Claims.

1. A process for steam reforming a hydrocarbon feedstock containing 0.1 to 25% by volume of nitrogen gas, N_2, comprising passing a mixture of the hydrocarbon feedstock and steam through a catalyst bed consisting of one more nickel steam reforming catalysts disposed within a plurality of externally heated tubes in a tubular steam reformer, wherein each tube has an inlet to which the mixture of hydrocarbon and steam is fed, an outlet from which a reformed gas containing hydrogen, carbon monoxide, carbon dioxide, steam, ammonia and methane is recovered, and the steam reforming catalyst at least at the outlet of the tubes is a structured steam reforming catalyst comprising nickel dispersed over the surface of a porous metal oxide present as a coating on a non-porous metal or ceramic structure, wherein the nickel content of the metal oxide coating is in the range of 5 to 50% by weight, the thickness of the coating is in the range of 5 to 150 micrometres and the amount of coating on the non-porous support structure is in the range of 10 to 150 g/m^2, and wherein the ammonia content of the reformed gas is below 200ppmv on a dry gas basis.

2. A process according to claim 1, wherein the thickness of the porous metal oxide coating containing the nickel on the non-porous structure is in the range of 10 to 100 micrometres, preferably 10 to 80 micrometres, more preferably in the range 10 to 50 micrometres.

3. A process according to claim 1 or claim 2, wherein the nickel content of the metal oxide coating is in the range of 10 to 30% by weight, preferably 10 to 20% by weight.

4. A process according to any one of claims 1 to 3 wherein the amount of coating on the non-porous support structure is in the range of 10 to 80 g/m^2, preferably 30 to 60 g/m^2.

5. A process according to any one of claims 1 to 4 wherein the structured catalyst comprises metal or ceramic structures having a plurality of passages through which a process fluid may pass in ordered, non-random directions.

6. A process according to any one of claims 1 to 5 wherein the hydrocarbon feedstock comprises methane and is preferably a pre-reformed gas, an associated gas or natural gas, more preferably natural gas.

7. A process according to any one of claims 1 to 6, wherein the nitrogen gas content of the hydrocarbon feedstock is in the range of 0.5-25% by volume, preferably 1-10% by volume, more preferably 1-5% by volume.

8. A process according to any one of claims 1 to 7, wherein the catalyst bed consists of one, two, three or more layers of steam reforming catalyst wherein in each case the layer of steam reforming catalyst adjacent the outlets of the tubes is the structured catalyst.

9. A process according to claim 8, wherein there are two or more layers of steam reforming catalyst within the tubes and the structured catalyst layer comprises 95% to 5% of the volume of the bed, preferably 80% to 20% of the volume of the bed, more preferably 75% to 25% of the volume of the bed.

10. A process according to any one of claims 1 to 9, wherein the methane content of the reformed gas is less than 15% by volume on a dry gas basis, preferably less than 10% by volume on a dry gas basis, more preferably less than 5% by volume on a dry gas basis.

11. A process according to any one of claims 1 to 10, wherein the ammonia content of the reformed gas is below 100ppmv, preferably below 50ppmv, most preferably below 10ppmv on a dry gas basis.

12. A process according to any one of claims 1 to 11, wherein the process further comprises cooling the reformed gas to below the dew point to condense steam and separating the liquid condensate to form a synthesis gas from the reformed gas.

13. A process according to claim 12, wherein the ammonia content of the liquid condensate is below 400 mg/Litre, preferably below 200 mg/Litre, more preferably below 100 mg/Litre, most preferably below 50 mg/Litre, most preferably below 20mg/Litre.

14. A process according to claim 12 or claim 13, wherein at least a portion of the condensate is recycled and used to generate steam used in the steam reforming process.

15. The use of a structured steam reforming catalyst comprising nickel dispersed over the surface of a porous metal oxide, present as a coating on a non-porous metal or ceramic structure, wherein the nickel content of the metal oxide coating is in the range of 5 to 50% by weight, the thickness of the coating is in the range of 5 to 150 micrometres and the amount of coating on the non-porous support structure is in the range of 10 to 150 g/m^2, for suppression of ammonia formation during catalytic steam reforming of a nitrogen gas containing hydrocarbon feedstock.