

Abstract

Disclosed are a catalytic cracking catalyst and preparation thereof, the catalyst comprising a rare earth modified Y-type molecular sieve, an additive-containing alumina binder, and a clay, wherein the rare earth modified Y-type molecular sieve has a rare earth oxide content of about 4-12% by weight, a phosphorus content of about 0-10% by weight, a sodium oxide content of no more than about 1.0% by weight, a total pore volume of about 0.36-0.48 mL/g, a percentage of the pore volume of secondary pores having a pore size of 2-100 nm to the total pore volume of about 20-40%, a lattice constant of about 2.440-2.455 nm, a percentage of non-framework aluminum content to the total aluminum content of no more than about 10%, a lattice collapse temperature of not lower than about 1060 °C, and a ratio of B acid to L acid in the total acid content of the modified Y-type molecular sieve of no less than about 3.50, as determined by pyridine adsorption infrared spectroscopy at 200 °C. When used for catalytic cracking of heavy oils, the catalyst shows a higher heavy oil conversion activity, a lower coke selectivity, and a higher gasoline yield, liquefied gas yield, light oil yield and total liquid yield.

Fig. 1