CLAIMS:

1. A process for transalkylation of a feedstream comprising one or more of C_7, C_9, C_{10} and C_{11}+ aromatics to obtain a transalkylation product stream having an increased concentration of C_8 aromatics relative to that of the feedstream, comprising contacting the feedstream at transalkylation conditions with a catalytic composite selected from the group consisting of

a. a first microporous crystalline zeolite, UZM-44, having a three-dimensional framework of at least AlO_2 and SiO_2 tetrahedral units and an empirical composition in the as synthesized and anhydrous basis expressed by an empirical formula of:

$$Na_nM_m^{k+}T_tAl_{1-x}E_xSi_yO_z$$

where "n" is the mole ratio of Na to (Al + E) and has a value from 0.05 to 0.5, M represents a metal or metals selected from the group consisting of zinc, Group 1 (IUPAC 1), Group 2 (IUPAC 2), Group 3 (IUPAC 3), the lanthanide series of the periodic table, and any combination thereof, "m" is the mole ratio of M to (Al + E) and has a value from 0 to 0.5, "k" is the average charge of the metal or metals M, T is the organic structure directing agent or agents derived from reactants R and Q where R is an A,Ω-dihalogen substituted alkane having 5 carbon atoms and Q is at least one neutral monoamine having 6 or fewer carbon atoms, "t" is the mole ratio of N from the organic structure directing agent or agents to (Al + E) and has a value of from 0.5 to 1.5, E is an element selected from the group consisting of gallium, iron, boron and combinations thereof, "x" is the mole fraction of E and has a value from 0 to 1.0, "y" is the mole ratio of Si to (Al + E) and varies from greater than 9 to 25 and "z" is the mole ratio of O to (Al + E) and has a value determined by the equation:

$$z = (n + k \bullet m + 3 + 4 \bullet y)/2$$

b. a second microporous crystalline zeolite, UZM-44-Modified, having a three-dimensional framework of at least AlO_2 and SiO_2 tetrahedral units and an empirical composition in the hydrogen form expressed by an empirical formula of

$$\mathbf{M1_a^{N+}Al_{(1-x)}E_xSi_yO_z}$$

where M1 is at least one exchangeable cation selected from the group consisting of alkali, alkaline earth metals, rare earth metals, ammonium ion, hydrogen ion and combinations thereof, "a" is the mole ratio of M1 to (Al + E) and varies from 0.05 to 50, "N" is the weighted average valence of M1 and has a value of +1 to +3, E is an element selected from the group consisting of gallium, iron, boron, and combinations thereof, x is the mole fraction of E and varies from 0 to 1.0, y' is the mole ratio of Si to (Al + E) and varies from greater than 9 to virtually pure silica and z" is the mole ratio of O to (Al + E) and has a value determined by the equation:

$$z'' = (a \bullet N + 3 + 4 \bullet y')/2$$

and

c. combinations thereof.

2. The process of claim 1 wherein the first microporous crystalline zeolite, UZM-44, is further characterized in that it has the x-ray diffraction pattern having at least the d-spacings and intensities set forth in Table A:

TABLE A

2-Theta	d(Å)	I/Io%
7.72	11.45	m
8.88	9.95	m
9.33	9.47	m
12.47	7.09	w-m
12.85	6.88	vw
14.62	6.05	vw-w
15.27	5.80	w
15.57	5.68	w
16.60	5.34	w
17.70	5.01	vw-w
18.71	4.74	w-m
19.30	4.59	w
22.55	3.94	m
23.03	3.86	vs
23.39	3.80	s
24.17	3.68	m
25.01	3.56	m
26.19	3.40	vw-w
26.68	3.34	w-m

28.76	3.10	w-m
30.07	2.97	w
35.72	2.51	vw-w
45.08	2.01	w
45.83	1.98	vw-w
46.77	1.94	vw-w

and wherein the second microporous crystalline zeolite, UZM-44-Modified, is further characterized in that it has the x-ray diffraction pattern having at least the d-spacings and intensities set forth in Table B:

TABLE B

2-Theta	d(Å)	I/Io%
7.71	11.47	m-s
8.84	10.00	m-s
9.24	9.56	m
11.76	7.52	vw-w
12.46	7.10	m
14.38	6.15	vw
14.64	6.05	w
15.26	5.80	w
15.52	5.70	w-m
16.58	5.34	w
17.72	5.00	w-m
18.64	4.76	w
22.56	3.94	w-m
23.06	3.85	vs
23.40	3.80	s
24.12	3.69	m
25.06	3.55	m
26.16	3.40	vw-w
26.74	3.33	w-m
28.82	3.10	w-m
30.12	2.96	w
35.86	2.50	vw-w
45.32	2.00	w
46.05	1.97	vw-w
46.92	1.93	vw-w

3. The process of claim 1 wherein the catalytic composite exhibits no feature at 200-300Å on a dV/dlog D versus pore diameter plot of differential volume of nitrogen adsorbed as a function of pore diameter.

4. The process of claim 1 wherein the zeolite exhibits an adsorption feature occurring at greater than 450Å on a dV/dlog D versus pore diameter plot of differential volume of nitrogen adsorbed as a function of pore diameter.

5. The process of claim 1 wherein the differential volume of nitrogen adsorbed by the zeolite at a pore diameter(s) of, or greater than, 475Å is greater than 0.1mL N_2/gÅ on a dV/dlog D versus pore diameter plot of differential volume of nitrogen adsorbed as a function of pore diameter.

6. The process of claim 1 wherein the feedstream further comprises further comprises a component selected from the group consisting of benzene, C_8 aromatics, aromatic compounds having from 2 to 4 rings, and combinations thereof.

7. The process of claim 1 wherein the feedstream further comprises a bottoms stream from a fractionation of C_8 aromatics from the transalkylation product stream.

8. The process of claim 1 wherein the transalkylation conditions comprise a temperature from 200°C to 540°C, a pressure from 100 kPa to 6 MPa absolute, and a space velocity from 0.1 to 20 hr^{-1}.

9. The process of claim 1 wherein the catalytic composite further comprises a zeolite having the framework structure MOR or wherein the catalytic composite further comprises UZM-14.

10. The process of claim 1 wherein the transalkylation product stream is separated into a benzene-enriched stream comprising at least 99.3 wt.-% benzene and at least one remainder stream.

CLAIMS

The invention claimed is:

1. A process for transalkylation of a feedstream comprising contacting the feedstream comprising one or more of C_7, C_9, C_{10} and C_{11}+ aromatics to produce a transalkylation product stream having an increased concentration of C_8 aromatics relative to that of the feedstream, at transalkylation conditions with a catalytic composite comprising a first microporous crystalline zeolite, UZM-44, having a three-dimensional framework of at least AlO_2 and SiO_2 tetrahedral units and an empirical composition in the as synthesized and anhydrous basis expressed by an empirical formula of:

$$Na_nM_m{}^{k+}T_tAl_{1-x}E_xSi_yO_z$$

where “n” is the mole ratio of Na to (Al+E) and has a value from approximately 0.05 to 0.5, M represents a metal or metals selected from the group consisting of zinc, Group 1 (IUPAC 1), Group 2 (IUPAC 2), Group 3 (IUPAC 3), the lanthanide series of the periodic table, and any combination thereof, “m” is the mole ratio of M to (Al+E) and has a value from 0 to 0.5, “k” is the average charge of the metal or metals M, T is the organic structure directing agent or agents derived from reactants R and Q where R is an A,Ω-dihalogen substituted alkane having 5 carbon atoms and Q is at least one neutral monoamine having 6 or fewer carbon atoms, “t” is the mole ratio of N from the organic structure directing agent or agents to (Al+E) and has a value of from 0.5 to 1.5, E is an element selected from the group consisting of gallium, iron, boron and combinations thereof, “x” is the mole fraction of E and has a value from 0 to about 1.0, “y” is the mole ratio of Si to (Al+E) and varies from greater than 9 to about 25 and “z” is the mole ratio of 0 to (Al+E) and has a value determined by the equation:

$$z=(n+k\cdot m+3+4\cdot y)/2;$$

wherein the microporous crystalline zeolite, UZM-44, is further characterized in that it has the x-ray diffraction pattern having at least the d-spacings and intensities set forth in Table A:

TABLE A

2-Theta	d(†)	I/Io %
7.72	11.45	m
8.88	9.95	m
9.33	9.47	m
12.47	7.09	w-m
12.85	6.88	vw
14.62	6.05	vw-w
15.27	5.80	w
15.57	5.68	w
16.60	5.34	w
17.70	5.01	vw-w
18.71	4.74	w-m
19.30	4.59	w
22.55	3.94	m
23.03	3.86	vs
23.39	3.80	s
24.17	3.68	m
25.01	3.56	m
26.19	3.40	vw-w
26.68	3.34	w-m
28.76	3.10	w-m
30.07	2.97	w
35.72	2.51	vw-w
45.08	2.01	w
45.83	1.98	vw-w
46.77	1.94	vw-w.

2. The process of claim 1 wherein the catalytic composite is thermally stable up to a temperature of greater than 600° C.

3. The process of claim 1 wherein the catalytic composite has a micropore volume as a percentage of total pore volume of less than 60%.

4. The process of claim 1 wherein the catalytic composite has a micropore volume of less than 0.155 mL/g.

5. The process of claim 1 wherein the catalytic composite has a micropore volume of less than 0.150 mL/g.

6. The process of claim 1 wherein the catalytic composite exhibits no feature at 200-300 Å on a dV/dlog D versus pore diameter plot of differential volume of nitrogen adsorbed as a function of pore diameter.

7. The process of claim 1 wherein the zeolite exhibits an adsorption feature occurring at greater than 450 Å on a dV/dlog D versus pore diameter plot of differential volume of nitrogen adsorbed as a function of pore diameter.

8. The process of claim 1 wherein the differential volume of nitrogen adsorbed by the zeolite at a pore diameter of 475 Å is greater than 00.1 mL N_2/gÅ on a dV/dlog D versus pore diameter plot of differential volume of nitrogen adsorbed as a function of pore diameter.

9. The process of claim 1 wherein the differential volume of nitrogen adsorbed by the zeolite at pore diameters greater than 475 Å is greater than 0.1 mL N_2/gÅ on a dV/dlog D versus pore diameter plot of differential volume of nitrogen adsorbed as a function of pore diameter.

10. The process of claim 1 wherein the feedstream further comprises further comprises a component selected from the group consisting of benzene, C_8 aromatics, aromatic compounds having from 2 to 4 rings, and combinations thereof.

11. The process of claim 1 wherein the feedstream further comprises a bottoms stream from a fractionation of C_8 aromatics from the transalkylation product stream.

12. The process of claim 1 wherein the transalkylation conditions comprise a temperature from about 200° C. to about 540° C., a pressure from about 100 kPa to about 6 MPa absolute, and a space velocity from about 0.1 to about 20 hr^{-1}.

13. The process of claim 1 wherein the catalytic composite is located in one or more catalyst zones arranged in series or parallel configuration, and wherein the catalytic composite may be in fixed beds or fluidized beds.

14. The process of claim 1 wherein the catalytic composite further comprises a zeolite having the framework structure MOR.

15. The process of claim 1 wherein the catalytic composite further comprises UZM-14.

16. The process of claim 1 wherein the transalkylation product stream is separated into a benzene-enriched stream comprising at least 99.3 wt.-% benzene and at least one remainder stream.

17. The process of claim 1 wherein the transalkylation product stream is separated into a benzene-enriched stream comprising at least 99.5 wt.-% benzene and at least one remainder stream.