Claims

1. An adsorbent for separating organochloride compound from liquid hydrocarbon, wherein said adsorbent is silica and aluminosilicate composite having infiltrate structure subjected to the modification of the surface property with small metal having high electronegativity

wherein the silica and aluminosilicate composite comprise small pores in the range of 2 to 15 nm and large pores in the range of 40 to 100 nm, wherein the ratio of the small pores to the large pores is from 0 to 1.

2. The adsorbent according to claim 1, wherein the silica and aluminosilicate composite have the ratio of silicon to aluminium in the range of 2 – 10.

3. The adsorbent according to claim 1, wherein the metal having high electronegativity is selected from zinc (Zn), iron (Fe), calcium (Ca), and magnesium (Mg).

4. The adsorbent according to claim 3, wherein the metal having high electronegativity is zinc.

5. The adsorbent according to any one of claims 1, 3, or 4, wherein the adsorbent comprises the metal having high electronegativity in the range of 0.1 to 10% by weight.

6. The adsorbent according to claim 5, wherein the adsorbent comprises the metal having high electronegativity in the range of 0.5 to 5% by weight.

7. The adsorbent according to claim 1, wherein the adsorbent comprises sodium metal in the range of 7 to 15% by weight.

8. A process for separating organochloride compound from liquid hydrocarbon, comprising the step of contacting the liquid hydrocarbon mixed with the organochloride compound to an adsorbent in order to adsorb said organochloride compound and obtaining the liquid hydrocarbon having lower amount of the organochloride compound, wherein said adsorbent is the silica and aluminosilicate composite having infiltrate structure subjected to the modification of the surface property with small metal having high electronegativity,

wherein the silica and aluminosilicate composite comprise small pores in the range of 2 to 15 nm and large pores in the range of 40 to 100 nm, wherein the ratio of the small pores to the large pores is from 0 to 1.

9. The process according to claim 8, wherein the silica and aluminosilicate composite have the ratio of silicon to aluminium in the range of 2 – 10.

10. The process according to claim 8, wherein the metal having high electronegativity is selected from zinc (Zn), iron (Fe), calcium (Ca), and magnesium (Mg).

11. The process according to claim 10, wherein the metal having high electronegativity is zinc.

12. The process according to claim 8, wherein the adsorbent comprises the metal having high electronegativity in the range of 0.1 to 10% by weight.

13. The process according to claim 12, wherein the adsorbent comprises the metal having high electronegativity in the range of 0.5 to 5% by weight.

14. The process according to claim 8, wherein the adsorbent comprises sodium metal in the range of 7 to 15% by weight.

15. The process according to claim 8, wherein the organochloride compound is selected from alkyl chloride, allyl chloride, or mixture thereof.

16. The process according to claim 15, wherein the organochloride compound is selected from 1-chlorohexane, 1-chloro-2-methylbutane, 1-chloropentane, or mixture thereof.

17. The process according to claim 16, wherein the organochloride compound is 1-chlorohexane.

18. The process according to claim 8, wherein the liquid hydrocarbon is the hydrocarbon having boiling point in the range of 50 to 210 °C.

19. The process according to any one of claims 8 to 18, wherein said process is operated at the temperature of 30 to 50 °C and the pressure of atmospheric pressure to 10 bars.

20. The process according to claim 8, wherein the liquid hydrocarbon having lower amount of the organochloride compound has the organochloride compound less than 0.2 ppm.