Patent Literature 1: Japanese Patent No. 4254009

Patent Literature 2: International Publication No. WO2015/041137

Patent Literature 3: Japanese Patent Laid-Open No. 2008-050186

Patent Literature 4: Japanese Patent Laid-Open No. 2017-057126

Summary

[0005a]

In an aspect of the present disclosure, there is provided a method for manufacturing a modified aluminosilicate, comprising:

a first step of treating an aluminosilicate with an acid;

a second step of primarily calcining the treated material obtained in the first step at 550°C. to 850°C.;

a third step of contacting the calcined material obtained in the second step with a liquid containing one or more elements selected from the group consisting of Group 4 elements and Group 5 elements on the periodic table in a temperature range of 20 to 150°C to obtain a material; and

a fourth step of drying and secondarily calcining the material obtained in the third step,

wherein a specific surface area of the modified aluminosilicate is 50 to 1000 m^2/g, and the modified aluminosilicate is zeolite having an MSE framework.

[0005b]

In another aspect of the present disclosure, there is provided a modified aluminosilicate, comprising one or more elements selected from the group consisting of Group 4 elements and Group 5 elements on the periodic table, and exhibiting an absorbance at 300 nm (A[300]) in an ultraviolet visible spectrum of 1.0 or higher, wherein a specific surface area of the modified aluminosilicate is 50 to 1000 m^2/g, and the modified aluminosilicate is zeolite having an MSE framework.

[0005c]

In a further aspect of the present disclosure, there is provided a catalyst for manufacturing an aromatic dihydroxy compound, comprising the modified aluminosilicate as disclosed herein.

[0005d]

In another aspect of the present disclosure, there is provided a method for manufacturing an aromatic dihydroxy compound, comprising a step of reacting a phenol with hydrogen peroxide in the presence of the catalyst for

manufacturing an aromatic dihydroxy compound as disclosed herein.

Technical Problem

[0006]

In Patent Literature 3, there is a problem with industrial manufacture since titanium tetrachloride in a gas phase is used and is high in corrosiveness and liable to leak. For example, although it seems possible to improve the corrosiveness and leakage by devices on the material and the like of the apparatus, there arises the fear of the apparatus becoming costly and the fixed cost rising.

In Patent Literature 4, a titanosilicate is synthesized directly by mixing a template raw material of an aluminosilicate, a titanium source and the like together with water; and a reaction of a phenol with hydrogen peroxide is carried out in the presence of the titanosilicate. In the result of the reaction, it is considered that the yield of

CLAIMS

[Claim 1]

A method for manufacturing a modified aluminosilicate, comprising:

a first step of treating an aluminosilicate with an acid;

a second step of primarily calcining the treated material obtained in the first step at 550°C. to 850°C.;

a third step of contacting the calcined material obtained in the second step with a liquid containing one or more elements selected from the group consisting of Group 4 elements and Group 5 elements on the periodic table in a temperature range of 20 to 150°C to obtain a material; and

a fourth step of drying and secondarily calcining the material obtained in the third step,

wherein a specific surface area of the modified aluminosilicate is 50 to 1000 m^2/g, and

the modified aluminosilicate is zeolite having an MSE framework.

[Claim 2]

The method for manufacturing a modified aluminosilicate according to claim 1, wherein the liquid containing the

elements is a liquid containing one or more elements selected from the group consisting of Group 4 elements.

[Claim 3]

The method for manufacturing a modified aluminosilicate according to claim 1, wherein the liquid containing the elements is a liquid containing titanium.

[Claim 4]

The method for manufacturing a modified aluminosilicate according to claim 3, wherein the liquid containing titanium is one or more selected from the group consisting of titanium tetrachloride, a titanium tetrachloride aqueous solution, a titanium trichloride aqueous solution and a titanium sulfate aqueous solution.

[Claim 5]

The method for manufacturing a modified aluminosilicate according to claim 1, wherein the zeolite having the MSE framework is one or more selected from the group consisting of UZM-35, MCM-68 and YNU-3.

[Claim 6]

A modified aluminosilicate, comprising one or more elements selected from the group consisting of Group 4 elements and Group 5 elements on the periodic table, and exhibiting an absorbance at 300 nm (A[300]) in an ultraviolet

visible spectrum of 1.0 or higher, wherein a specific surface area of the modified aluminosilicate is 50 to 1000 m^2/g, and the modified aluminosilicate is zeolite having an MSE framework.

[Claim 7]

The modified aluminosilicate according to claim 6, wherein a ratio (A[300]/A[210]) of the absorbance at 300 nm (A[300]) in the ultraviolet visible spectrum to an absorbance at 210 nm (A[210]) in the ultraviolet visible spectrum is 0.5 or higher.

[Claim 8]

The modified aluminosilicate according to claim 6, wherein the element is one or more elements selected from Group 4 elements.

[Claim 9]

The modified aluminosilicate according to claim 6, wherein the element is titanium.

[Claim 10]

The modified aluminosilicate according to claim 9, wherein a molar ratio ([Si]/[Ti]) of silicon to titanium is in the range of 0.1 to 100.

[Claim 11]

A catalyst for manufacturing an aromatic dihydroxy compound, comprising the modified aluminosilicate according to claim 6.

[Claim 12]

A method for manufacturing an aromatic dihydroxy compound, comprising a step of reacting a phenol with hydrogen peroxide in the presence of the catalyst for manufacturing an aromatic dihydroxy compound according to claim 11.