

Injectable and photocurable macromonomers synthesized using a heterometallic magnesium-titanium metal-organic catalyst for elastomeric polymer networks

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SUPPORTING INFORMATION

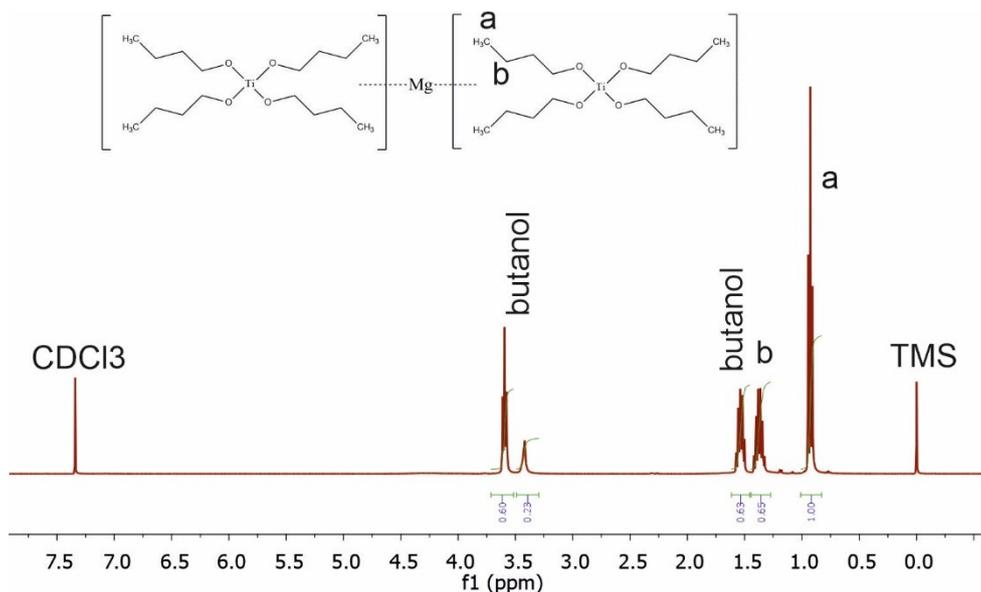


Figure S1 ¹H NMR of Mg-Ti butoxide catalyst

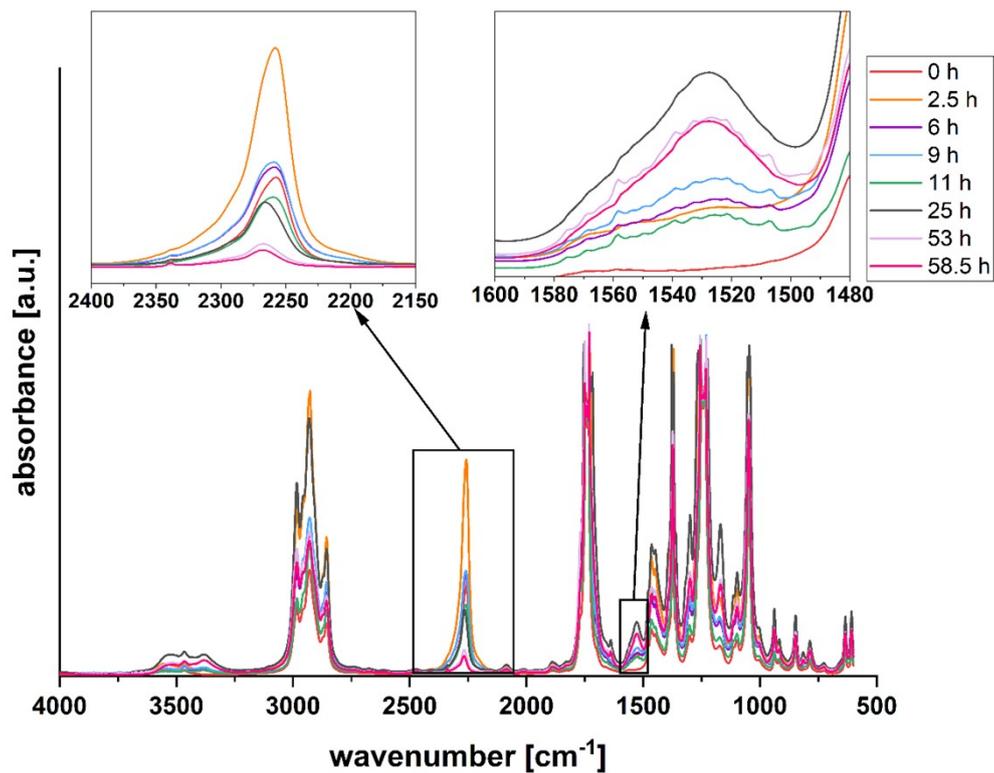


Figure S2 Progress of the reaction with use of 0.1 mol% of catalyst

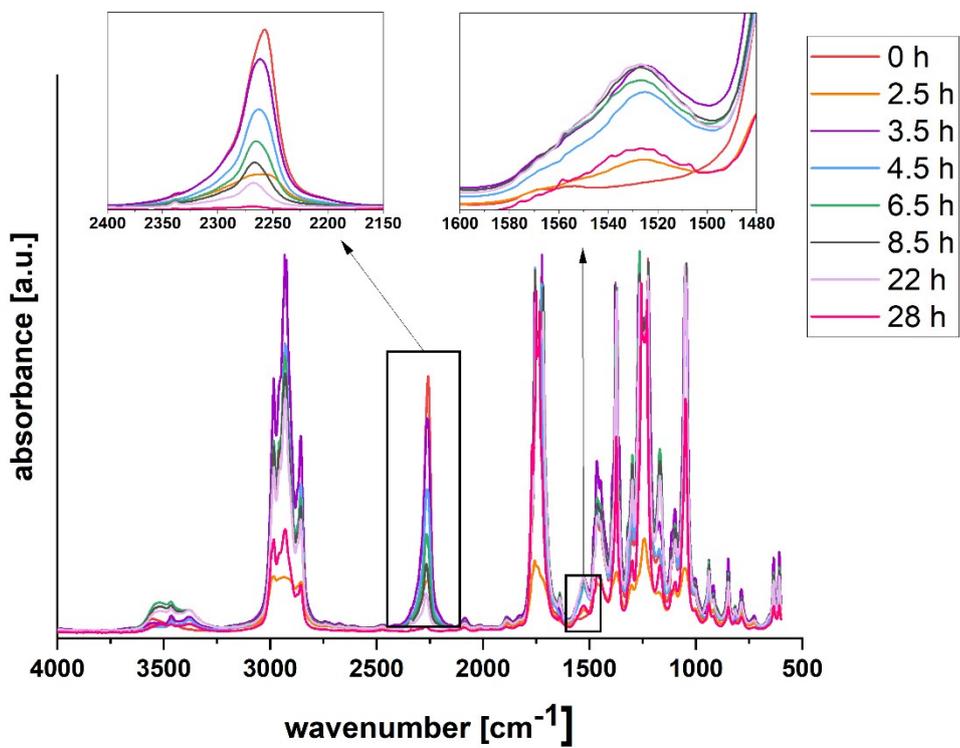


Figure S3 Progress of the reaction with use of 0.25 mol% of catalyst

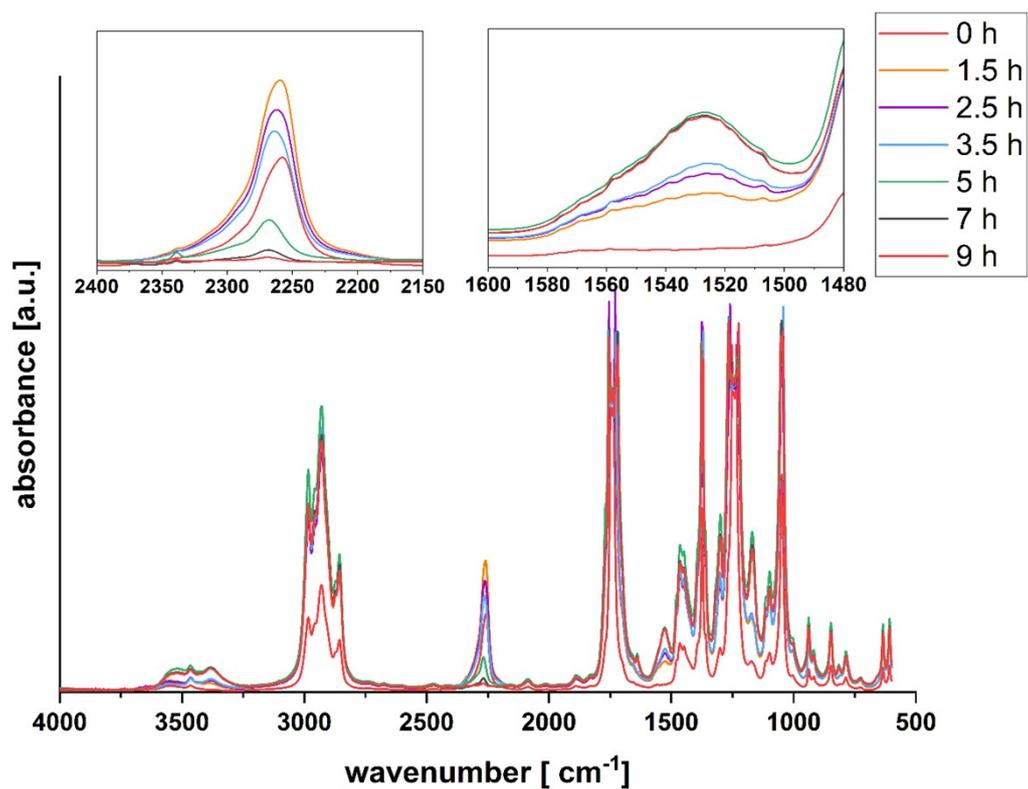


Figure S4 Progress of the reaction with use of 0.5 mol% of catalyst

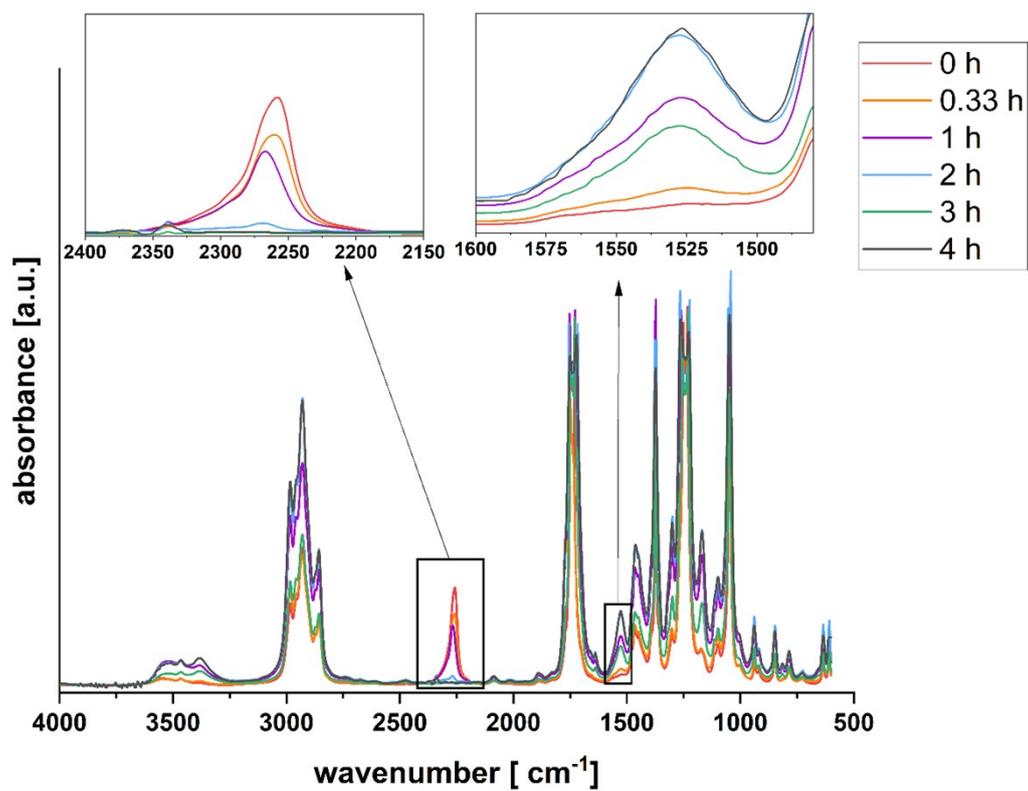


Figure S5 Progress of the reaction with use of 1 mol% of catalyst

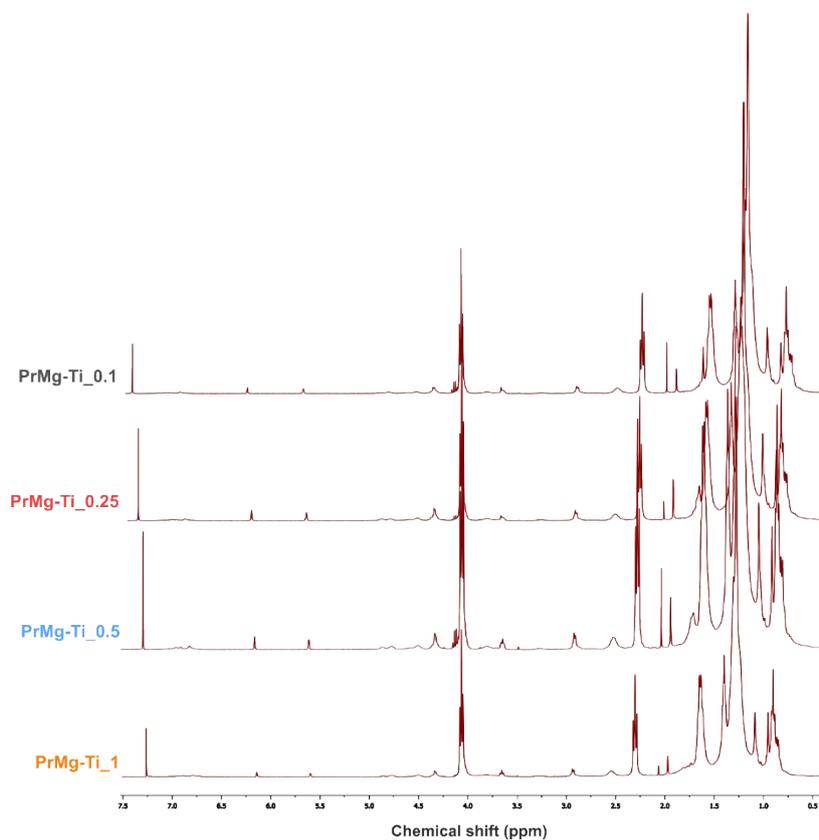


Figure S6 ^1H NMR of all macromonomers obtained with use of different catalyst concentrations.

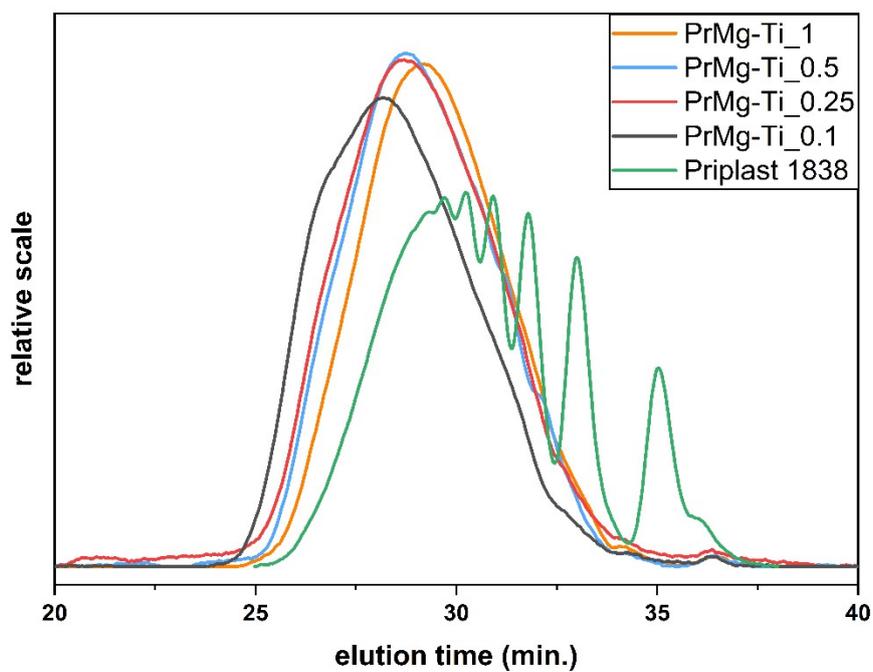


Figure S7 GPC traces of the materials obtained with use of different catalyst concentrations.

Table S1 Degree of acrylation

Catalyst concentration (mol%)	$\delta_{u,w}$ (1H)	δ_a (4H)	Degree of Acrylation
0.10	3.40	100	0.136
0.25	3.10	100	0.124
0.50	4.89	100	0.196
0.75	2.54	100	0.102
1.00	2.04	100	0.082

Table S2 DSC results

Material	T_g [°C]	ΔC_p [J/g·°C]
PrMg-Ti_0.1	-51.6	0.331
PrMg-Ti_0.25	-50.3	0.360
PrMg-Ti_0.5	-51.9	0.399
PrMg-Ti_1	-51.0	0.346

Table S3 Gel fraction (G_f) of photocured polymer networks in air and in argon

Material	Gel fraction [%]	
	Cured in air	Cured in argon
PrMg-Ti_0.1	65±3	66±4
PrMg-Ti_0.25	57±2	60±1
PrMg-Ti_0.5	75±1	76±2
PrMg-Ti_1	45±2	48±2

Table S4 Swelling test results of obtained thin films

Material	Swelling [%]	
	Cured in air	Cured in argon
PrMg-Ti_0.1	435±23	353±3
PrMg-Ti_0.25	503±10	450±5
PrMg-Ti_0.5	382±8	308±3
PrMg-T_1	488±7	434±10

Table S5 DMTA results

Material	Curing atmosphere	T _g (E'' _{max}) [°C]	T _g (tan δ _{max}) [°C]	E' at 37 °C [MPa]	E'' at 37°C [MPa]	Tan δ at 37 °C [MPa]
PrMg-Ti	Air	-36.9	-28.1	0.078	0.014	0.14
_0.1	Argon	-35.6	-26.0	0.200	0.067	0.330
PrMg-Ti	Air	-33.2	-21.8	0.064	0.021	0.21
_0.25	Argon	-36.6	-28.3	0.450	0.134	0.296
PrMg-Ti	Air	-38.9	-30.4	0.045	0.022	0.022
_0.5	Argon	-39.7	-31.5	0.058	0.031	0.525
PrMg-Ti_1	Air	-38.5	-28.3	0.049	0.014	0.14
	argon	-38.6	-29.5	0.017	-	-

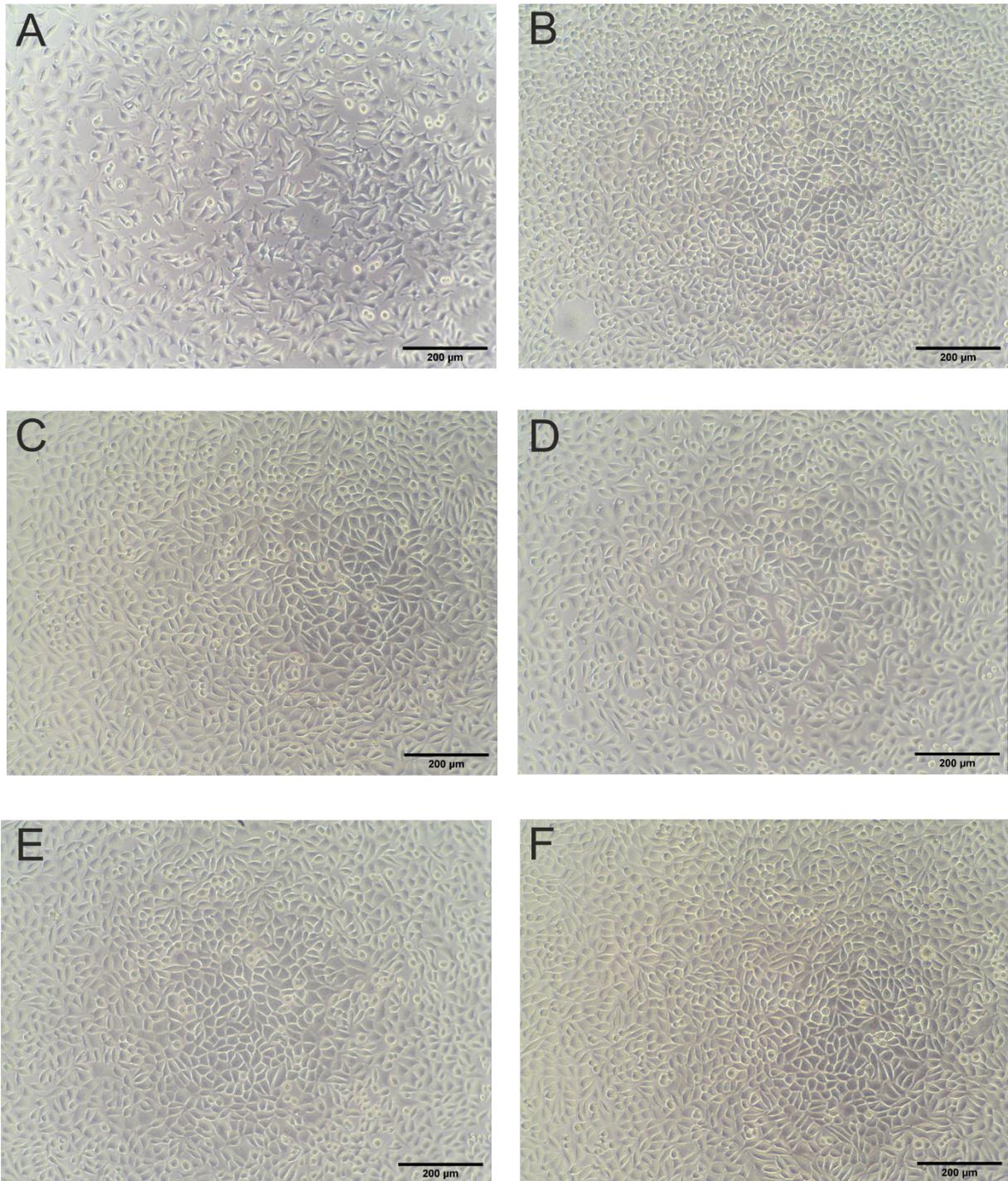


Figure S8 Representative photomicrographs of L929 cells. A) 24 hours after seeding; B) after 24 hours of culture with sham extract; C) after 24 hours of culture with extract of PrMg-Ti_0.1; D) after 24 hours of culture with extract of PrMg-Ti_0.25; E) after 24 hours of culture with PrMg-Ti_0.5; F) after 24 hours of culture with extract of PrMg-Ti_1. All materials were crosslinked in air atmosphere. Scale bars represent 200 μm .