

Claims

1. A process for converting a hydrocarbon feedstock into olefins and also into BTX, said converting process comprising the following steps of:
 - feeding a hydrocarbon feedstock to a first hydrocracking unit;
 - feeding the effluent from said first hydrocracking unit to a first separation section;
 - separating said effluent in said first separation section into one or more streams chosen from the group of a stream comprising hydrogen, a stream comprising methane, a stream comprising ethane, a stream comprising propane, a stream comprising butanes, a stream comprising C1-minus, a stream comprising C2-minus, a stream comprising C3-minus, a stream comprising C4-minus, a stream comprising C1-C2, a stream comprising C1-C3, a stream comprising C1-C4, a stream comprising C2-C3, a stream comprising C2-C4, a stream comprising C3-C4 and a stream comprising C5+;
 - feeding said stream comprising propane to at least one dehydrogenation unit carrying out a dehydrogenation process being a catalytic process chosen from the group of combined propane/butanes dehydrogenation unit (PDH-BDH) and a propane dehydrogenation unit (PDH);
 - feeding at least one stream chosen from the group of said stream comprising C2-minus, said stream comprising ethane and said stream comprising C1-C2 to a gas steam cracking unit and/or to a second separation unit,
 - feeding said stream comprising butanes to at least one dehydrogenation unit carrying out a dehydrogenation process being a catalytic process chosen from the group of combined propane/butanes dehydrogenation unit (PDH-BDH) and butanes dehydrogenation unit (BDH);
 - feeding at least one of the effluents from said dehydrogenation unit(s) and said gas steam cracking unit to said second separation section, further comprising feeding said stream comprising C5+ to a second hydrocracking unit,
 - further comprising separating the effluent from said second hydrocracking unit into a stream comprising C4-minus, a stream comprising unconverted C5+, and a stream comprising BTX.
2. A process according to claim 1, further comprising feeding said stream comprising C4-minus originating from said second hydrocracking unit to said first separation section.
3. A process according to claim 1, further comprising combining said stream comprising unconverted C5+ originating from said second hydrocracking unit with said

hydrocarbon feedstock and feeding the combined stream thus obtained to said first hydrocracking unit.

4. A process according to anyone or more of claims 1-3, further comprising pretreating said hydrocarbon feedstock by separating said hydrocarbon feedstock into a stream having a high aromatics content and a stream having a low aromatics content, and feeding said stream having a low aromatics content into said first hydrocracking unit, especially further comprising feeding said stream having a high aromatics content to said second hydrocracking unit.

5. A process according to anyone or more of the preceding claims, further comprising feeding said stream(s) comprising ethane to said ethane dehydrogenation unit, especially further comprising feeding the effluent from said ethane dehydrogenation unit to said second separation unit.

6. A process according to anyone or more of the preceding claims, further comprising separating any effluent from said ethane dehydrogenation unit, said first separation section, said butanes dehydrogenation unit, said combined propane-butenes dehydrogenation unit and said propane dehydrogenation unit in said second separation section into one or more streams chosen from the group of a stream comprising hydrogen, a stream comprising methane, a stream comprising C3, a stream comprising C2=, a stream comprising C3=, a stream comprising C4mix, a stream comprising C5+, a stream comprising C2 and a stream comprising C1-minus.

7. A process according to claim 6, further comprising feeding said stream comprising C2 originating from said second separation section to said ethane dehydrogenation unit.

8. A process according to claims 6-7, further comprising feeding said stream comprising C5+ originating from said second separation section to said first hydrocracking unit and/or said second hydrocracking unit.

9. A process according to claims 6-8, further comprising feeding said stream comprising hydrogen originating from said second separation section to said first hydrocracking unit and/or said second hydrocracking unit.

- 10.** A process according to claims 6-9, further comprising feeding said stream comprising C1-minus originating from said second separation section to said first separation section.
- 11.** A process according to claims 6-10, further comprising feeding said stream comprising C3 originating from said second separation section to said propane dehydrogenation unit (PDH) and/or said combined propane/butanes dehydrogenation unit (PDH-BDH).
- 12.** A process according to anyone or more of the preceding claims, wherein the process conditions in said first hydrocracking unit include a temperature of 300-550°C, a pressure of 300-5000 kPa gauge and a Weight Hourly Space Velocity of 0.1-20 h⁻¹.