[0089] Embodiment 11. The method or dewaxing catalyst of any of the above embodiments, wherein the Group 8-10 non-noble metal salt comprises an Ni salt, a Co salt, or a combination thereof.

[0090] Embodiment 12. The method or dewaxing catalyst of any of the above embodiments, wherein the Group 6 metal salt comprises a Mo salt, a W salt, or a combination thereof.

[0091] Embodiment 13. The method or dewaxing catalyst of any of the above embodiments, wherein the dispersion agent comprises a glycol, a carboxylic acid, or a combination thereof, the dispersion agent optionally comprising citric acid and/or an organic acid having at least 5 carbon atoms.

[0092] Embodiment 14. The method or dewaxing catalyst of any of the above embodiments, wherein a molar ratio of dispersion agent to total metals in the solution is about 0.1 to about 5.0, for example about 0.1 to about 2.0, about 0.2 to about 2.0, about 0.3 to about 2.0, or about 0.3 to about 1.0; wherein a molar ratio of dispersion agent to Group 8-10 non-noble metal is about 0.5 to about 10, for example about 0.5 to about 5.0 or about 1.0 to about 5.0; or a combination thereof.

[0093] Embodiment 15. The method or dewaxing catalyst of any of the above embodiments, wherein impregnating the support comprising a zeolitic molecular sieve comprises impregnating a support comprising a bound zeolitic molecular sieve, the support optionally comprising an alumina binder.

[0094] Embodiment 16. The method or dewaxing catalyst of Embodiment 15, wherein the support comprises a binder having a surface area of about 150 m^2/g or less, for example about 130 m^2/g or less or about 100 m^2/g or less.

[0095] Embodiment 17. A catalyst composition made according to the method of any of Embodiments 1, 3, and 9-16.

EXAMPLES

[0096] In the following examples, the benefit of using a dispersion agent for impregnation of base metals on dewaxing catalysts is demonstrated using catalysts based on ZSM-48 and ZSM-11.

Example 1: Preparation of ZSM-11

[0097] A mixture was prepared from about 8.25 kg of water, about 1.54 kg of tetra-n-butylammonium bromide (~50% solution) as a structure directing agent or template, about 2.75 kg of Ultrasil™ silica, about 1.01 kg of aluminum sulfate solution (~47%), about 880 g of ~50% sodium hydroxide solution, and about 30 g of ZSM-11 seeds. The mixture had the following molar composition:

CLAIMS:

1. A method of forming a dewaxing catalyst, the method comprising:

impregnating a support comprising about 30 wt% to about 100 wt% of a zeolitic molecular sieve, based on the total weight of the support, with a solution comprising a Group 6 metal salt, a Group 8-10 non-noble metal salt, and a dispersion agent, the dispersion agent comprising a compound having 2-10 carbon atoms and a carbon atom to oxygen atom ratio of about 0.6 to about 2.0; and

drying the impregnated support at a temperature of about 80°C to about 200°C to form a dewaxing catalyst.

2. The method of claim 1, wherein the zeolitic molecular sieve comprises a zeolite.

3. The method of claim 1, wherein the zeolitic molecular sieve comprises ZSM-48, ZSM-11, a molecular sieve having a 10-member ring as a largest pore channel, or a combination thereof.

4. The methodof claim 1, wherein the Group 8-10 non-noble metal salt comprises an Ni salt, a Co salt, or a combination thereof; and wherein the Group 6 metal salt comprises a Mo salt, a W salt, or a combination thereof.

5. The method of claim 1, wherein a molar ratio of dispersion agent to total metals in the solution is about 0.1 to about 5.0; or wherein a molar ratio of dispersion agent to Group 8-10 non-noble metal is about 0.5 to about 10; or a combination thereof.

6. The method of claim 1, further comprising sulfiding the dried impregnated support under effective sulfiding conditions to form a sulfided dewaxing catalyst, the sulfiding optionally being performed without prior calcining of the dried impregnated support.

7. The method of claim 1, wherein the dispersion agent comprises a glycol, a carboxylic acid, or a combination thereof.

8. The method of claim 1, wherein impregnating the support comprising a zeolitic molecular sieve comprises impregnating a support comprising a bound zeolitic molecular sieve, the support optionally comprising an alumina binder.

9. The method of claim 8, wherein the support comprises a binder having a surface area of about 150 m^2/g or less.

10. The method of claim 1, wherein the dispersion agent comprises citric acid, an organic acid having at least 5 carbon atoms, or a combination thereof.