Claims

1. An egg shell-type platinum-loaded alumina catalyst, comprising:

an alumina carrier;

platinum dispersed and loaded on an outer shell of the alumina carrier; and

one or more second components selected from the group consisting of vanadium, chromium, molybdenum, and phosphorus.

2. The egg shell-type platinum-loaded alumina catalyst according to claim 1, wherein a content of the platinum is 0.05 to 5.0 wt% calculated as elemental platinum.

3. The egg shell-type platinum-loaded alumina catalyst according to claim 1 or 2, wherein a content of each second component is 0.1 to 5.0 wt% calculated as each element.

4. The egg shell-type platinum-loaded alumina catalyst according to any one of claims 1 to 3, wherein the alumina carrier has a surface area of 150 m^2/g or more, a pore volume of 0.40 cm^3/g or more, and an average pore diameter of 40 to 300 Å, with pores having a pore diameter in a range of ± 30 Å from the average pore diameter occupying 60 % or more of a total pore volume.

5. A method of producing an egg shell-type platinum-loaded alumina catalyst, comprising:

a step of impregnating an alumina carrier with an aqueous solution of compound containing one or more components selected from the group consisting of

vanadium, chromium, molybdenum, and phosphorus, and thereafter performing drying and calcination;

a step of loading platinum on the alumina carrier after calcination in an egg shell form; and

a step of reducing the alumina carrier on which platinum is loaded in a hydrogen atmosphere.

6. A method of dehydrogenating a hydrogenated aromatic, comprising dehydrogenating a hydrogenated aromatic by using the egg shell-type platinum-loaded alumina catalyst according to any one of claims 1 to 4.

7. The method of dehydrogenating a hydrogenated aromatic according to claim 6, wherein the hydrogenated aromatic is one member or a mixture of two or more members selected from the group consisting of a hydride of monocyclic aromatic, a hydride of bicyclic aromatic, and a hydride of compound having 3 or more aromatic rings.

8. The method of dehydrogenating a hydrogenated aromatic according to claim 6, wherein the hydrogenated aromatic is one member or a mixture of two or more members selected from the group consisting of methylcyclohexane, cyclohexane, dimethylcyclohexane, tetralin, decalin, methyldecalin, biphenyl, diphenylmethyl, dibenzotriol, and tetradecahydroanthracene.

9. The method of dehydrogenating a hydrogenated aromatic according to any one of claims 6 to 8, which uses both of the egg shell-type platinum-loaded alumina catalyst

and a uniform-type platinum-loaded alumina catalyst.