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PARTIAL HYDROGENATION OF PHENYLACETYLENE ON COPPER-PROMOTED IRON CATALYST

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Unfortunately both tables 1 and 2 were omitted in the original version.

Table 1
Hydrogenation of phenylacetylene [a] on various Fe-M/SiO_2 catalysts [b]

Added metal	D_c [c] (nm)	R_0 [d] (mmol·min^{-1}g^{-1})	S_{50} [e] (%)
–	16	1.1×10^{-2}	95.7
Ni	12	5.5×10^{-2}	95.1
Co	16	1.2×10^{-2}	96.0
Cu	17	4.9×10^{-2}	97.6
La	17	1.0×10^{-3}	91.0 [f]
Mn	18	2.1×10^{-3}	94.0
Mg	20	2.7×10^{-3}	92.0
Zn	32	1.1×10^{-3}	91.5 [f]

[a] Carried out in ethanol at 60 °C under 1 MPa of hydrogen.
[b] Fe : M = 9 : 1 in atomic ratio.
[c] Mean crystallite size of Fe measured by X-ray line broadening.
[d] Initial reaction rate.
[e] Selectivity in styrene at 50% conversion.
[f] Measured at 20% conversion.

Table 2
Effects of reduction conditions on the properties of Fe-Cu(7 : 3)/SiO_2 catalyst

No.	Heating rate [a] (°C·min^{-1})	H_2 flow rate (l·h^{-1})	D_c (nm)	R_0 (mmol·min^{-1}g^{-1})	S_{50} (%)
1	10	8	12	1.9×10^{-1}	99.5
2	5	8	11	3.1×10^{-1}	99.5
3	10	16	11	2.9×10^{-1}	99.5
4	5	16	10	3.7×10^{-1}	99.5
5 [b]	10	16	12	2.0×10^{-1}	99.6

[a] Heated up to 500 °C and held as such for 1 h.
[b] Reduced after heating at 300 °C for 1 h in a flow of nitrogen.