CLAIMS

1. A process for the gasification of a solid carbonaceous feed, the process comprising the steps of:

introducing a batch of the solid carbonaceous feed into a sluice vessel(2), while an internal pressure in the sluice vessel is at a first pressure;

introducing at least recycled CO_2 comprising methanol into the sluice vessel(2) via one or more gas inlets(7, 39) covered by the solid carbonaceous feed(41), to pressurize the sluice vessel(2) from the first pressure to a second pressure exceeding the first pressure, during a predetermined time period;

closing the one or more gas inlets(7, 39);

opening a feed outlet(4) of the sluice vessel(2) to supply the batch of the solid carbonaceous feed(41)to a feed vessel(6) for feeding the solid carbonaceous feed (41) to a gasification reactor(10);

closing the feed outlet(4);

venting the sluice vessel(2) to reduce the internal pressure to the first pressure; and

repeating the process

characterized by

the recycled CO_2 being introduced into the sluice vessel only via the one or more gas inlets(7, 39) which are covered by the solid carbonaceous feed(41), and at a flow rate which is at most 0.3 m^3 per minute for each 0.5 kg of solid carbonaceous feed in the batch.

2. The process of claim 1, wherein the second pressure exceeds 40 bar.

3. The process of any of the previous claims, the predetermined time period for pressurizing the sluice vessel being at least 10 minutes.

4. The process of claim 1, wherein the recycled CO_2 is derived from a Rectisol syngas treating process which uses methanol as an absorbent.

5. The process of claim 4, wherein the recycled CO_2 comprises methanol in a concentration of at least 300 to 400 ppm (volume).

6. The process of claim 1, comprising a step of heating the walls of the sluice vessel after the step of introducing a batch of the solid carbonaceous feed.

7. The process of claim 6, wherein the step of heating the walls of the sluice vessel comprises heating by heat exchange with warm water.

8. The process of claim 6 or 7, wherein the step of heating the walls of the sluice vessel comprises heating the walls of the sluice vessel up to at least 90 degrees C.

9. The process of claim 1, comprising a step of keeping the sluice vessel at elevated temperature and at the second pressure during a second time period.

10. The process of claim 9, wherein the second time period is at least 10 minutes.