## **Supplementary Materials**

## Rational design of MgF<sub>2</sub> catalysts with long-term stability for the

## dehydrofluorination of 1,1-difluoroethane (HFC-152a)

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**Figure S2.** XRD patterns of the  $MgF_2$  catalysts synthesized from precipitation, sol-gel and hard-template methods after calcination at 200, 300 and 350 °C.

**Figure S3.** An example GC spectrum of contents in gas stream after dehydrofluorination of HFC-152a demonstrating the product/reactant distribution. Note that, the peak at 0.907 min represents  $N_2$ ; the peak at 2.815 min represents the product PVF; the peak at 5.848 min represents the reactant HFC-152a.



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