Table S1 Experimental data with respect to Figure 3a

Experiment number [-]	Total metal loading Ni + Pt [wt%]	Molar fraction of Pt [-]	Molar quantity of adsorbed H_2 [µmol g^{-1}]
1	3.6	0.5	2.73
2	8.5	0.6	0.09
3	18.8	0.6	5.55
4	7.6	1.5	8.68
5	3.3	2.3	2.00
6	6.0	3.9	17.12
7	12.7	5.1	65.22
8	24.3	4.1	24.09
9	7.4	4.9	39.32
10	14.5	5.5	42.13
11	19.5	7.0	163.15
12	6.2	11.4	48.65
13	13.0	10.2	308.17
14	21.9	13.4	5.47

Molar quantity of adsorbed H_2 on the precipitation catalysts, which was measured by means of pulse-chemisorption, $\dot{V}_{Ar}$ = 30 ml min^{-1}, T = 35 °C, Δt = 20 min, 20 pulses of H_2, V_{pulse} = 0.21 ml, C_f = (1.67 ± 0.0196) * 10^{-8} mmol mV^{-1} s^{-1}

Table S2 Experimental data with respect to Figure 3b

Experiment number [-]	Total metal loading Ni + Pt [wt%]	Molar fraction of Pt [-]	Molar quantity of desorbing H_2 [µmol g^{-1}]
1	3.6	0.5	37.39
2	8.5	0.6	83.67
3	18.8	0.6	52.18
4	7.6	1.5	3.46
5	3.3	2.3	70.67
6	6.0	3.9	53.12
7	12.7	5.1	102.50
8	24.3	4.1	50.20
9	7.4	4.9	63.84
10	14.5	5.5	39.99
11	19.5	7.0	0
12	6.2	11.4	43.91
13	13.0	10.2	300.11
14	21.9	13.4	4.01

Molar quantity of desorbing H_2 from the precipitation catalysts, which was measured by means of temperature-programmed desorption after prior pulse-chemisorption, ΔT from 35 °C to 800 °C, β = 10 k min^{-1}, $\dot{V}_{Ar}$ = 30 ml min^{-1}, C_f = (1.67 ± 0.0196) * 10^{-8} mmol mV^{-1} s^{-1}

Table S3 Experimental data with respect to Figure 4a

Reaction time [h]	$c^{iso\text{-}BuOH}$ at 3.6 wt% metal loading Ni + Pt and $x_{Pt} = 0.5$ [mmol l^{-1}]	$c^{iso\text{-}BuOH}$ at 8.5 wt% metal loading Ni + Pt and $x_{Pt} = 0.6$ [mmol l^{-1}]	$c^{iso\text{-}BuOH}$ at 18.8 wt% metal loading Ni + Pt and $x_{Pt} = 0.6$ [mmol l^{-1}]	$c^{iso\text{-}BuOH}$ at 7.6 wt% metal loading Ni + Pt and $x_{Pt} = 1.5$ [mmol l^{-1}]
0	0.55	1.21	1.27	0
0.57	3.48	5.89	4.35	0.27
1.07	6.82	12.22	5.95	1.02
1.57	10.42	19.98	8.65	1.68
2.03	11.41	25.78	11.16	2.83
2.72	17.85	32.25	17.67	3.89
3.08	21.40	35.53	19.10	4.91
3.58	23.43	41.67	23.59	6.28
4.05	31.01	50.23	22.29	7.40

T = 165 °C, m(catalyst) = 250 mg, d(powder) < 75 µm, V(reactor) = 70 ml, c_0(EtOH) = 600 mmol l^{-1}, c(NaOH) = 450 mmol l^{-1}, c(n-decane) = 15 mmol l^{-1}, methanolic solution

Table S4 Experimental data with respect to Figure 4b

Reaction time [h]	$c^{iso\text{-}BuOH}$ at 3.3 wt% metal loading Ni + Pt and x_{Pt} = 2.3 [mmol l^{-1}]	$c^{iso\text{-}BuOH}$ at 6.0 wt% metal loading Ni + Pt and x_{Pt} = 3.9 [mmol l^{-1}]	$c^{iso\text{-}BuOH}$ at 12.7 wt% metal loading Ni + Pt and x_{Pt} = 5.1 [mmol l^{-1}]	$c^{iso\text{-}BuOH}$ at 24.3 wt% metal loading Ni + Pt and x_{Pt} = 4.1 [mmol l^{-1}]
0	1.67	1.89	0.77	0.61
0.50	9.00	12.17	6.71	7.68
1.00	15.08	21.96	8.44	9.39
1.50	21.26	27.95	10.21	14.61
1.98	27.40	36.66	16.64	11.32
2.57	33.89	47.23	11.53	14.66
3.00	40.38	56.21	12.51	13.45
3.55	47.73	61.15	13.48	16.79
4.00	50.27	74.44	18.90	18.90

T = 165 °C, m(catalyst) = 250 mg, d(powder) < 75 µm, V(reactor) = 70 ml, c_0(EtOH) = 600 mmol l^{-1}, c(NaOH) = 450 mmol l^{-1}, c(n-decane) = 15 mmol l^{-1}, methanolic solution

Table S5 Experimental data with respect to Figure 4c

Reaction time [h]	$c^{iso\text{-}BuOH}$ at 7.4 wt% metal loading Ni + Pt and x_{Pt} = 4.9 [mmol l^{-1}]	$c^{iso\text{-}BuOH}$ at 14.5 wt% metal loading Ni + Pt and x_{Pt} = 5.5 [mmol l^{-1}]	$c^{iso\text{-}BuOH}$ at 19.5 wt% metal loading Ni + Pt and x_{Pt} = 7.0 [mmol l^{-1}]
0	1.69	1.71	0.45
0.53	7.93	4.71	1.11
1.00	9.85	8.89	1.74
1.70	12.44	9.62	2.54
2.03	12.42	13.75	3.19
2.60	13.11	13.65	3.80
3.08	13.78	16.73	4.49
3.62	14.00	18.25	5.04
4.03	14.00	17.26	5.48

T = 165 °C, m(catalyst) = 250 mg, d(powder) < 75 µm, V(reactor) = 70 ml, c_0(EtOH) = 600 mmol l^{-1}, c(NaOH) = 450 mmol l^{-1}, c(n-decane) = 15 mmol l^{-1}, methanolic solution

Table S6 Experimental data with respect to Figure 4d

Reaction time [h]	$c^{iso\text{-}BuOH}$ at 6.2 wt% metal loading Ni + Pt and x_{Pt} = 11.4 [mmol l^{-1}]	$c^{iso\text{-}BuOH}$ at 13.0 wt% metal loading Ni + Pt and x_{Pt} = 10.2 [mmol l^{-1}]	$c^{iso\text{-}BuOH}$ at 21.9 wt% metal loading Ni + Pt and x_{Pt} = 13.4 [mmol l^{-1}]
0	1.61	2.35	0.44
0.58	7.21	13.81	1.056
1.03	8.75	17.91	1.72
1.55	11.29	19.10	2.55
2.05	11.52	24.00	3.09
2.48	16.25	20.28	3.77
3.12	12.98	26.01	4.30
3.50	14.71	26.26	4.60
4.00	13.83	24.00	5.53

T = 165 °C, m(catalyst) = 250 mg, d(powder) < 75 µm, V(reactor) = 70 ml, c_0(EtOH) = 600 mmol l^{-1}, c(NaOH) = 450 mmol l^{-1}, c(n-decane) = 15 mmol l^{-1}, methanolic solution

Table S7 Experimental data with respect to Figure 5

Reaction time [h]	$c^{iso\text{-}BuOH}$ at 6.2 wt% metal loading Ni + Pt and x_{Pt} = 11.4 [mmol l^{-1}]	$c^{iso\text{-}BuOH}$ at 13.0 wt% metal loading Ni + Pt and x_{Pt} = 10.2 [mmol l^{-1}]	$c^{iso\text{-}BuOH}$ at 7.4 wt% metal loading Ni + Pt and x_{Pt} = 4.9 [mmol l^{-1}]
0	1.61	2.35	1.69
0.58	7.21	13.81	7.93
1.03	8.75	17.91	9.85
1.55	11.29	19.10	12.44
2.05	11.52	24.00	12.42
2.48	16.25	20.28	13.11
3.12	12.98	26.01	13.78
3.50	14.71	26.26	14.00
4.00	13.83	24.00	14.00

T = 165 °C, m(catalyst) = 250 mg, d(powder) < 75 µm, V(reactor) = 70 ml, c_0(EtOH) = 600 mmol l^{-1}, c(NaOH) = 450 mmol l^{-1}, c(n-decane) = 15 mmol l^{-1}, methanolic solution

Table S8 Experimental data with respect to Figure 8

Total metal loading Ni + Pt [wt%]	Molar fraction of Pt [-]	STY [mmol h^{-1} g^{-1}]	$S_{iso\text{-}BuOH}$ [%]	$Y_{iso\text{-}BuOH}$ [%]	X_{EtOH} [%]
3.6	0.5	2.05	98.67	5.17	5.24
8.5	0.6	3.33	98.97	8.37	8.46
18.8	0.6	1.66	91.20	3.72	4.07
7.6	1.5	0.54	100.00	1.23	1.23
3.3	2.3	3.50	99.13	8.38	8.45
6.0	3.9	4.72	95.28	12.41	12.69
12.7	5.1	0.95	74.99	3.15	4.20
24.3	4.1	1.01	74.99	31.5	4.20
7.4	4.9	1.14	80.83	2.88	2.94
14.5	5.5	0.71	97.60	2.33	2.39
19.5	7.0	0.36	100.00	0.91	0.91
6.2	11.4	0.79	76.20	2.31	3.03
13.0	10.2	1.31	67.51	4.00	5.92
21.9	13.4	0.35	100.00	0.92	0.92

m(cat.) = 250 mg, d(powder) < 75 µm, V(reactor) = 70 ml, c_0(EtOH) = 600 mmol l^{-1}, c(NaOH) = 450 mmol l^{-1}, c(n-decane) = 15 mmol l^{-1}; time on stream: 4h, methanolic solution, measuring points are shown as crosses