CLAIMS

1. A process for producing an aromatic hydrocarbon comprising the step of reacting a lower hydrocarbon containing methane as a major component in the presence of a transition-metal-containing crystalline metallosilicate catalyst which is obtainable by supporting 5 to 25 parts by weight of a transition metal (X) on 100 parts by weight of a modified crystalline metallosilicate obtainable by subjecting a crystalline metallosilicate to a series of treatment (A) comprising a step (i) of eliminating part of a metal from the crystalline metallosilicate and a silylation step (ii), wherein the series of treatment (A) is contacting the crystalline metallosilicate to an aqueous solution of a hexafluorosilicate.

~~2. The process for producing an aromatic hydrocarbon according to claim 1, wherein the series of treatment (A) is contacting the crystalline metallosilicate to an aqueous solution of a hexafluorosilicate.~~

~~3~~2. The process for producing an aromatic hydrocarbon according to claim ~~2~~1, wherein the hexafluorosilicate is ammonium hexafluorosilicate.

43. A process for producing an aromatic hydrocarbon comprising the step of reacting a lower hydrocarbon containing

methane as a major component in the presence of a transition-metal-containing crystalline metallosilicate catalyst which is obtainable by supporting a transition metal (X) on a modified crystalline metallosilicate obtainable by subjecting a crystalline metallosilicate to a series of treatment (A) comprising a step (i) of eliminating part of a metal from the crystalline metallosilicate and a silylation step (ii) and a treatment (B) of supporting one kind or two or more kinds of metals (Y) selected from the group consisting of alkali metals, alkaline earth metals and rare earth metals.

~~54~~ 54. The process for producing an aromatic hydrocarbon according to claim ~~43~~ 43, wherein the series of treatment (A) is contacting the crystalline metallosilicate to an aqueous solution of a hexafluorosilicate.

~~65~~ 65. The process for producing an aromatic hydrocarbon according to claim ~~56~~ 56, wherein the hexafluorosilicate is ammonium hexafluorosilicate.

~~76~~ 76. The process for producing an aromatic hydrocarbon according to any one of claims ~~4~~ 43 to ~~65~~ 65, wherein the treatment (B) is performed through ion exchange method.

~~8~~7. The process for producing an aromatic hydrocarbon according to any one of claims ~~4~~3 to ~~7~~6, wherein the metal (Y) is an alkaline earth metal.

~~9~~8. The process for producing an aromatic hydrocarbon according to any one of claims ~~4~~3 to ~~8~~7, wherein the metal (Y) is barium.

~~10~~9. The process for producing an aromatic hydrocarbon according to any one of claims 1 to ~~9~~8, wherein the crystalline metallosilicate is a MFI-type zeolite or a MWW-type zeolite.

~~11~~10. The process for producing an aromatic hydrocarbon according to any one of claims 1 to ~~10~~9, wherein the transition metal (X) is one kind or two or more kinds selected from the group consisting of molybdenum, tungsten and rhenium.

~~12~~11. The process for producing an aromatic hydrocarbon according to any one of claims 1 to ~~11~~10, wherein the transition metal (X) is molybdenum.

~~13~~12. A transition-metal-containing crystalline metallosilicate catalyst for use in the process for producing an aromatic hydrocarbon as described in claim 1, which catalyst

is obtainable by supporting 5 to 25 parts by weight of a transition metal (X) on 100 parts by weight of a modified crystalline metallosilicate obtainable by subjecting a crystalline metallosilicate to a series of treatment (A) comprising a step (i) of eliminating part of a metal from the crystalline metallosilicate and a silylation step (ii), wherein the series of treatment (A) is contacting the crystalline metallosilicate to an aqueous solution of a hexafluorosilicate.

~~14~~13. A transition-metal-containing crystalline metallosilicate catalyst for use in the process for producing an aromatic hydrocarbon as described in claim ~~43~~, which catalyst is obtainable by supporting a transition metal (X) on a modified crystalline metallosilicate obtainable by subjecting a crystalline metallosilicate to a series of treatment (A) comprising a step (i) of eliminating part of a metal from the crystalline metallosilicate and a silylation step (ii) and a treatment (B) of supporting one kind or two or more kinds of metals (Y) selected from the group consisting of alkali metals, alkaline earth metals and rare earth metals.