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Supporting Information

for

Preferential enrichment and extraction of laser-synthesized nanoparticles in organic phases

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Additional figures and tables

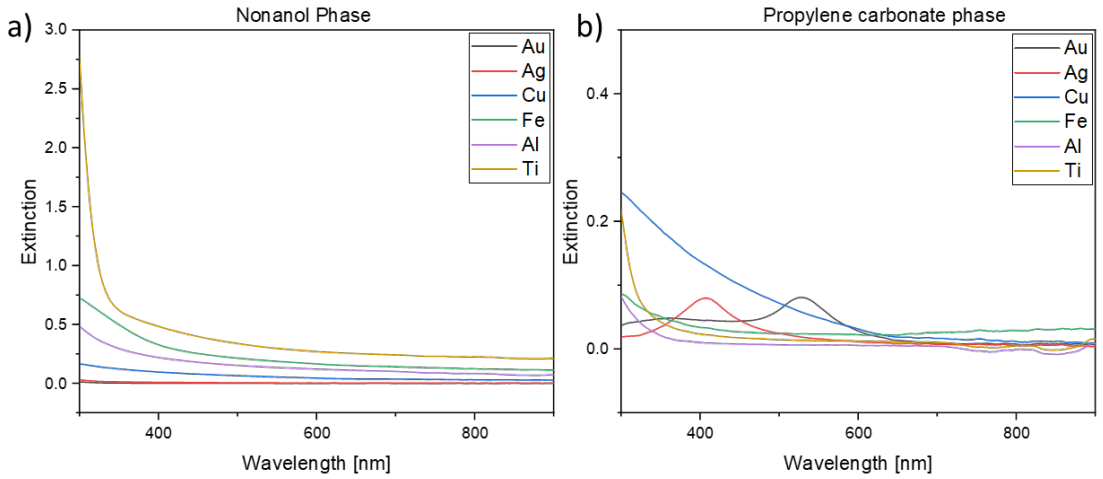

Figure S1: UV–vis extinction spectra of the gained colloids from the six different metals (Au, Ag, Cu, Fe, Al, and Ti) in the TMS consisting of propylene carbonate and 1-nonanol.

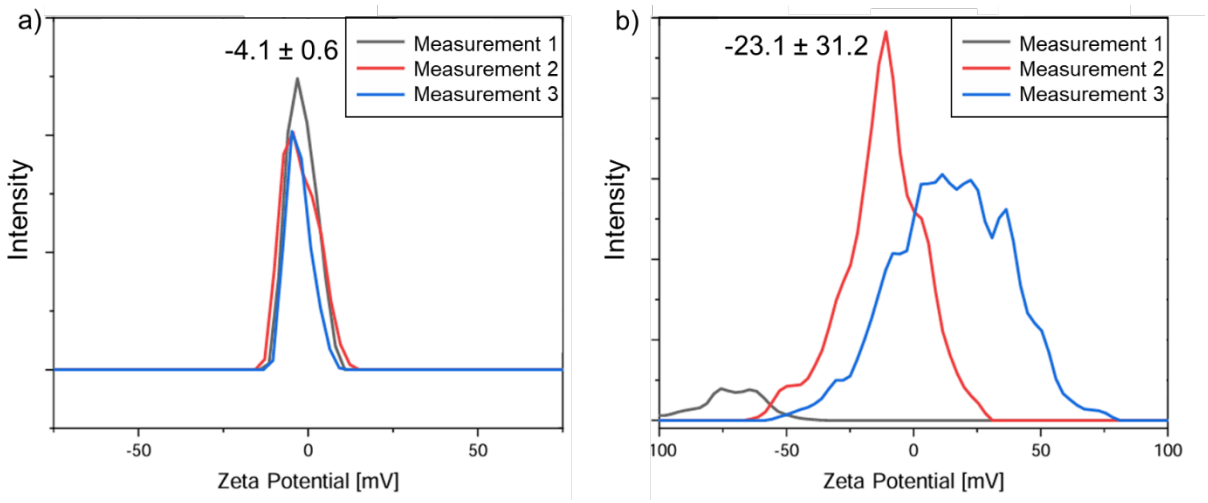

Figure S2: Zeta potential of iron nanoparticles in (a) 1-nonanol and (b) propylene carbonate obtained by LAL in the TMS of 1-nonanol and propylene carbonate.

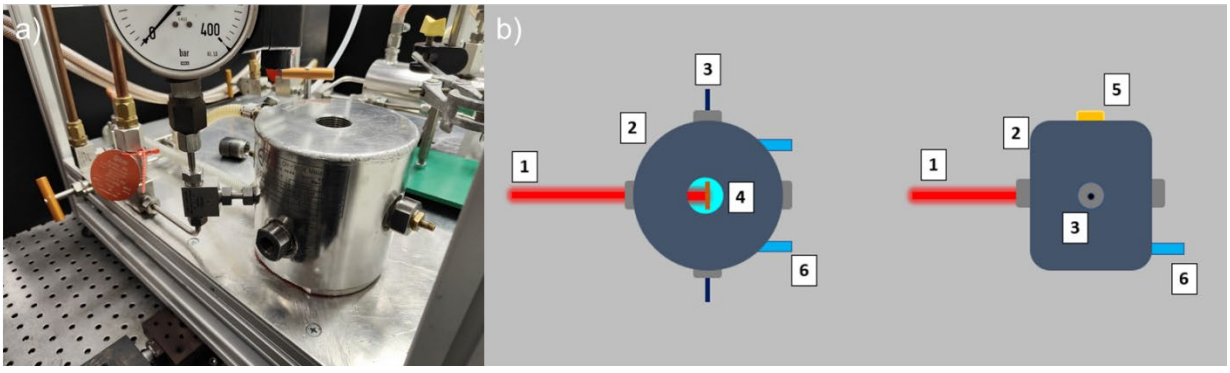

Figure S3: (a) Photograph of the batch vessel with a heating coat. (b) Schematic depiction of the batch vessel. The numbers indicate the following: 1 laser beam, 2 ablation chamber with a heating coat, 3 fiber UV–vis connector (not used in this study), 5 cover, 6 heating water connectors.

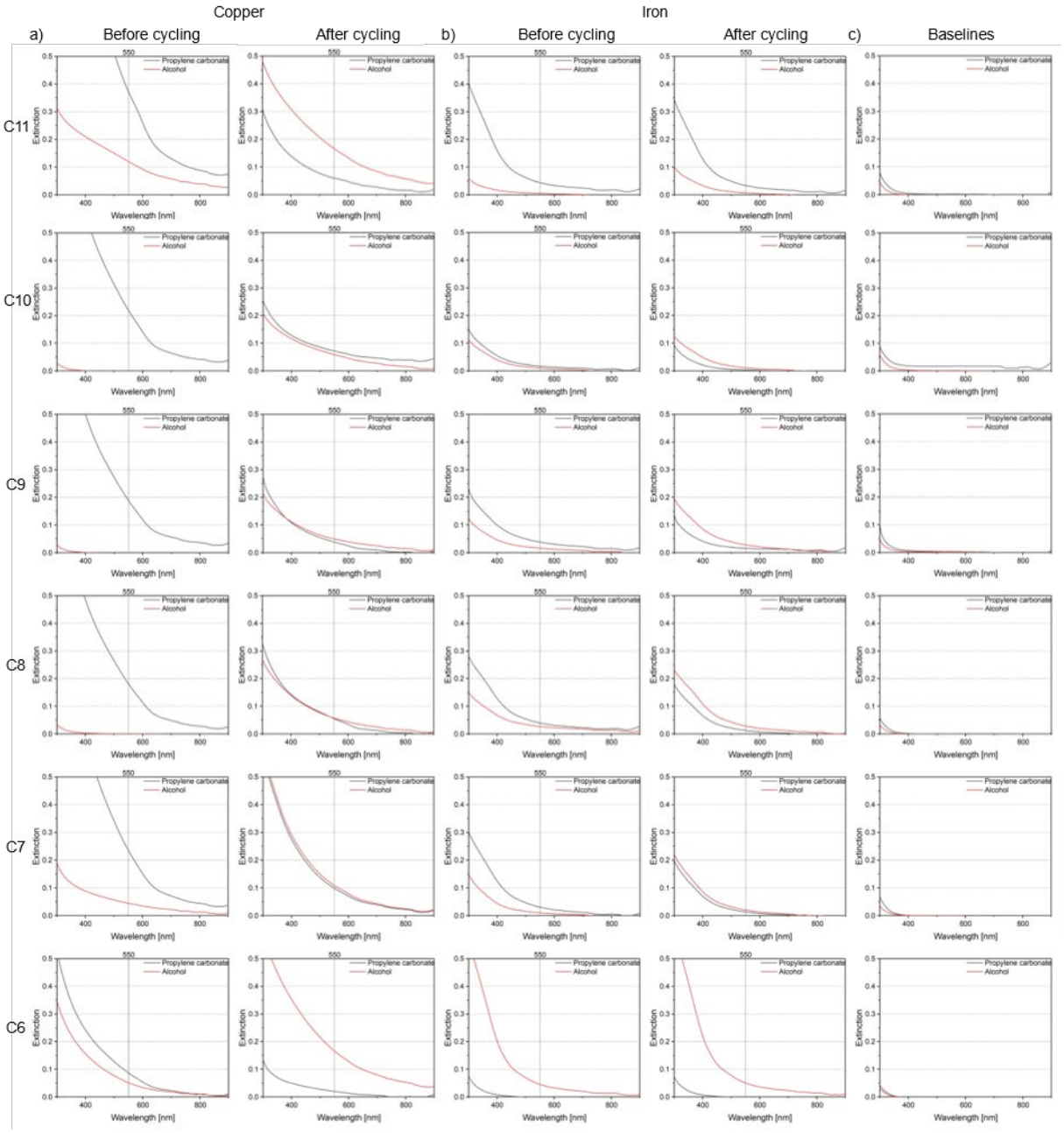

Figure S4: Raw UV–vis extinction spectra gained for (a) copper and (b) iron colloids in TMSs consisting of propylene carbonate and an alcohol with a carbon chain length between six and eleven before and after cycling. (c) UV–vis extinction spectra baselines gained from TMSs consisting of propylene carbonate and an alcohol with a carbon chain length of six to eleven after phase separation from the monophasic state.

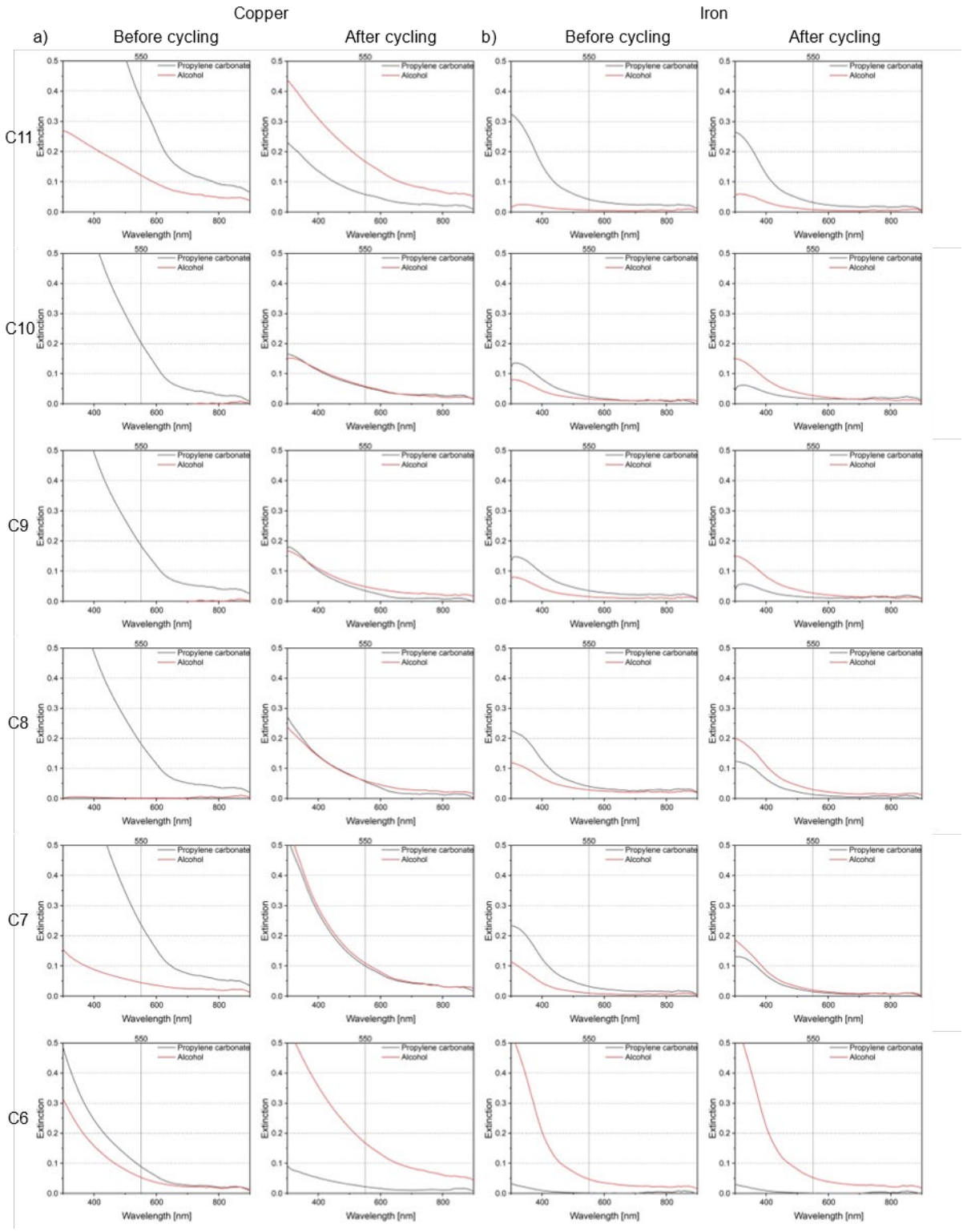

Figure S5: Baseline-corrected UV–vis extinction spectra gained for (a) copper and (b) iron colloids in TMSs consisting of propylene carbonate and an alcohol with a carbon chain length of six to eleven before and after cycling. The baseline-corrected UV–vis extinction spectra were obtained by subtraction of the respective baselines (Figure S4c) from the UV–vis extinction spectra of the raw colloids (Figure S4a,b).

Table S1: Extinctions at a wavelength of 550 nm gained from the baseline-corrected UV–vis extinction spectra (Figure S5) of the copper colloids in TMSs consisting of propylene carbonate and an alcohol with a carbon chain length of six to eleven before and after cycling.

Alcohol chain length	Extinction at 550 nm of the propylene carbonate phase [-]		Extinction at 550 nm of the alcohol phase [-]	
	before cycling	after cycling	before cycling	after cycling
11	0.371	0.058	0.121	0.167
10	0.203	0.055	0	0.057
9	0.185	0.035	0	0.048
8	0.182	0.056	0.001	0.058
7	0.238	0.100	0.044	0.109
6	0.089	0.021	0.052	0.168

Table S2: Extinctions at a wavelength of 550 nm gained from the baseline-corrected UV–vis extinction spectra (Figure S5) of the gained iron colloids in TMSs consisting of propylene carbonate and an alcohol with a carbon chain length of six to eleven before and after cycling.

Alcohol chain length	Extinction at 550 nm of the propylene carbonate phase [-]		Extinction at 550 nm of the alcohol phase [-]	
	Before cycling	After cycling	Before cycling	After cycling
11	0.042	0.031	0.006	0.008
10	0.023	0.016	0.015	0.027
9	0.035	0.012	0.015	0.027
8	0.040	0.013	0.028	0.029
7	0.032	0.014	0.009	0.019
6	0.046	0.052	9.7E-4	3.69E-4

Table S3: Fractions of the colloidal Cu and Fe NPs in the propylene carbonate phase of TMSs consisting of propylene carbonate and an alcohol with a chain length of six to eleven before and after cycling.

Alcohol chain length	Fraction of colloidal Cu NP in the propylene carbonate phase [-]		Fraction of the colloidal Fe NP in the propylene carbonate phase [-]	
	before cycling	after cycling	before cycling	after cycling
11	0.75	0.26	0.87	0.80
10	1.00	0.49	0.60	0.38
9	1.00	0.42	0.69	0.32
8	0.99	0.49	0.59	0.31
7	0.84	0.48	0.77	0.42
6	0.62	0.11	0.98	0.99