CLAIMS

1. An alkoxylation process for the production of a polyol based on a renewable resource that is suitable for producing molded polyurethane foams comprising:

a) combining a vegetable oil containing hydroxyl functional groups with a DMC catalyst to form a mixture,

b) adding ethylene oxide and/or propylene oxide and optionally, one or more other alkoxides to the mixture from a) to activate the DMC catalyst,

c) adding ethylene oxide, propylene oxide, and optionally, one or more other alkoxides to the mixture containing activated DMC catalyst from b) in amounts such that the total of the percentage by weight of ethylene oxide in the polyol plus the mole percentage of primary hydroxyl groups in the polyol produced is from 50 to 77% and the mole percentage of primary hydroxyl groups is at least 30% but less than 50%.

2. The process of claim 1 in which the amount of ethylene oxide in the polyol produced is between 20 and 30% by weight.

3. The process of claim 1 in which the ethylene oxide is added in an amount such that the percentage of primary hydroxyl groups in the polyol is less than 45%.

4. The process of claim 1 in which the vegetable oil is castor oil.

5. A process for the production of a molded polyurethane foam comprising:

a) forming a polyurethane-forming mixture by combining

(i) a polyisocyanate component comprising at least one polyisocyanate, and

(ii) a polyol component comprising a polyol produced by the alkoxylation process of claim 1

b) introducing the polyurethane-forming mixture into a mold;

c) cycling the temperature of the mold, and

d) curing the polyurethane foam in a heated oven.

6. The process of claim 5, wherein the amount of ethylene oxide in the polyol is 20% by weight.

7. The process of claim 5 in which the amount of ethylene oxide in the polyol is 30% by weight.

8. The process of claim 5, wherein the vegetable oil is castor oil.