Claims

1. A method (100) for producing a hydrogen-containing product, wherein ammonia (2) is reacted in an ammonia cracker (20) to which heat is supplied, wherein the ammonia cracker (20) has a catalyst bed with at least two catalyst segments (20a, 20b, 20c), wherein in a first catalyst segment (20a) a fraction of the ammonia (2) is reacted at a first minimum temperature (T_1) using a first catalyst and in a second catalyst segment (20b), which is downstream of the first catalyst segment (20a), a further fraction of the ammonia (2) is converted at a second minimum temperature (T_2) using a second catalyst, wherein the first minimum temperature (T_1) is lower than the second minimum temperature (T_2), **characterized in that** the temperature of the catalyst bed increases in the direction from an inlet of the catalyst bed to an outlet of the catalyst bed.

2. The method according to claim 1, wherein the first minimum temperature (T_1) is at least 450°C or at least 525°C or at least 600°C and at most 650°C or at most 625°C.

3. The method according to any of the preceding claims, wherein the second minimum temperature (T_2) is at least 700°C or at least 800°C or at least 850°C or at most 950°C or at most 900°C.

4. The method according to any of the preceding claims, wherein the catalyst arranged in the first catalyst segment contains a noble metal, in particular ruthenium, platinum or palladium.

5. The method according to any of the preceding claims, wherein the catalyst arranged in the second catalyst segment contains cobalt or nickel.

6. The method according to any of the preceding claims, wherein the ammonia cracker (20) has, upstream of the first catalyst segment (20a), a heated inert packed bed.

7. The method according to any of the preceding claims, wherein the catalyst bed has at least three catalyst segments (20a, 20b, 20c), wherein in a third catalyst

segment (20c), which is downstream of the second catalyst segment (20b), a further fraction of the ammonia (2) is reacted at a third minimum temperature using a third catalyst.

8. The method according to claim 8, wherein the first catalyst contains a noble metal, in particular ruthenium, wherein the second catalyst contains nickel, wherein the proportion of nickel is at least 10 wt.% or at least 25 wt.% or at least 40 wt.% or 60 wt.%, wherein the third catalyst contains nickel, wherein the proportion of nickel is at most 5 wt.% or at most 10 wt.% or at most 15 wt.%.

9. The method according to claim 8, wherein the first catalyst contains a noble metal, in particular ruthenium, wherein the second catalyst contains cobalt and wherein the third catalyst contains nickel.