CLAIMS

1. A process for converting a high-boiling hydrocarbon feedstock into lighter boiling hydrocarbon products, said lighter boiling hydrocarbon products being suitable as feedstock's for petrochemicals processes, said converting process comprising the following steps of:

feeding a heavy hydrocarbon feedstock to a cascade of hydrocracking units, wherein the cascade of hydrocracking units comprises at least two hydrocracking units

cracking said feedstock in a hydrocracking unit,

separating said cracked feedstock into a stream comprising hydrogen, a stream comprising a light boiling hydrocarbon fraction and a bottom stream comprising a heavier hydrocarbon fraction

feeding said bottom stream of such a hydrocracking unit as a feedstock for a subsequent hydrocracking unit in said cascade of hydrocracking units, wherein the process conditions in each hydrocracking unit are different from each other, in which the temperature conditions from the first to the subsequent hydrocracking units increases, wherein the reactor type design of the last hydrocracking unit in said cascade of hydrocracking units is of the slurry phase type, and

sending the light boiling hydrocarbon fractions from each hydrocracking unit to petrochemicals processes, comprising at least a gas steam cracking unit and one or more units chosen from the group of pentane dehydrogenation unit, propane dehydrogenation unit, butane dehydrogenation unit and mixed propane-butane dehydrogenation unit,

further comprising separating said light boiling hydrocarbon fractions into a stream comprising C1, a stream comprising C2, a stream comprising C3 and a stream comprising C4 and feeding said stream comprising C3 to a propane dehydrogenation unit and feeding said stream comprising C4 to a butane dehydrogenation unit.

further comprising feeding said stream comprising C2 to a gas steam cracker unit

2. The process according to claim 1, wherein the lighter boiling hydrocarbon fractions from all hydrocracking units in said cascade of hydrocracking

units are hydrocarbons having a boiling point higher than methane and equal to or lower than that of cyclobutane.

3. The process according to any or more of claims 1-2, wherein the petrochemicals processes further comprise one or more of the group of aromatization unit, alkylation processes, high severity catalytic cracking (including high severity FCC), light naphtha aromatization (LNA), reforming and mild hydrocracking.

4. The process according to any one or more of the preceding claims, further comprising feeding said stream comprising hydrogen to a hydrocracking unit in said cascade of hydrocracking units, especially

further comprising feeding said hydrogen to a preceding hydrocracker unit in said cascade of hydrocracking units.

5. The process according to any one or more of the preceding claims, wherein said heavy hydrocarbon feedstock is chosen form the group of crude oil atmospheric distillation unit (ADU), such as naphtha, ADU bottom stream, atmospheric gas oils, and products from refinery processes, such as cycle oils from an FCC unit or heavy cracked naphthas.

6. The process according to any one or more of the preceding claims, , wherein said hydrocracking units are preceded by a hydrotreating unit, wherein the bottom stream of said hydrotreating unit is used as a feedstock for said first hydrocracking unit, especially that the temperature prevailing in said hydrotreating unit is higher than in said first hydrocracking unit.

7. The process according to any one of claims 1-6, wherein the particle size of the catalyst present in the cascade of hydrocracking units decreases from the first hydrocracking unit to the subsequent hydrocracking unit(s).

8. The process according to any one of claims 6-7, wherein the temperature in the cascade of hydrocracking units increases, wherein the temperature prevailing in said second hydrocracking unit is higher than in said hydrotreating unit.

9. The process according to any one or more of the preceding claims, wherein the reactor type design of the hydrocracking unit(s) is chosen from the group of the fixed bed type, ebulatted bed reactor type and the slurry phase type.

10. The process according to any one or more of the claims 6-9, wherein the reactor type design of said hydrotreating unit is of the fixed bed type.

11. The process according to any one or more of the claims 6-10, wherein the reactor type design of said first hydrocracking unit is of the ebulatted bed reactor type.

12. The process according to any one or more of the preceding claims, wherein the bottom stream of the final hydrocracking unit is recycled to the inlet of said final hydrocracking unit.