CLAIMS

1. A method for partially regenerating a catalyst for methanol and/or dimethyl ether-to-olefin comprising: passing a mixed gas into a regeneration zone containing a catalyst to be regenerated, and carrying out a partial regeneration reaction to obtain a regenerated catalyst;

wherein the mixed gas comprises water vapor and air; and

in the regenerated catalyst, at least a part of the regenerated catalyst has a coke content of greater than 1 %;

wherein a volume ratio of water vapor to air in the mixed gas ranges from 1:0.01 to 1:0.5;

wherein, in the partial regeneration reaction, a contact time between the mixed gas and the catalyst to be regenerated ranges from 10 min to 200 min;

wherein, a space velocity of water vapor in the mixed gas passed into a regenerator range from 0.1 h^{-1} to 10 h^{-1}, and a space velocity of air ranges from 0.01 h^{-1} to 6 h^{-1}.

2. The method for partially regenerating the catalyst for methanol and/or dimethyl ether-to-olefin according to claim 1, wherein the volume ratio of water vapor to air in the mixed gas ranges from 1:0.01 to 1:0.14.

3. The method for partially regenerating the catalyst for methanol and/or dimethyl ether-to-olefin according to claim 1, wherein at least a part of the regenerated catalyst has a coke content ranging from 1.1% to 8%.

4. The method for partially regenerating the catalyst for methanol and/or dimethyl ether-to-olefin according to claim 1, wherein at least a part of the regenerated catalyst has a coke content ranging from 2.8% to 7.5%.

5. The method for partially regenerating the catalyst for methanol and/or dimethyl ether-to-olefin according to claim 1, wherein the partial regeneration reaction is carried out under a temperature ranging from 500 ℃ to 700 ℃.

6. The method for partially regenerating the catalyst for methanol and/or dimethyl ether-to-olefin according to claim 1, wherein the partial regeneration reaction is carried out under a temperature ranging from 600 ℃ to 680℃.

7. The method for partially regenerating the catalyst for methanol and/or dimethyl ether-to-olefin according to claim 1, wherein the catalyst to be regenerated has a coke content ranging from 6% to 14%.

8. A method for methanol and/or dimethyl ether-to-olefin, which adopts fluidized bed reaction process, comprising: partially regenerating the catalyst to be regenerated using the method for partially regenerating the catalyst for methanol and/or dimethyl ether-to-olefin according to any of claims 1 to 7.

9. The method for methanol and/or dimethyl ether-to-olefin according to claim 8, wherein the method comprises following steps:

passing a feed gas comprising methanol and/or dimethyl ether into a fluidized bed reactor containing a catalyst for methanol-to-olefin to perform methanol-to-olefin reaction;

transporting the catalyst to be regenerated to the regeneration zone, and passing the mixed gas into the regeneration zone to perform partial regeneration reaction to obtain the regenerated catalyst;

recycling the regenerated catalyst to the fluidized bed reactor.

10. The method for methanol and/or dimethyl ether-to-olefin according to claim 9, wherein the catalyst for methanol-to-olefin comprises silicoaluminophosphate molecular sieve.