What is claimed is:

1. A process for producing para-xylene comprising the steps of :

(a) providing a C_8 containing feedstock, which contains at least 10 wt. % C_8 paraffinic hydrocarbons, to a reforming reaction zone that contains a reforming catalyst comprising a medium pore zeolite having a silica to alumina molar ratio of at least 200, and a crystallite size of less than 10 microns;

(b) contacting the C_8 containing feedstock under reforming reaction conditions in the reforming reaction zone to produce para-xylene and meta-xylene in a para-xylene to meta-xylene weight ratio is at least 0.9; and

(c) separating the para-xylene from the meta-xylene.

2. The process of Claim 1, wherein step (a) comprises providing the C_8 containing feedstock to the reforming reaction zone that contains a reforming catalyst comprising ZSM-5.

3. The process of Claim 1, wherein step (a) comprises providing the C_8 containing feedstock to the reforming reaction zone that contains a reforming catalyst comprising silicalite.

4. The process of Claim 1, wherein step (a) comprises providing the C_8 containing feedstock to the reforming reaction zone that contains a reforming catalyst comprising a medium pore zeolite having a silica to alumina molar ratio of at least 200, a crystallite size of less than 10 microns and an alkali content of less than 5000 ppm.

5. The process of Claim 4, wherein step (a) comprises providing a C_8 containing feedstock to a reforming reaction zone that contains a reforming catalyst comprising a medium pore zeolite having a silica to alumina molar ratio of at least 200, a crystallite size of less than 10 microns, an alkali content of less than 5000 ppm and in the range of between 0.1 wt. % and 1 wt. % of platinum, rhenium, or combinations thereof.

6. The process of Claim 1, wherein step (b) further comprises producing para-xylene and meta-xylene in the weight ratio of at least 1.0.

7. The process of Claim 1, wherein step (b) further comprises producing para-xylene and meta-xylene in the weight ratio of at least 1.1.

8. The process of Claim 1, wherein step (b) further comprises producing para-xylene and meta-xylene in the weight ratio of at least 1.2.

9. The process of Claim 1, wherein step (b) comprises contacting the C_8 containing feedstock under reforming reaction conditions, including a pressure of between 0 psig to 350 psig, a temperature of between 800°F to 1100°F, and a flow rate of between 0.1 hr^{-1} to 20 hr^{-1} LHSV.

10. The process of Claim 1, wherein step (c) comprises separating the para-xylene from the product stream and further recovering a para-xylene depleted product stream.

11. The process of Claim 10, further comprising recycling the para-xylene depleted product stream to the reforming reaction zone.

12. The process of Claim 10, wherein step (c) comprises separating the para-xylene from the product stream by crystallization.

13. A process for producing para-xylene comprising the steps of:

(a) contacting a hydrocarbonaceous feed wherein at least 50 wt. % of said feed boils above 550°F, in a first reaction zone comprising a hydrocracking catalyst under hydrocracking conditions to form an effluent;

(b) separating the effluent into at least a C_8 containing fraction comprising at least 10 wt. % C_8 paraffinic hydrocarbons;

(c) providing the C_8 containing fraction to a second reaction zone;

(d) contacting the C_8 containing fraction under reforming reaction conditions with a reforming catalyst comprising a medium pore zeolite having a silica to alumina molar ratio of at least 200, a crystallite size of less than 10 microns and

an alkali content of less than 5000 ppm in a second reaction zone to produce a product stream comprising para-xylene and meta-xylene wherein the para-xylene to meta-xylene ratio is at least 0.9; and

(e) separating the para-xylene from the product stream.

14. The process of Claim 13, wherein the hydrocracking conditions comprise a temperature of between 450 to 900 °F, a pressure between 500 to 5000 psig, a LHSV between 0.1 to 3015 and a hydrogen circulation rate between 2000 to 5,000 standard cubic feet per barrel.

15. The process of Claim 13, further comprising the step of recovering a para-xylene depleted product stream.

16. The process of Claim 15, further comprising the step of recycling the para-xylene depleted product stream to the second reaction zone.

17. The process of Claim 13, wherein the reforming reaction conditions include a pressure of between 0 psig to 350 psig, a temperature of between 800°F to 1100°F, and a flow rate of between 0.1 hr^{-1} to 20 hr^{-1} LHSV.

18. The process of Claim 13, further comprising generating hydrogen from the second reaction zone.

19. The process of Claim 18, wherein the hydrogen is recycled to the first reaction zone.

What is claimed is:

1. A process for producing para-xylene comprising the steps of:

(a) contacting a hydrocarbonaceous feed wherein at least 50 wt. % of said feed boils above 550° F., in a first reaction zone comprising a hydrocracking catalyst under hydrocracking conditions to form an effluent;

(b) separating the effluent into at least a C_8 containing fraction comprising at least 10 wt. % C_8 paraffinic hydrocarbons;

(c) providing the C_8 containing fraction to a second reaction zone;

(d) contacting the C_8 containing fraction under reforming reaction conditions with a reforming catalyst comprising a medium pore zeolite having a silica to alumina molar ratio of at least 200, a crystallite size of less than 10 microns and an alkali content of less than 5000 ppm in a second reaction zone to produce a product stream comprising para-xylene and meta-xylene wherein the para-xylene to meta-xylene ratio is at least 0.9; and

(e) separating the para-xylene from the product stream.

2. The process of claim 1, wherein the hydrocracking conditions comprise a temperature of between 450 to 900° F., a pressure between 500 to 5000 psig, a LHSV between 0.1 to 3015 and a hydrogen circulation rate between 2000 to 5,000 standard cubic feet per barrel.

3. The process of claim 1, further comprising the step of recovering a para-xylene depleted product stream.

4. The process of claim 3, further comprising the step of recycling the para-xylene depleted product stream to the second reaction zone.

5. The process of claim 1, wherein the reforming reaction conditions include a pressure of between 0 psig to 350 psig, a temperature of between 800° F. to 1100° F., and a flow rate of between 0.1 hr^{-1} to 20 hr^{-1} LHSV.

6. The process of claim 1, further comprising generating hydrogen from the second reaction zone.

7. The process of claim 6, wherein the hydrogen is recycled to the first reaction zone.