## Supporting Information

## Highly selective production of biofuel 2, 5-dimethylfuran from 5-hydroxymethylfurfural over Co/N–C catalysts

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Entry	Catalyst	Calcination atmosphere	$C_{\text{opt}}(\theta_{1})$	Sel. (%)			
	Catalyst		Conv. (%) -	5-MF	DMF	Others	
1	Co <sub>0.25</sub> /N-C-500	$H_2$	100.0	0.7	90.5	8.8	
2	Co <sub>0.25</sub> /N-C-500	$N_2$	14.0	11.1	23.2	65.7	

Table S1. Comparison of  $Co_{0.25}$ /N-C-500 catalytic hydrogenation activity of HMF

under different calcination atmospheres.

Table S2. Difference calcination temperatures in the hydrogenation of HMF

Entry	Calcination temperatures	$C_{amy}(0/)$	Sel. (%)				
		Conv. (%)	5-MF	DMF	Others		
1	Co <sub>0.25</sub> /N-C-450	93.7	17.3	8.1	74.6		
2	Co <sub>0.25</sub> /N–C-500	100.0	0.7	90.5	8.8		
3	Co <sub>0.25</sub> /N–C-550	92.0	13.5	21.8	64.7		
4	Co <sub>0.25</sub> /N–C-600	62.9	17.2	2.8	80		

Reaction conditions: 1 mmol HMF, 40 mg catalyst,10 mL THF, 180 °C,8h, 0.5 MPa



H<sub>2</sub>. Others refer to MFA, BHMF, and DMTHF.

Fig.S1. XRD patterns of Co\_{0.25}-ZIF-9 and Co\_{0.25}/N–C prepared under different

calcination atmospheres.



Fig. S2. TG curves of Co-ZIF-9 precursor.



Fig. S3. XRD patterns of the used catalyst and the fresh catalyst.



Fig. S4. FT-IR spectra of the used catalyst and the fresh catalyst.



Fig. S5. TG curves of the used catalyst and the fresh catalyst.

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Fig. S6. Distribution of selective hydrogenation products of HMF by GC-MS.