**CLAIM**

1. A metathesis catalyst, comprising:

    a) a transition metal selected from Group VIA and VIIA of the Periodic Table of Elements;

    b) an inorganic support;

    c) 0.1 – 60 percent by weight of a zeolite; and

    d) 0.1 – 80 percent by weight of a layered double hydroxide,

2. The metathesis catalyst according to claim 1, wherein the transition metal is selected from molybdenum, tungsten, and rhenium.
3. The metathesis catalyst according to claim 1 or 2 comprising 1 – 15 percent by weight of the transition metal.
4. The metathesis catalyst according to any of the preceding claims, wherein the inorganic support is selected from silica, alumina, titania, zirconia, and mixtures thereof, preferably silica.
5. The metathesis catalyst according to any of the preceding claims wherein the zeolite is selected from ZSM-5, X-zeolite, Y-zeolite, beta-zeolite, MCM-22, ferrierite, and mixtures thereof, preferably ZSM-5, Y-zeolite, and ferrierite.
6. The metathesis catalyst according to any of the preceding claims comprising 0.5 – 30 percent by weight of zeolite, preferably 1 – 20 percent by weight.
7. The metathesis catalyst according to any of the preceding claims wherein the layered double hydroxide comprises a first metal selected from Li, Ca, Mg, Mn, Fe, Co, Ni, Cu, Zn, and mixtures thereof, preferably Ca and/or Mg.
8. The metathesis catalyst according to any of the preceding claims wherein the layered double hydroxide comprises a second metal selected from Al, Ga, In, Mn, Fe, Co, Cr, Ni, V, Ti, Zr, Y, and mixtures thereof, preferably Al.
9. The metathesis catalyst according to any of the preceding claims wherein the layered double hydroxide comprises an anion selected from chloride, bromide, carbonate, bicarbonate, hydrogen phosphate, dihydrogen phosphate, nitrite, borate, nitrate, sulphate, phosphate, hydroxide, fluoride, iodide, and mixtures thereof, preferably carbonate and nitrate.

10. The metathesis catalyst according to any of the preceding claims comprising 0.5-50 percent by weight, preferably 1-30 percent by weight of the layered double hydroxide.
11. The metathesis catalyst according to any of the preceding claims wherein the metathesis catalyst is obtainable by a preparation process comprising:

    a) mixing an inorganic support with a zeolite to obtain a mixture thereof;

    b) depositing a transition metal on the mixture of the inorganic support and the zeolite to obtain a deposited mixture; and

    c) mixing the deposited mixture with the layered double hydroxide to obtain the metathesis catalyst.

12. The metathesis catalyst according to claim 11 wherein the preparation process further comprises drying and/or calcining the deposited mixture prior to mixing with the layered double hydroxide in step c).
13. An olefin production process comprising contacting a feed stream comprising an olefin with the metathesis catalyst according to any of the preceding claims.
14. The olefin production process according to claim 13 wherein the feed stream comprises a linear olefin selected from the group consisting of C2 linear olefin, C3 linear olefin, C4 linear olefin, C5 linear olefin, C6 linear olefin, and mixtures thereof.