

# Catalytic Performance and Sulfur Dioxide Resistance of One-pot Synthesized Fe-MCM-22 in Selective Catalytic Reduction of Nitrogen Oxides with Ammonia (NH<sub>3</sub>-SCR) – The Effect of Iron Content

Agnieszka Szymaszek-Wawryca <sup>1,\*</sup>, Urbano Díaz <sup>2</sup>, Dorota Duraczyńska <sup>3</sup>, Konrad Świerczek <sup>1</sup>, Bogdan Samojeden <sup>1</sup>, Monika Motak <sup>1</sup>

<sup>1</sup>AGH University of Science and Technology, Faculty of Energy and Fuels

<sup>2</sup> Instituto de Tecnología Química, UPV-CSIC, Universidad Politécnica de Valencia, Avenida de los Naranjos, s/n 46022 Valencia, Spain

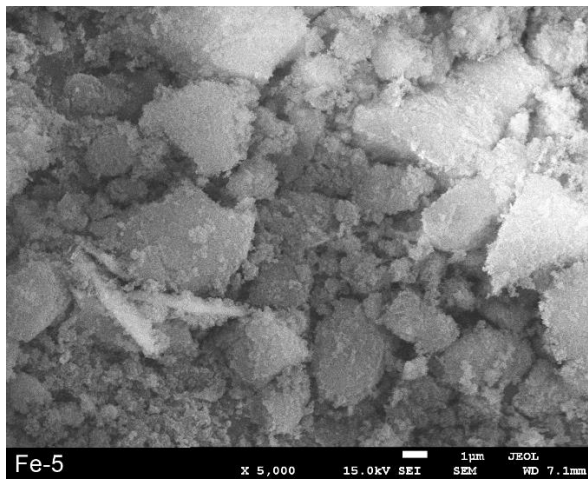
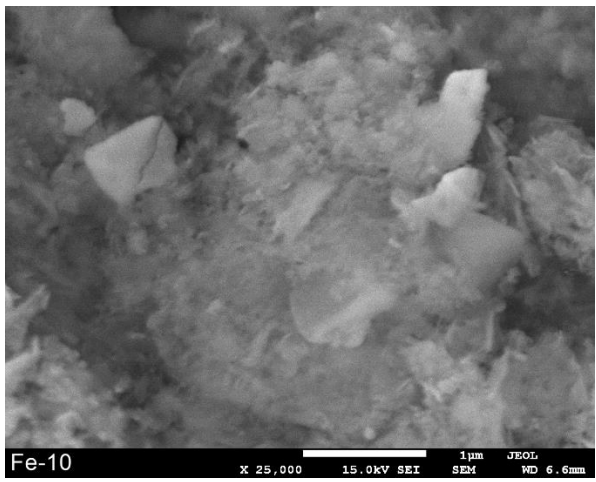
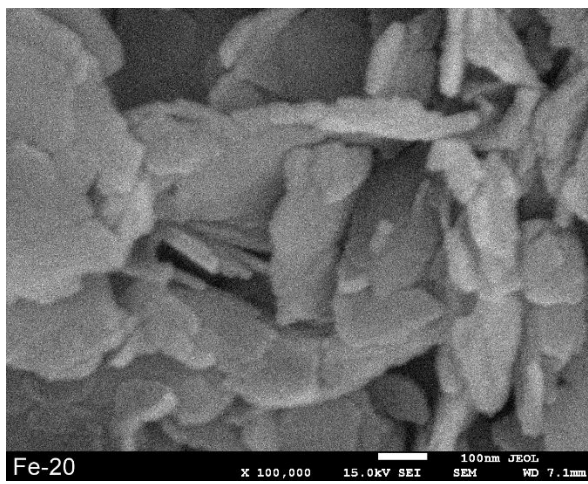
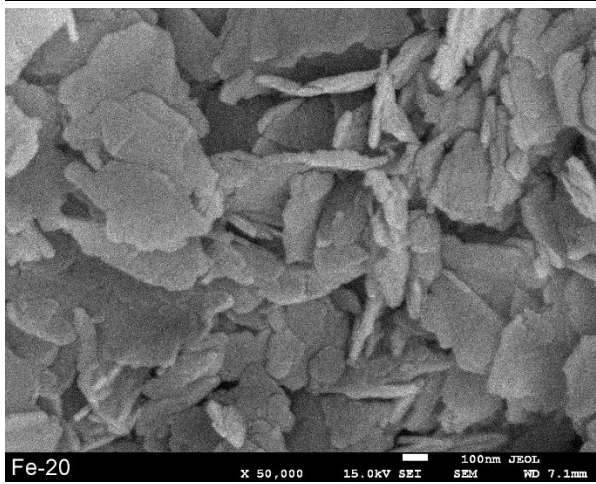
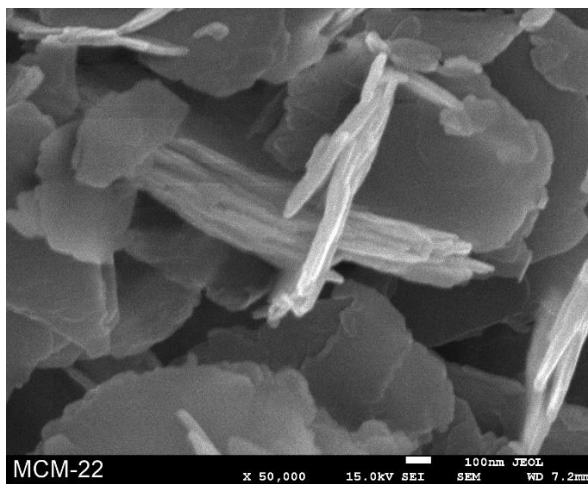
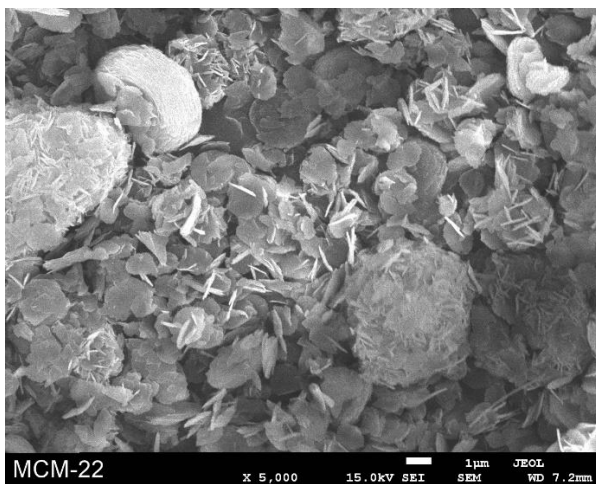
<sup>3</sup>Jerzy Haber Institute of Catalysis and Surface Chemistry, Polish Academy of Sciences, ul. Niezapominajek 8, 30-239 Kraków, Poland

\* Correspondence: [agnszym@agh.edu.pl](mailto:agnszym@agh.edu.pl); Tel.: +48 12 617 21 42

## Supplementary Materials

The Electronic Supplementary Materials of the manuscript “Catalytic Performance and Sulfur Dioxide Resistance of One-pot Synthesized Fe-MCM-22 in Selective Catalytic Reduction of Nitrogen Oxides with Ammonia (NH<sub>3</sub>-SCR) – The Effect of Iron Content” provides:

1. SEM images recorded for the investigated materials (Figure S1);
2. XPS spectra of the catalysts in BE region of O 1s (Figure S2);
3. XPS spectra of the catalysts in BE region of Si 2p (Figure S3);
4. XPS spectra of the catalysts in BE region of Al 2p (Figure S4);
5. XPS spectra of the catalysts in BE region of C 1s (Figure S5);
6. Deconvolution of the NH<sub>3</sub>-TPD profile of the pristine MCM-22 (Figure S6);
7. Deconvolution of the NH<sub>3</sub>-TPD profile of Fe-20 (Figure S7);
8. Deconvolution of the NH<sub>3</sub>-TPD profile of Fe-10 (Figure S8);
9. Deconvolution of the NH<sub>3</sub>-TPD profile of Fe-5 (Figure S9);
10. Deconvolution of the NH<sub>3</sub>-TPD profile of Fe-IE (Figure S10).



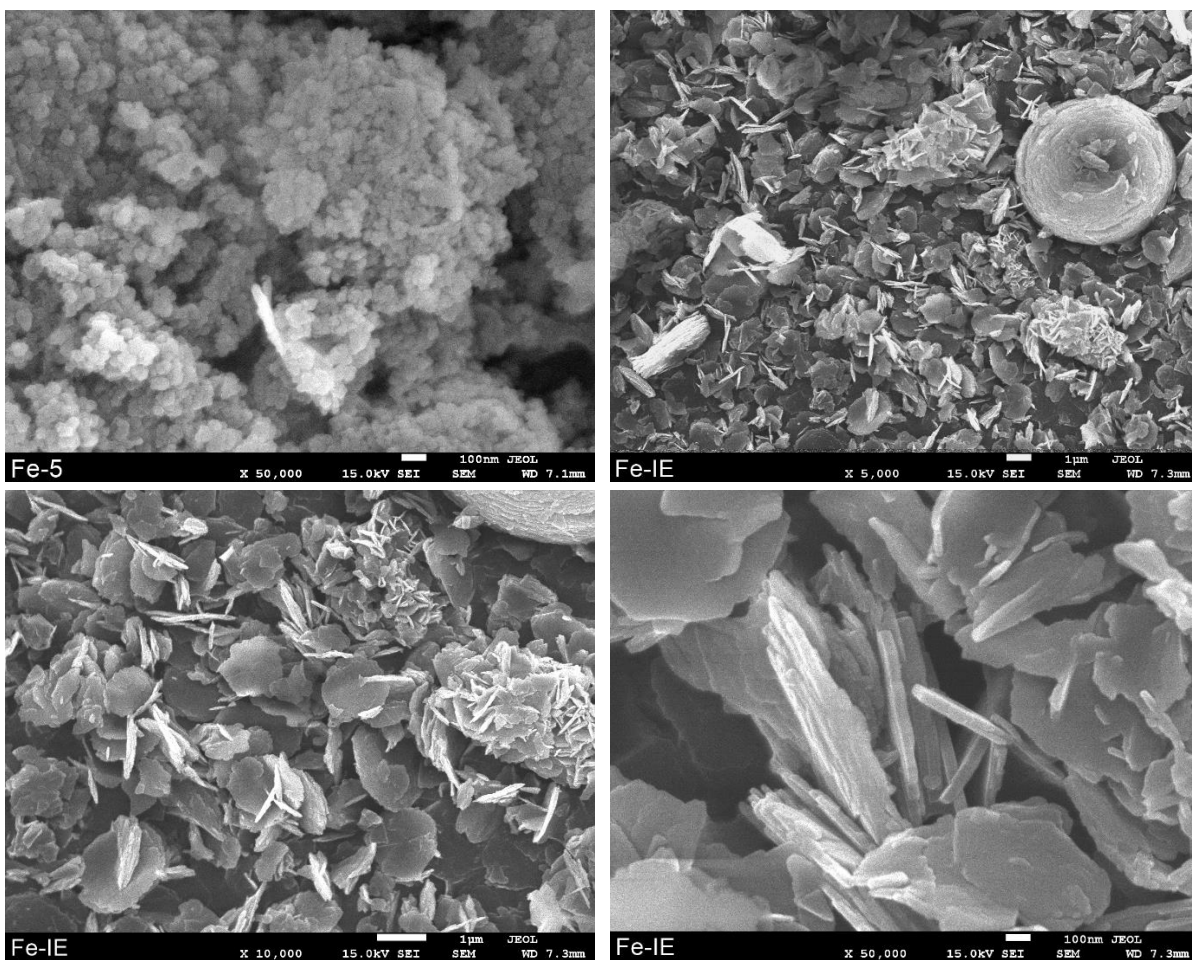
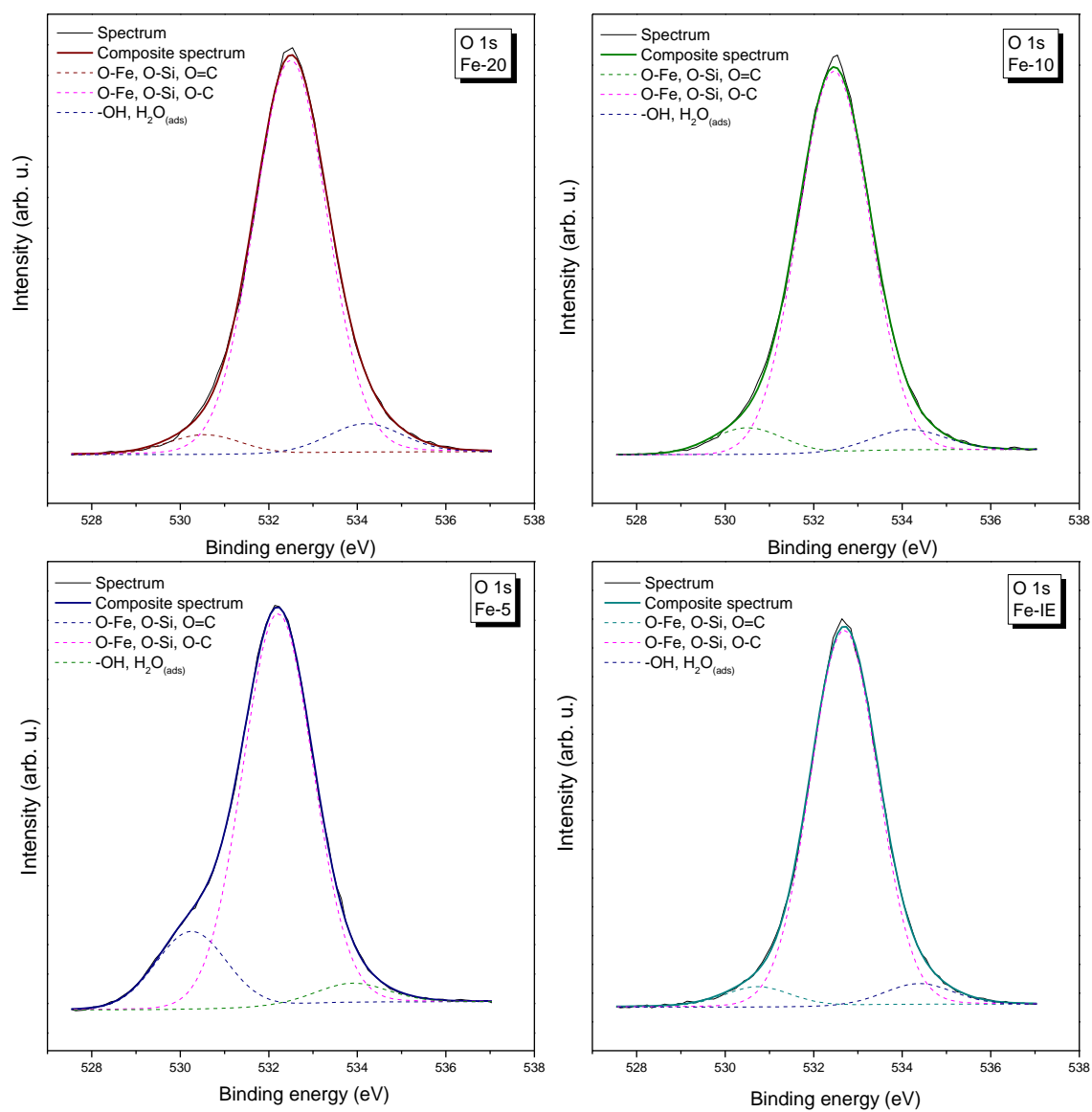
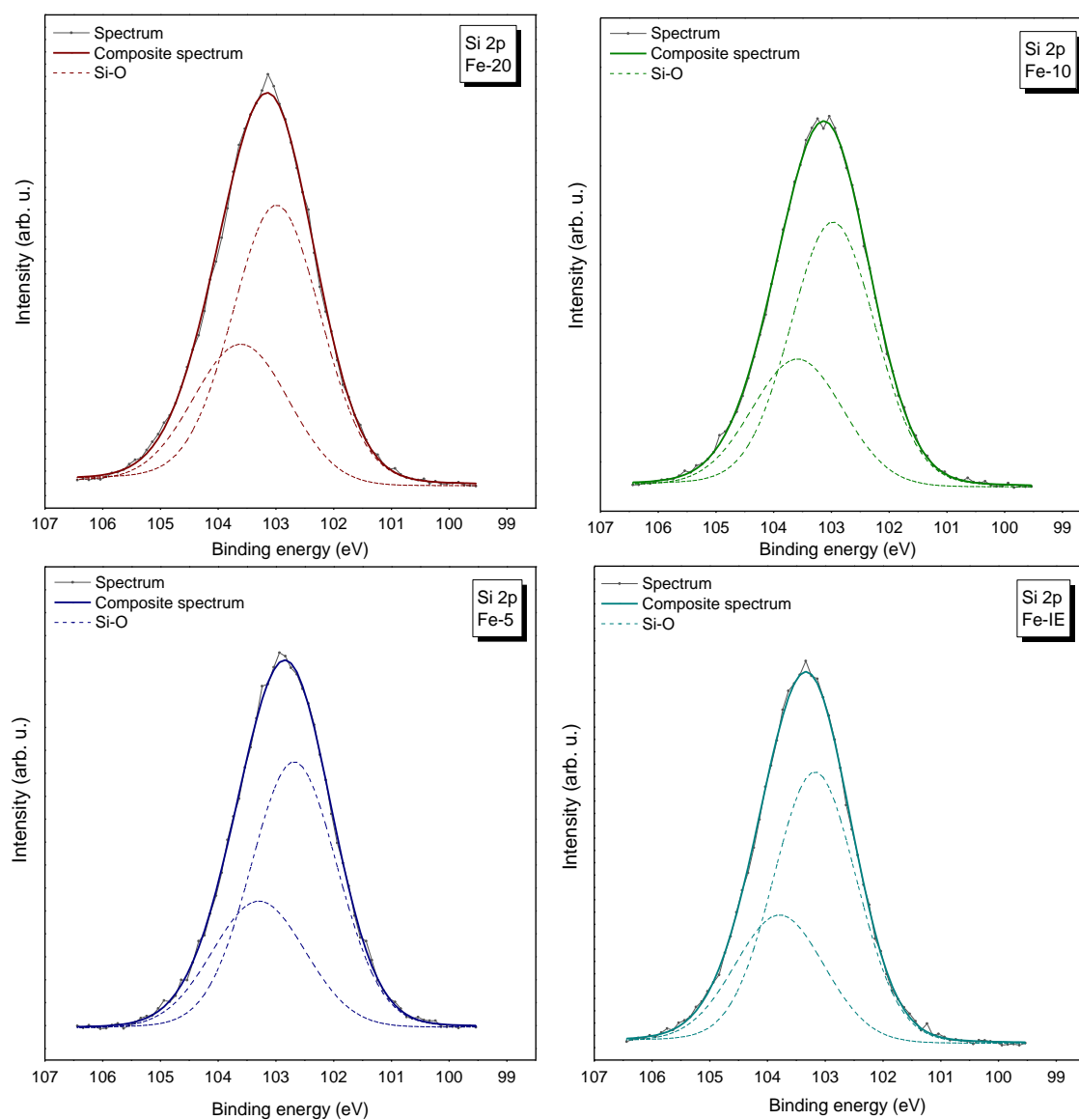


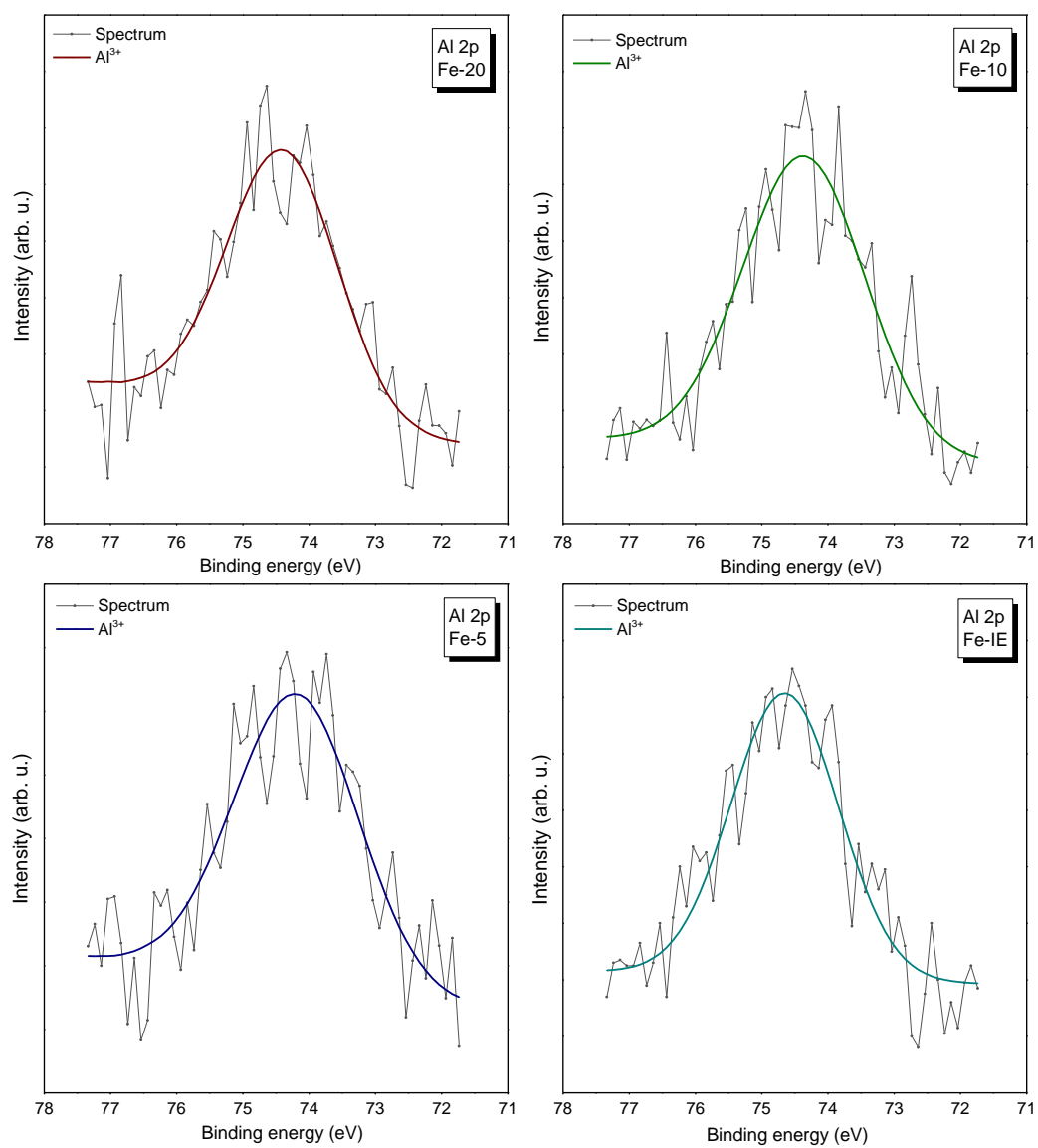
Figure S1. SEM images recorded for the investigated materials.



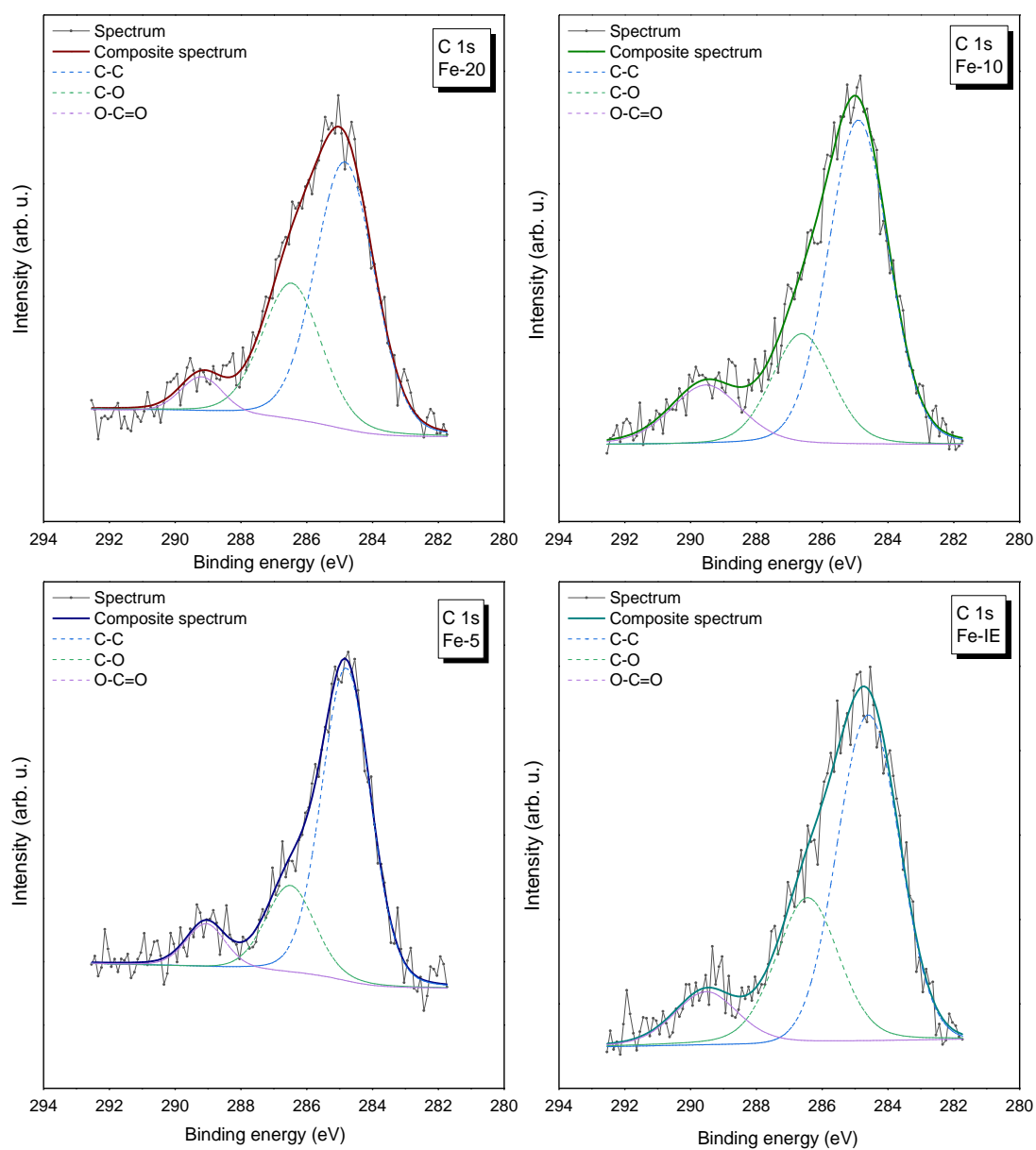
**Figure S2.** XPS spectra of the catalysts in BE region of O 1s.



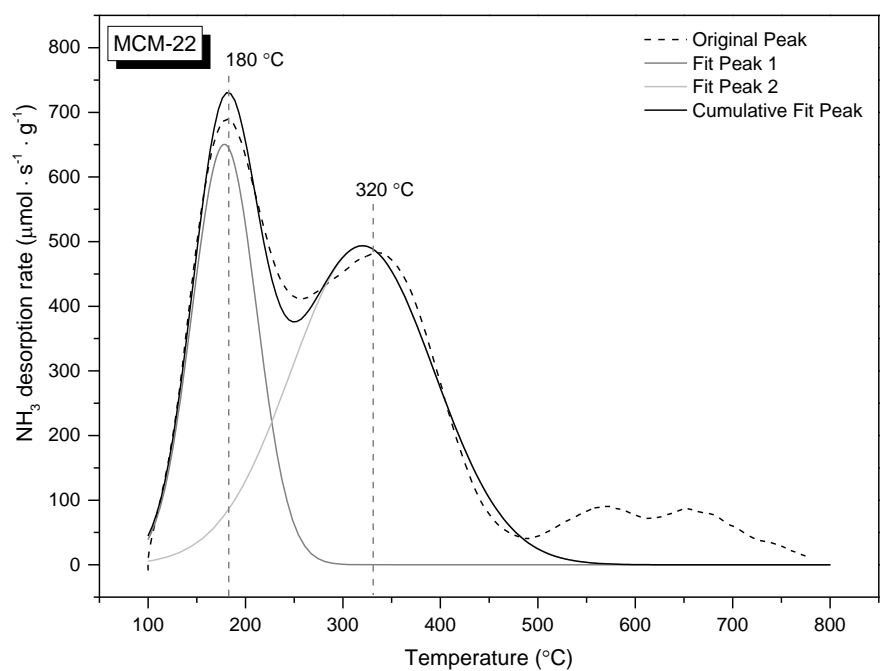
**Figure S3.** XPS spectra of the catalysts in BE region of Si 2p.



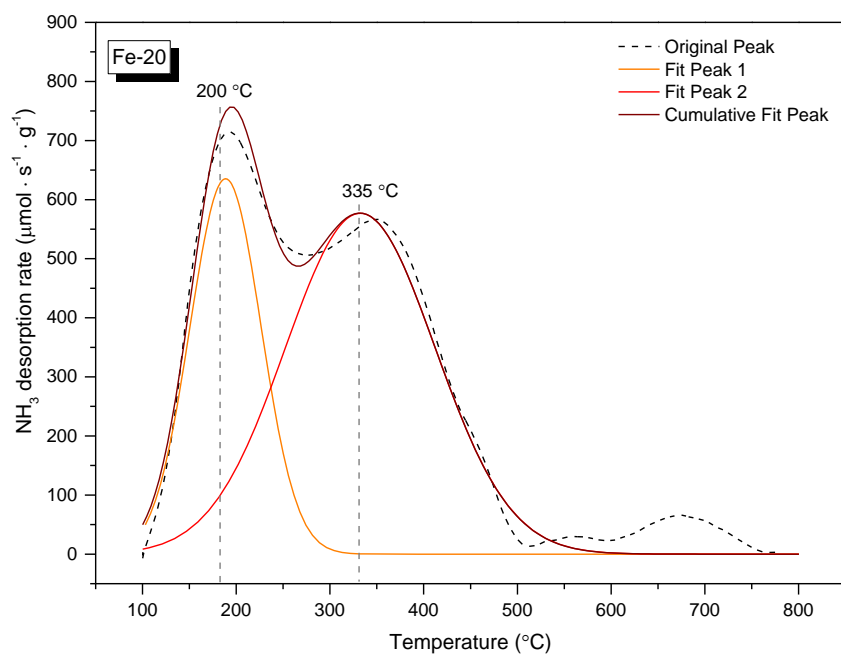
**Figure S4.** XPS spectra of the catalysts in BE region of Al 2p.



**Figure S5.** XPS spectra of the catalysts in BE region of C 1s.

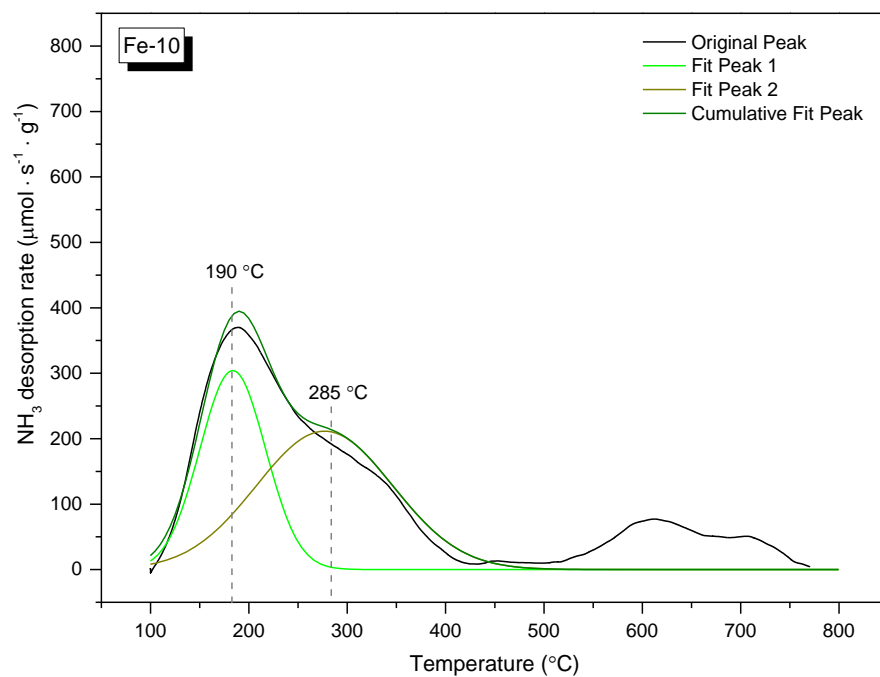


**Figure S6.** Deconvolution of the  $\text{NH}_3$ -TPD profile of the pristine MCM-22 (the profile was deconvoluted using Gaussian function).

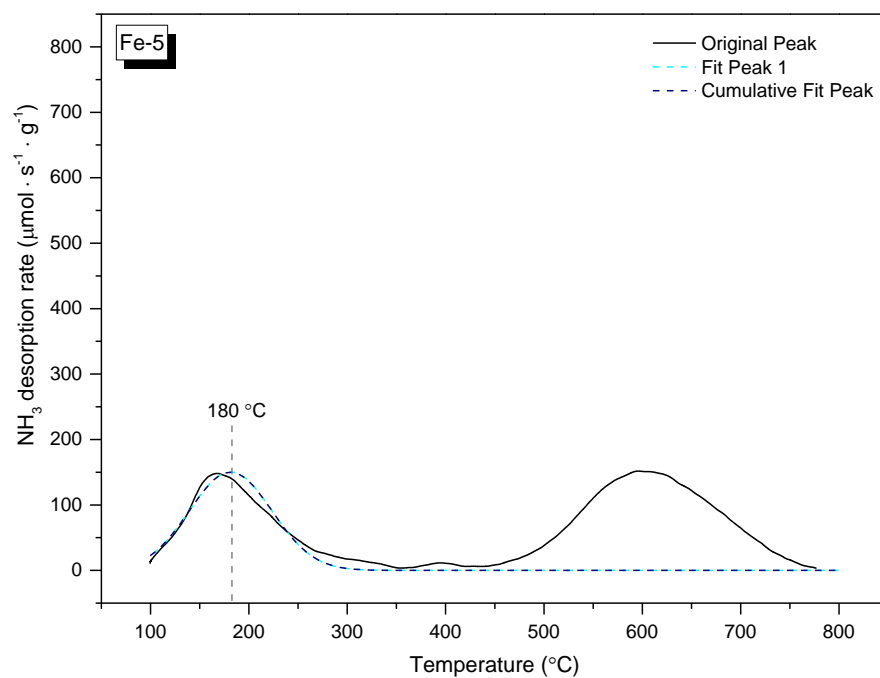


**Figure S7.** Deconvolution of the  $\text{NH}_3$ -TPD profile of the Fe-20 (the profile was deconvoluted using Gaussian function).

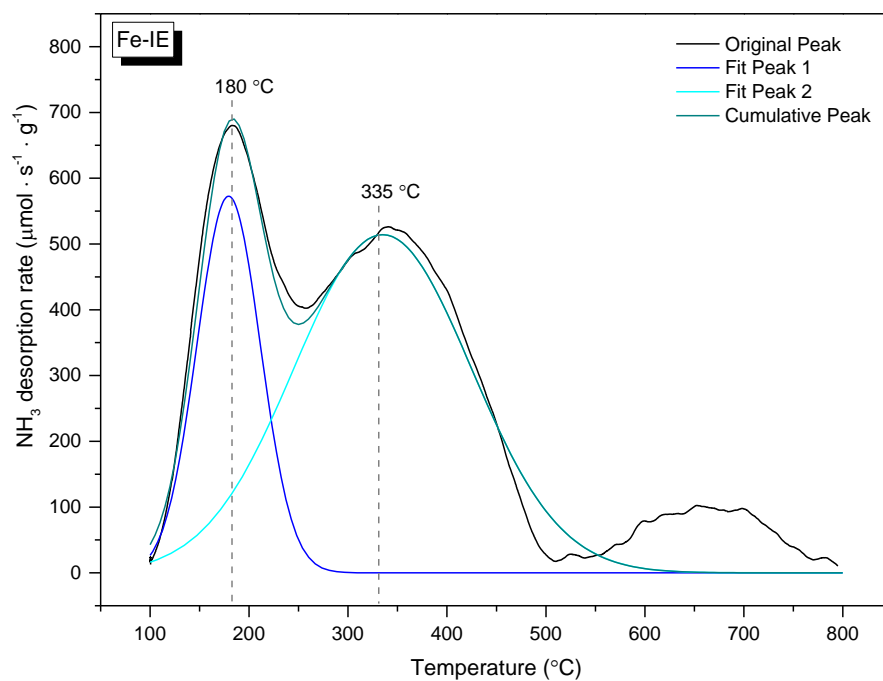




**Figure S8.** Deconvolution of the  $\text{NH}_3$ -TPD profile of the Fe-10 (the profile was deconvoluted using Gaussian function).



**Figure S9.** Deconvolution of the  $\text{NH}_3$ -TPD profile of the Fe-5 (the profile was deconvoluted using Gaussian function).



**Figure S10.** Deconvolution of the NH<sub>3</sub>-TPD profile of the Fe-IE (the profile was deconvoluted using Gaussian function).