CLAIMS

1. A compression stage for the compression of cracked gas, the compression stage comprising:

a liquid separating means for separating liquid components from gaseous components of a cracked gas;

a compressor connected to the liquid separating means for compressing the gaseous components from the liquid separating means;

a gas cooling means connected to the compressor for cooling the compressed gas from the compressor, wherein the gas cooling means are cooled by a first cooling fluid from a cooling fluid source;

the stage further comprising

gas precooling means connected to the liquid separating means for cooling the cracked gas before separation, the gas precooling means having an inlet for receiving the cracked gas, wherein the gas precooling means comprises a heat exchanging means and an absorption cooling means, wherein the heat exchanging means is cooled by a second cooling fluid from the absorption cooling means;

wherein the first cooling fluid for the absorption cooling means is supplied from a primary gas cooler of the gas cooling means of the stage, and

wherein the first cooling fluid from the absorption cooling means is supplied to a secondary gas cooler for cooling the compressed gas from the compressor.

2. The stage according to claim 1, wherein the absorption cooling means is arranged for generating the second cooling fluid using first cooling fluid from the cooling fluid source and hot water from a heating fluid source.

3. The stage according to claim 1 or claim 2, wherein a heating fluid from a/the heating fluid source for the absorption cooling means, has a temperature in a range of 70-110 ºC.

4. The stage according to claim 3, wherein the heating fluid has a temperature in the range of 70 – 95 ºC.

5. The stage according to claim 3, wherein the heating fluid source comprises a quench column of a steam cracker.

6. The stage according to claim 3, wherein the heating fluid source is a hot waste water source.

7. The stage according to claim 1 or claim 2, wherein the heat exchanging means of the gas precooling means comprises a chiller.

8. The stage according to claim 1 or claim 2, wherein the liquid separating means has a fluid inlet for receiving fluid from another compression stage.