Summary

In one aspect of the present disclosure, there is provided a method for the control of pressure in a loop for the preparation of ammonia or methanol comprising the steps of
(a) providing a fresh ammonia or methanol synthesis gas;
(b) providing a loop recirculation gas;
(c) providing a loop recirculation compressor with an anti-surge valve and/or a compressor flow regulation valve;
(d) providing an ammonia or methanol synthesis loop;
(e) adding the fresh ammonia or methanol synthesis gas into the loop recirculation gas;
(f) pressurizing the loop recirculation gas from step (e) in the loop recirculation compressor; and
(g) monitoring pressure in the ammonia or methanol synthesis loop,
wherein flow of the loop recirculation gas through the anti-surge valve and/or the recirculation compressor flow regulation valve is controlled to obtain a substantially constant pressure in the ammonia or methanol synthesis loop.

Description

We have found that the amount of feed gas to the to the ammonia and methanol reactor can be controlled by the anti-surge control of the recirculator (loop recycle compressor). The antisurge or kickback valve is typically a fast reacting control element for protection against surge resulting in vibrations and thus damage of the compressor.

Pursuant to the above finding, the present invention provides a method for the control of pressure in a loop for

the preparation of ammonia or methanol comprising the steps of

(a) providing a fresh ammonia or methanol synthesis gas;

(b) providing a loop recirculation gas;

(c) providing a loop recirculation compressor with an anti-surge valve and/or a compressor flow regulation valve;

(d) providing an ammonia or methanol synthesis loop;

(e) adding the fresh ammonia or methanol synthesis gas into the loop recirculation gas;

(f) pressurizing the loop recirculation gas from step (e) in the loop recirculation compressor; and

(g) monitoring pressure in the ammonia or methanol synthesis loop,

wherein flow of the loop recirculation gas through the anti-surge valve and/or the recirculation compressor flow regulation valve is controlled to obtain a substantially constant pressure in the ammonia or methanol synthesis loop.

In case of slow load variation (days or weeks), the method according to the invention can be supplemented by control of the temperature in a high pressure ammonia or methanol