CLAIMS

1. A method for cracking a hydrocarbon oil comprising using a catalyst comprising an ultra-stable Y-type zeolite in a fluidized catalytic cracking unit to produce light olefins and gasoline fuel, wherein the ultra-stable Y-type zeolite is a framework-substituted zeolite in which a part of aluminum atoms constituting a zeolite framework thereof is substituted with 0.1 – 5 mass % zirconium atoms and 0.1-5 mass % titanium ions calculated on an oxide basis.

2. The method according to claim 1 wherein a hydrocarbon oil having a boiling point range above 350 °C is operated at reaction temperature range of 450 °C to 700 °C, a pressure of 1 to 10 bars, a residence or contact time of 0.1 to 60 seconds, and a catalyst to oil ratio of 2:1 to 30:1 by weight.

3. The method according to claim 1 wherein the fluidized catalytic cracking unit is a downer reactor.

4. The method according to claim 1, wherein the fluidized catalytic cracking unit is a riser reactor.

5. The method according to claim 1, wherein the fluidized catalytic cracking is operated under conditions effective to maximize the amount of gasoline and light olefins produced.

6. The method according to claim 1, wherein the fluidized catalytic cracking is operated under conditions effective to maximize the amount of light olefins produced.

7. The method according to claim 1, wherein said catalyst comprises a mixture of said framework-substituted ultra-stable Y-type zeolite and one or more additional fluidized cracking catalyst materials.

8. The method according to claim 1, wherein the framework-substituted ultra-stable Y-type zeolite has a crystal lattice constant of 2.430 to 2.450 nm, a specific surface area of 600 to 900 m^2/g, and a molar ratio of SiO_2 to Al_2O_3 in the range of 5:1 to 100:1.