Naturally Occurring Haber Process During Stellar Metamorphosis, or How to Find Water Worlds in Exoplanet Data

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Abstract: Ammonia is found in late stage stars such as Neptune and Uranus. It is also present in intermediate aged stars such as Jupiter and Saturn. Given the sheer amount of hydrogen and nitrogen available to chemically combine into ammonia, it is clear that production of ammonia is a natural process in stellar evolution/metamorphosis, and we can mimic this with the Haber Process. A naturally occurring Haber process runs counter to the establishment's false worldview that stars can not cool down enough to form huge amounts of organic and non-organic molecules. We know it happens because we have direct and indirect observational evidence of it happening.

The Haber process is the combining of nitrogen gas with hydrogen gas to make ammonia under high temperatures and pressures. The process takes about 200 times normal atmospheric pressure and about 450 degrees Celsius, with hot iron beds as catalysts. The process below is outlined as such.

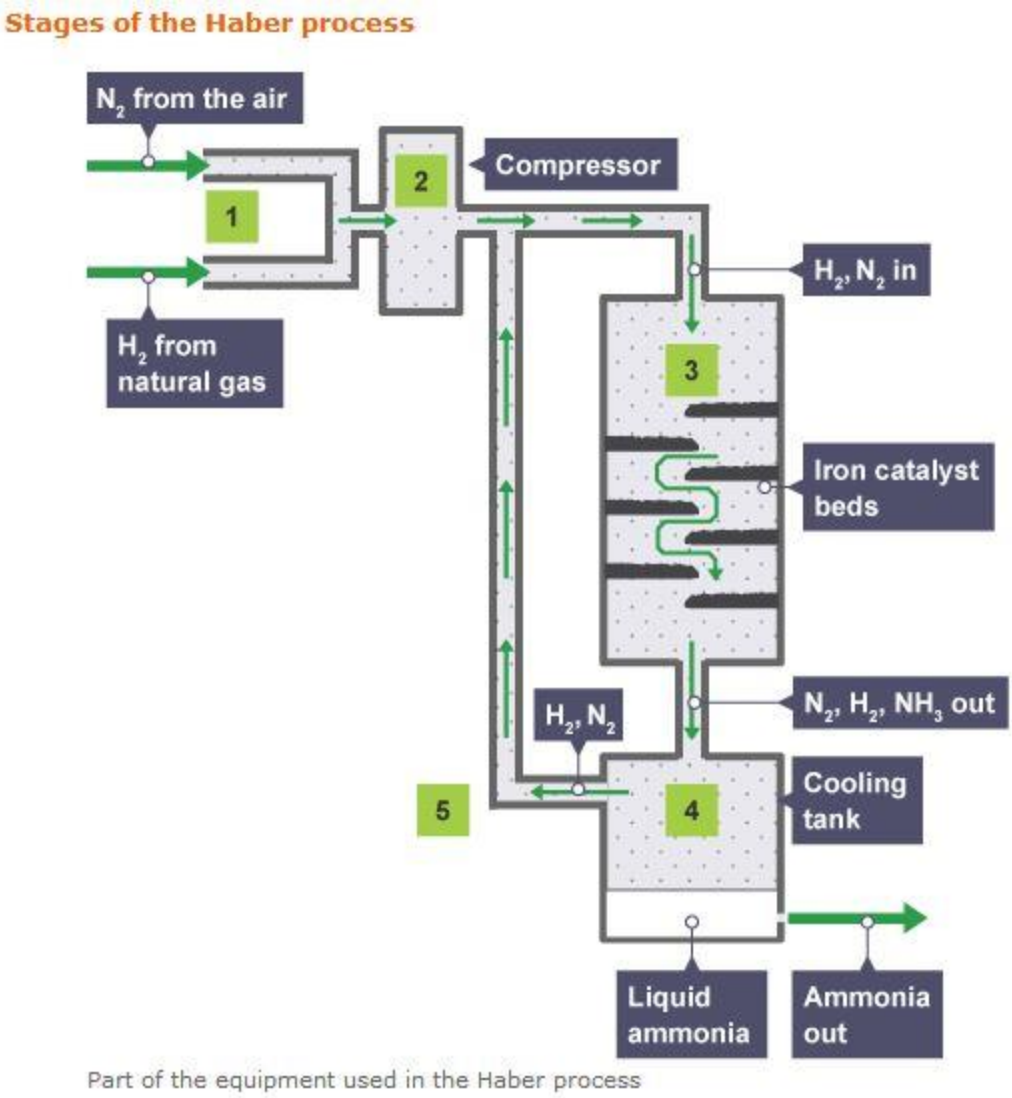
1. Having obtained the hydrogen and nitrogen gases (from natural gas and the air respectively), they are pumped into the compressor through pipes.

2. The gases are pressurized to about 200 atmospheres of pressure inside the compressor.

3. The pressurized gases are pumped into a tank containing beds of iron catalyst at about 450°C. In these conditions, some of the hydrogen and nitrogen will react to form ammonia.

4. The unreacted nitrogen and hydrogen, together with the ammonia, pass into a cooling tank. The cooling tank liquefies the ammonia, which can be removed into pressurized storage vessels.

5. The unreacted hydrogen and nitrogen gases are recycled by being fed back through pipes to pass through the hot iron catalyst beds again.



Part of the equipment used in the Haber process

The process as it happens in the atmospheres of late stage stars occurs as such.

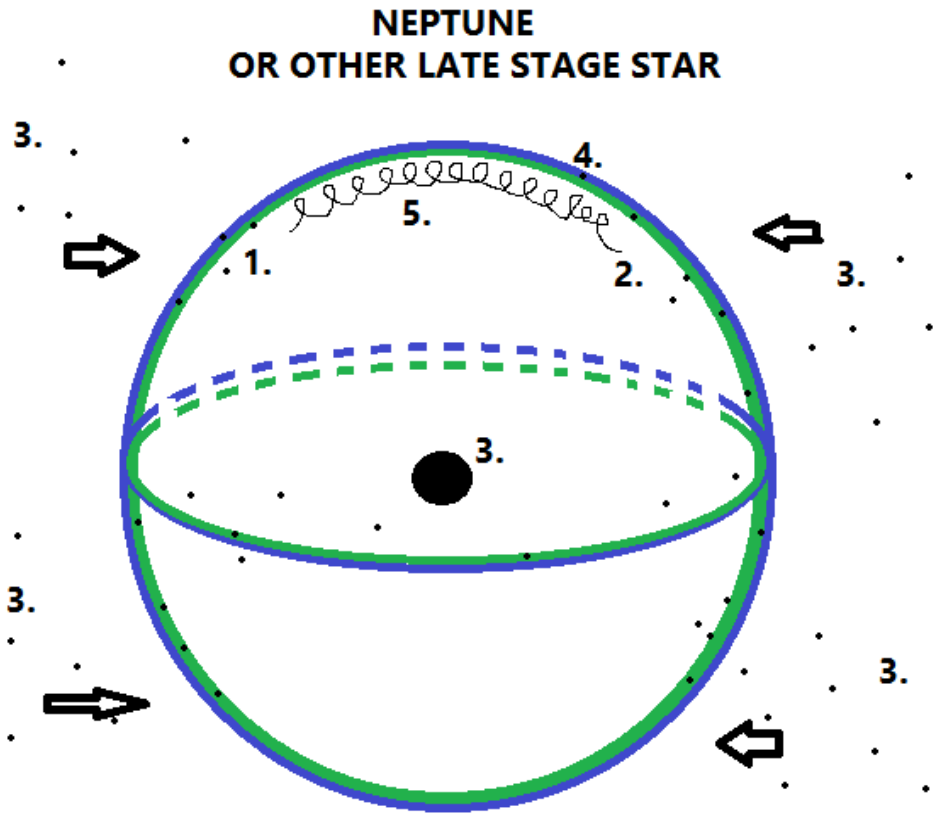
1. The hydrogen and nitrogen are freely available in the thick atmosphere and are observed. (Represented by the blue and green bands)

2. The gravitational field acts as the compressor, compressing material to enormous pressures. Provides pressures at all ranges required for chemical synthesis.

3. Incoming meteorites that have iron and the iron collected in the mantle/core act as catalysts. (They are hot and can heat up to enormous temperatures due to entry)

4. Ammonia is synthesized and in its gaseous form can rise up to the atmosphere to cool, before sinking again, forming large clouds (ammonia rain cycle).

5. Left over hydrogen and nitrogen cycle through and combine/break apart again, to find a good chemical equilibrium as more hydrogen than nitrogen is escaping back into interstellar space.



6. The ammonia provides for the first nitrates for the beginning of life formation, because the nitrogen can be used effectively, not having the triple bonds in its diatomic state. This combined with the production of water on large scales from the oxygen combining with the hydrogen means young water worlds will have large ammonia clouds alongside water vapor clouds, just at different levels in the atmosphere.

7. This means if you want to find water worlds, look for large amounts of ammonia in the atmospheres of late stage stars between Neptune and Earth sized, the water will be hidden. As well, no ammonia will be found in the atmospheres dead stars (even if they are Earth sized), as there is no cycle for it to occur with.