Claims

1. A catalyst composition comprising MgO~~,~~ from about 44 wt % to about 67 wt %, Al_2O_3 from about 30 wt % to about 50 wt %, and one or more further alkaline earth metal oxides, wherein wt % is calculated based on the total weight of the catalyst composition, wherein the catalyst composition is in a shaped form, and wherein the catalyst composition has a pore volume of about 0.3 cm^3/g to about 0.72 cm^3/g as determined according to ASTM D4284.

2. The catalyst composition according to claim 1, wherein the shaped form is selected from a group consisting of agglomerates, tablets, rings, stars, wagon wheels, extrudates, rods, cylinders, spheres, spheroids, briquettes and pellets.

3. The catalyst composition according to ~~claims~~claim 1 ~~or 2~~, having an average largest diameter from about 1 mm to about 25 mm.

4. The catalyst composition according to ~~any of claims~~claim 1~~-3~~, wherein the shaped form is cylinder-like with an average diameter of from about 1 mm to about 8 mm and an average length of from about 2 mm to about 20 mm.

5. The catalyst composition according to ~~any of claims~~claim 1~~-3~~, wherein the shaped form is star-like.

6. The catalyst composition according to ~~any of the preceding claims,~~claim 1, further comprising one or more metal hydroxides selected from the group consisting of $Mg(OH)_2$, $Al(OH)_3$, and hydroxides of one or more further alkaline earth metals.

7. The catalyst composition according to ~~any of the preceding claims, comprising from about 2 wt% to about 10 wt% of one or more metal hydroxides selected from the group consisting of $Mg(OH)_2$, $Al(OH)_3$, and hydroxides of one or more further alkaline earth metals, based on the total weight of the composition.~~

~~**8.** The catalyst composition according to any of the preceding claims~~claim 1, wherein the catalyst composition is in a form of an extrudate.

~~**9.** 8.~~ The catalyst composition according to ~~any of the preceding claims,~~claim 1, further comprising ~~MgO, Al_2O_3 and~~ one or more alkaline earth metal oxides selected from CaO, SrO and BaO.

~~**10.** 9.~~ The catalyst composition according to ~~any of the preceding claims,~~claim 1, further comprising ~~MgO, Al_2O_3 and~~ CaO.

~~**11.** 10.~~ The catalyst composition according to ~~any of the preceding claims, comprising from about 25 wt% to about 75 wt% MgO, based on the total weight of the composition.~~

~~**12.** The catalyst composition according to any of the preceding claims, comprising from about 20 wt% to about 60 wt% Al_2O_3, based on the total weight of the composition.~~

~~**13.** The catalyst composition according to any of the preceding claims~~claim 1, comprising from about 3 wt% to about 20 wt% of the one or more further alkaline earth metal oxides, in total, based on the total weight of the composition.

~~**14.** 11.~~ The composition according to ~~any of the preceding claims, wherein a weight/weight ratio of MgO to Al_2O_3 is from about~~claim 1~~/9 to about 9/1.~~

~~**15.** The composition according to any of the preceding claims, wherein a weight/weight ratio of MgO to Al_2O_3 is from about 0.50/1.00 to about 2.25/1.00.~~

~~**16.** The composition according to any of the preceding claims, wherein a weight/weight ratio of MgO to the~~ , wherein the composition has one or more ~~further alkaline earth metal oxides, in total, is from about 20/1 to about 1/1.~~of:

~~**17.** The composition according to any of the preceding claims, wherein a weight/weight ratio of MgO to the one or more further alkaline earth metal oxides, in total, is from about 6.50/1.00 to about 3.50/1.00.~~

~~**18.** The composition according to any of the preceding claims, wherein the composition exhibits~~ a crush strength of ≥ 2.0 lbs/mm~~.~~, or

~~**19.** The composition according to any of the preceding claims, wherein the composition has a pore volume of from about 0.30 cm^3/g to about 0.72 cm^3/g.~~

~~**20.** The composition according to any of the preceding claims, wherein the composition has~~ a surface area of from about 50 m^2/g to about 170 m^2/g.

~~**21.**~~ 12. A method to prepare the catalyst composition of ~~any of the preceding claims~~claim 1, the method comprising:

preparing a mixture comprising i) MgO and/or $Mg(OH)_2$, ii) alumina and iii) oxides and/or hydroxides of one or more further alkaline earth metals;

shaping the mixture into a shaped form;

drying the shaped form; and

calcining the dried, shaped form.

~~**22.**~~ 13. A method of preparing propylene, the method comprising

contacting a feed stream containing 1-butene, 1-pentene or a mixture thereof with ethylene in the presence of the catalyst composition according ~~any of claims **1** to **20**~~claim 1 and a metathesis catalyst.

~~**23.**~~ 14. A method of isomerizing an olefin, the method comprising contacting the olefin with the catalyst composition according to ~~any of claims **1** to **20**~~claim 1.

~~**24.**~~ 15. A method of olefin isomerization, the method comprising contacting 1-butene, 1-pentene or a mixture thereof with the catalyst composition of ~~any of claims~~claim 1~~-**20**~~ to provide 2-butene, 2-pentene or a mixture thereof.