner wall of the column.

4. The method of claim 1, wherein the feed gas is fed into the sleeve at a temperature above a freezing temperature for at least one component in the feed gas.

5. The method of claim 1, wherein a concentration of CO_2 in the feed gas that is fed into the sleeve matches a concentration of CO_2 in a zone of the column that is configured to freeze at least one component of the feed gas.

6. A method of separating an acid gas component from a raw natural gas stream in a column, the method comprising:

maintaining a temperature of a zone in the column below the freezing point of an acid gas component in the raw natural gas stream;

feeding the raw natural gas stream at a temperature above the freezing point of the acid gas component into an upper portion of an internal sleeve disposed around a zone of the column;

flowing the raw natural gas stream downward through the internal sleeve to cool the raw natural gas stream and warm an internal wall of the column in the zone, melting accumulated solids from the inner wall; and

releasing the raw natural gas stream into the column at a lower portion of the zone.

7. The method of claim 6, wherein the raw natural gas stream includes methane (CH_4) and acid gas.

8. The method of claim 6, wherein the acid gas is hydrogen sulfide (H_2S), carbon dioxide (CO_2), or sulfur dioxide (SO_2), or a combination thereof.

9. The method of claim **6**, comprising feeding the raw natural gas stream at a temperature above the freezing temperature for CO_2 in the zone.

10. A column for the separation of a feed gas, the column comprising:

an internal sleeve located around a periphery of a zone of the column; and

a feed gas inlet located in an upper region of the internal sleeve, wherein the internal sleeve is configured to channel the feed gas downward around the periphery of the column; and

an inner opening from the internal sleeve, configured to release the feed gas into the zone at a point below the feed gas inlet.

11. The column of claim **10**, wherein the feed gas comprises methane (CH_4) and carbon dioxide (CO_2).

12. The column of claim **10**, wherein the feed gas comprises a concentration of CO_2 that is lower than about 7%.

13. The column of claim **10**, wherein a concentration of CO_2 in the feed gas that is fed into the internal sleeve matches a concentration of CO_2 in a zone of the column that is configured to freeze at least one component of the feed gas.

14. The column of claim **10**, wherein the internal sleeve is positioned around the entire periphery of the zone or located within one or more quadrants related to the periphery of the zone.

15. The column of claim **10**, comprising a slot in the internal sleeve, wherein the slot projects the feed gas toward a center of the column.

16. The column of claim **10**, wherein the internal sleeve is generally cylindrical, generally frustoconical, generally funnel-shape, generally tapered, or a combination thereof.

17. The column of claim **10**, wherein the internal sleeve extends downwards from substantially the top of the zone, substantially from the middle of the zone, or substantially from the bottom of the zone.

18. The column of claim **10**, wherein the internal sleeve terminates substantially in a middle portion of the zone, substantially in a lower portion of the zone, in close proximity to a top portion of a melt tray, or substantially within an internal section of the melt tray.

19. The column of claim **10**, wherein a spray nozzle section is directed to spray a liquid inside of the internal sleeve, into a center of the zone, or a combination thereof.