

Supporting Information for

Selective hydrodeoxygenation of guaiacol to cyclohexane over Ru-catalysts based on MFI
nanosheets

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Table S1. Selectivity over different catalysts. Reaction conditions: 200 °C, 50 bar H₂, catalysts mass 0.05 g, 2.00 g of substrate (10 wt. % of guaiacol in n-C₁₂H₃₄).

Selectivity	Ru/ZNS-12	Ru/ZNS-24	Ru/ZNS-56	Ru/ZSM-5
0.25 hours				
<i>Conversion, wt. %</i>	32	37	49	50
2-methoxycyclohexanol	91	62	3	5
cyclohexanol	9	48	40	40
cyclohexane	0	0	57	55
0.5 hours				
<i>Conversion, wt. %</i>	61	65	82	76
2-methoxycyclohexanol	43	50	4	5
cyclohexanol	57	48	20	20
cyclohexane	0	2	76	75
1 hour				
<i>Conversion, wt. %</i>	91	94	98	94
2-methoxycyclohexanol	26	23	0	0
cyclohexanol	69	67	0	5
cyclohexane	5	10	100	95
3 hours				
<i>Conversion, wt. %</i>	96	98	98	97
2-methoxycyclohexanol	20	15	0	0

cyclohexanol	67	65	0	0
cyclohexane	13	20	100	100

Table S2. Selectivity over different catalysts. Reaction conditions: 50 bar H₂, 1 hour, catalysts mass 0.05 g, 2.00 g of substrate (10 wt. % of guaiacol in n-C₁₂H₃₄).

Selectivity	Ru/ZNS-12	Ru/ZNS-24	Ru/ZNS-56	Ru/ZSM-5
150 °C				
<i>Conversion, wt. %</i>	44	60	68	68
2-methoxycyclohexanol	100	89	43	35
cyclohexanol	0	11	37	40
cyclohexane	0	0	20	25
200 °C				
<i>Conversion, wt. %</i>	91	94	98	94
2-methoxycyclohexanol	26	23	0	0
cyclohexanol	69	67	0	5
cyclohexane	5	10	100	95
250 °C				
<i>Conversion, wt. %</i>	98	97	98	100
2-methoxycyclohexanol	17	0	0	0
cyclohexanol	74	79	0	0
cyclohexane	9	21	100	95
Cracking products (Carbon number < 6)	0	0	0	5
300 °C				
<i>Conversion, wt. %</i>	99	98	100	100
2-methoxycyclohexanol	3	1	0	0
cyclohexanol	84	79	0	0
cyclohexane	13	20	96	85
Cracking products (Carbon number < 6)	0	0	4	15