

31. The integrated process of claim 37, wherein the hydroprocessed effluent separation zone comprises a flash vessel having at it inlet a vapor-liquid separation device including
- a pre-rotational element having an entry portion and a transition portion, the entry portion having an inlet for receiving the flowing fluid mixture and a curvilinear conduit,
 - a controlled cyclonic section having an inlet adjoined to the pre-rotational element through convergence of the curvilinear conduit and the cyclonic section and a riser section at an upper end of the cyclonic member through which the light fraction passes,
- wherein a bottom portion of the flash vessel serves as a collection and settling zone for the heavy fraction prior to passage of all or a portion of said heavy fraction.
32. The integrated process of claim 27, further comprising
- separating the hydroprocessing zone reactor effluents in a high pressure separator to recover a gas portion that is cleaned and recycled to the hydroprocessing zone as an additional source of hydrogen, and liquid portion,
 - separating the liquid portion from the high pressure separator in a low pressure separator into a gas portion and a liquid portion, wherein the liquid portion from the low pressure separator is the hydroprocessed effluent subjected to separation into a light fraction and a heavy fraction, and the gas portion from the low pressure separator is combined with the mixed product stream produced in step (b) before separation in step (c).
33. The integrated process of claim 26 wherein separating the heated hydroprocessed effluent in step (b) is with a vapor-liquid separation device based on physical and mechanical separation.
34. The integrated process of claim 26 wherein separating the heated hydroprocessed effluent in step (b) is with a vapor-liquid separation device that includes
- a pre-rotational element having an entry portion and a transition portion, the entry portion having an inlet for receiving the flowing fluid mixture and a curvilinear conduit,
 - a controlled cyclonic section having an inlet adjoined to the pre-rotational element through convergence of the curvilinear conduit and the cyclonic section and a riser section at an upper end of the cyclonic member through which vapors pass, and

31. The integrated process of claim 27, wherein the hydroprocessed effluent separation zone comprises a flash vessel having at its inlet a vapor-liquid separation device including
- a pre-rotational element having an entry portion and a transition portion, the entry portion having an inlet for receiving the flowing fluid mixture and a curvilinear conduit,
 - a controlled cyclonic section having an inlet adjoined to the pre-rotational element through convergence of the curvilinear conduit and the cyclonic section and a riser section at an upper end of the cyclonic member through which the light fraction passes,
- wherein a bottom portion of the flash vessel serves as a collection and settling zone for the heavy fraction prior to passage of all or a portion of said heavy fraction.
32. The integrated process of claim 27, further comprising
- separating the hydroprocessing zone reactor effluents in a high pressure separator to recover a gas portion that is cleaned and recycled to the hydroprocessing zone as an additional source of hydrogen, and liquid portion,
 - separating the liquid portion from the high pressure separator in a low pressure separator into a gas portion and a liquid portion, wherein the liquid portion from the low pressure separator is the hydroprocessed effluent subjected to separation into a light fraction and a heavy fraction, and the gas portion from the low pressure separator is combined with the mixed product stream produced in step (b) before separation in step (c).
33. The integrated process of claim 26 wherein separating the heated hydroprocessed effluent in step (b) is with a vapor-liquid separation device based on physical and mechanical separation.
34. The integrated process of claim 26 wherein separating the heated hydroprocessed effluent in step (b) is with a vapor-liquid separation device that includes
- a pre-rotational element having an entry portion and a transition portion, the entry portion having an inlet for receiving the flowing fluid mixture and a curvilinear conduit,
 - a controlled cyclonic section having an inlet adjoined to the pre-rotational element through convergence of the curvilinear conduit and the cyclonic section and a riser section at an upper end of the cyclonic member through which vapors pass, and