WHAT IS CLAIMED IS:

1. A method for alkylation of feedstock comprising:

contacting the feedstock comprising at least one alkylatable aromatic compound and an alkylating agent with a first alkylating catalyst composition under alkylating conditions, the first alkylating catalyst composition comprising UZM-8 zeolite and a binder, the first alkylating catalyst composition having less than 50 wt% UZM-8 zeolite;

wherein a total alkylated selectivity at a temperature and a molar ratio of alkylatable aromatic compound to alkylating agent is greater than 99.0%.

2. The method of claim 1 wherein the first alkylating catalyst composition has less than 30 wt% UZM-8 zeolite.

3. The method of any of claims 1-2 wherein the first alkylating catalyst composition has 2 wt% to 10 wt% UZM-8 zeolite.

4. The method of any of claims 1-3 further comprising contacting the feedstock with at least one additional catalyst composition before contacting the feedstock with the first alkylating catalyst composition, the at least one additional catalyst composition capable of reacting with one or more of nitrogen, oxygenate species, sulfur, or metals, to reduce a level of nitrogen, oxygen, sulfur, or metals in the feedstock.

5. The method of any of claims 1-4 further comprising contacting the feedstock with a second alkylating catalyst composition after contacting the feedstock with the first alkylating catalyst composition, the second alkylating catalyst composition comprising a zeolite and a binder, the second alkylating catalyst composition having greater than 50 wt% zeolite.

6. The method of any of claims 1-5 wherein the alkylating conditions include a temperature of from 90°C to 230°C, a pressure of from 1.3 MPa to 4.8 MPa, a molar ratio of alkylatable aromatic compound to alkylating agent of from 1 to 3, and a feed hourly weight space velocity based on the alkylating agent of from 0.5 to 10 hr^{-1}.

7. The method of any of claims 1-6 wherein the alkylatable aromatic compound is benzene, the alkylating agent is propylene, and the propylene conversion is greater than 95%.

8. The method of any of claims 1-7 wherein the alkylatable aromatic compound is benzene, the alkylating agent is ethylene, and the ethylene conversion is greater than 95%.

9. The method of any of claims 1-8 wherein the alkylatable aromatic compound is benzene, the alkylating agent is butene, and the butene conversion is greater than 95%.

10. The method of any of claims 1-9 wherein an active zone in a catalyst bed containing the first alkylating catalyst is no more than 50% of a total length of the catalyst bed.

CLAIMS

1. A method for alkylation of feedstock comprising:

contacting the feedstock comprising at least one alkylatable aromatic compound and an alkylating agent with a first alkylating catalyst composition under alkylating conditions including at least a temperature of from about 90° C. to about 230° C. and a molar ratio of alkylatable aromatic compound to alkylating agent of from about 1 to 3, the first alkylating catalyst composition comprising UZM-8zeolite and a binder, the first alkylating catalyst composition having less than about 5wt % UZM-8zeolite;

wherein a total alkylated selectivity at the temperature of from about 90° C. to about 230° C. and the molar ratio of alkylatable aromatic compound to alkylating agent of from about 1 to about 3 is greater than 99.0%, a conversion of the alkylating agent is greater than 90%, and an active zone in a catalyst bed containing the first alkylating catalyst is no more than about 50% of a total length of the catalyst bed.

2. The method of claim 1 wherein the first alkylating catalyst composition has about 2wt % to less than about 5wt % UZM-8zeolite.

3. The method of claim 1 further comprising contacting the feedstock with at least one additional catalyst composition before contacting the feedstock with the first alkylating catalyst composition, the at least one additional catalyst composition capable of reacting with one or more of nitrogen, oxygenate species, sulfur, or metals, to reduce a level of nitrogen, oxygen, sulfur, or metals in the feedstock.

4. The method of claim 1 further comprising contacting the feedstock with a second alkylating catalyst composition after contacting the feedstock with the first alkylating catalyst composition, the second alkylating catalyst composition comprising a zeolite and a binder, the second alkylating catalyst composition having greater than 50wt % zeolite.

5. The method of claim 1 wherein the alkylating conditions include a pressure of from about 1.3 MPa to about 4.8 MPa, and a feed hourly weight space velocity based on the alkylating agent of from about 0.5 to about 10 hr^{-1}.

6. The method of claim 1 wherein the alkylatable aromatic compound is benzene, the alkylating agent is propylene, and the propylene conversion is greater than 95%.

7. The method of claim 1 wherein the alkylatable aromatic compound is benzene, the alkylating agent is propylene, and the propylene conversion is greater than 97%.

8. The method of claim 1 wherein the alkylatable aromatic compound is benzene, the alkylating agent is ethylene, and the ethylene conversion is greater than 95%.

9. The method of claim 1 wherein the alkylatable aromatic compound is benzene, the alkylating agent is ethylene, and the ethylene conversion is greater than 97%.

10. The method of claim 1 wherein the alkylatable aromatic compound is benzene, the alkylating agent is butene, and the butene conversion is greater than 95%.

11. The method of claim 1 wherein the alkylatable aromatic compound is benzene, the alkylating agent is butene, and the butene conversion is greater than 97%.

12. A method for alkylation of feedstock comprising:

contacting the feedstock comprising at least one alkylatable aromatic compound and an alkylating agent with at least one additional catalyst composition, the at least one additional catalyst composition capable of reacting with one or more of nitrogen, oxygen, sulfur, or metals, forming a feedstock having a reduced level of nitrogen, oxygen, sulfur, or metals;

contacting the feedstock with the reduced level of nitrogen, oxygen, sulfur, or metals with a first alkylating catalyst composition under alkylating conditions including at least a temperature of from about 90° C. to about 230° C. and a molar ratio of alkylatable aromatic compound to alkylating agent of from about 1 to 3, the first alkylating catalyst composition comprising UZM-8zeolite and a binder, the first alkylating catalyst composition having less than about 5 wt % UZM-8zeolite;

wherein a total alkylated selectivity at the temperature of from about 90° C. to about 230° C. and the molar ratio of alkylatable aromatic compound to alkylating agent of from about 1 to about 3 is greater than 99.0%, a conversion of the alkylating agent is greater than 90%, and an active zone in a catalyst bed containing the first alkylating catalyst is no more than about 50% of a total length length of the catalyst bed.

13. The method of claim 12 wherein the first alkylating catalyst composition has about 2 wt % to less than about 5 wt % UZM-8zeolite.

14. The method of claim 12 further comprising contacting the feedstock with a second alkylating catalyst composition after contacting the feedstock with the first alkylating catalyst composition, the second alkylating catalyst composition comprising a zeolite and a binder, the second alkylating catalyst composition having greater than 50 wt % zeolite.

15. The method of claim 12 wherein the alkylating conditions include a pressure of from about 1.3 MPa to about 4.8 MPa, and a feed hourly weight space velocity based on the alkylating agent of from about 0.5 to about 10 hr^{-1}.

16. The method of claim 12 wherein the alkylatable aromatic compound is benzene, the alkylating agent is propylene, ethylene, or butene, and the propylene, ethylene, or butene conversion is greater than 95%.