

Exploring the Effect of Resins of Different Origin on the Structure, Dynamics and Curing Characteristics of SBR Compounds

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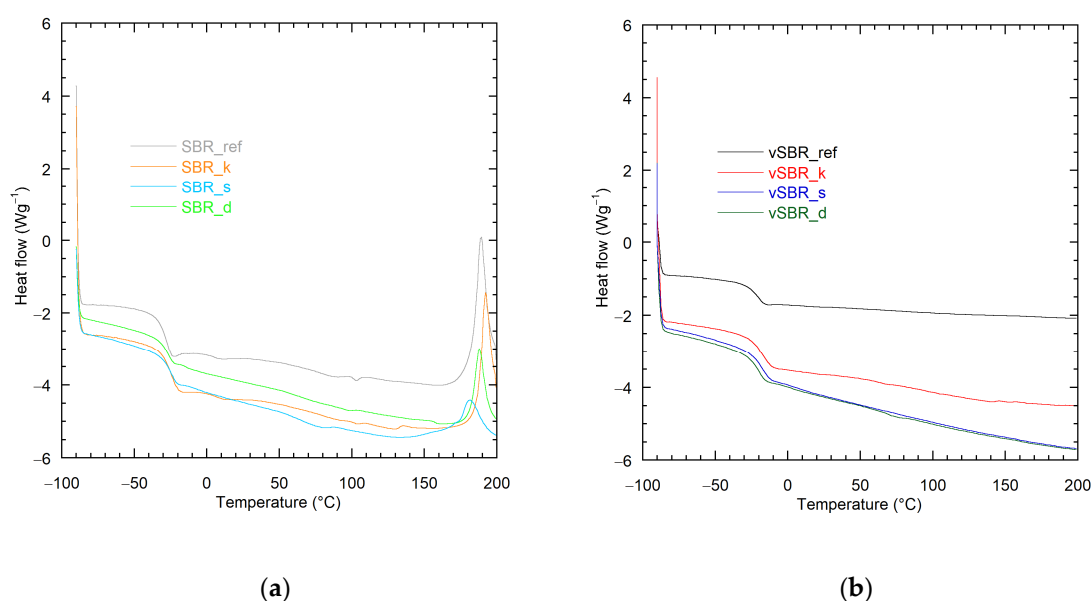


Figure S1. DSC curves of the investigated uncured (a) and cured (b) samples.

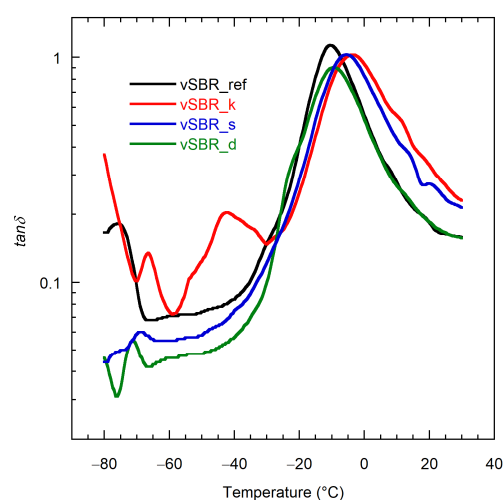


Figure S2. DMA temperature sweep curves of cured samples.

Table S1. Modulus at 10, 20, 50, 100, 200 and 300% of elongation (M10, M20, M50, M100, M200 and M300), tensile strength at break (TS_b), elongation at break (E_b) and stored energy density at rupture (SEDR) of cured samples.

	M10 (MPa)	M20 (MPa)	M50 (MPa)	M100 (MPa)	M200 (MPa)	M300 (MPa)	TS_b (MPa)	E_b (%)	SEDR (MJ/m ³)
vSBR_ref	0.4	0.58	1.01	1.95	5.99	11.53	17	394	26.86
vSBR_k	0.37	0.53	0.9	1.68	4.77	9.29	17.97	467	33.48
vSBR_d	0.57	0.72	1.06	1.64	3.53	6.21	18.6	616	44.35
vSBR_s	0.38	0.51	0.79	1.27	3.18	6.35	18.17	562	38.5

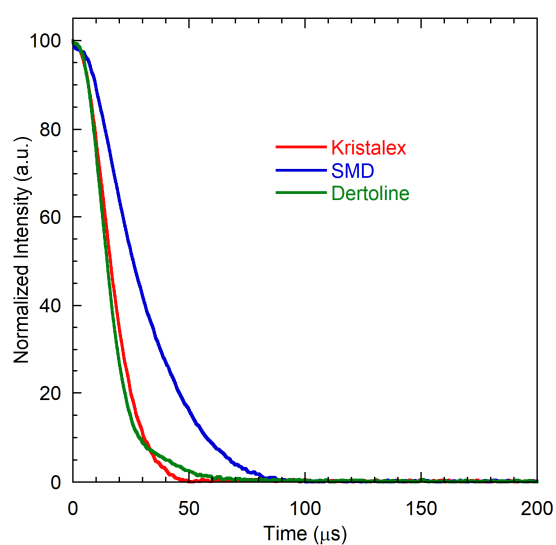


Figure S3. ¹H FIDs of the indicated resins at 303 K.

Table S2. Best fit parameters obtained by a biexponential fitting of the experimental ^1H $T_{1\rho}$ recovery curves of the pure resins and SBR compounds at different temperatures (T , K). For each exponential component, the corresponding weight (W_i , %) and $T_{1\rho}$ ($T_{1\rho,i}$, ms) values found from the fitting are reported.

Sample	T	W_a	W_b	$T_{1\rho,a}$	$T_{1\rho,b}$
vSBR_ref	293	89	11	0.6	4.9
	303	83	17	0.7	4.4
	313	73	27	0.9	5.0
	323	64	36	1.3	6.6
	333	53	47	1.7	8.7
	343	43	57	2.3	11.0
vSBR_k	293	90	10	0.6	5.7
	303	87	13	0.6	4.9
	313	79	21	0.7	4.4
	323	70	30	1.0	5.1
	333	60	40	1.3	6.6
	343	50	50	1.6	8.4
vSBR_d	293	86	14	0.6	7.5
	303	83	17	0.7	6.5
	313	77	23	0.9	5.9
	323	67	33	1.1	6.3
	333	56	44	1.5	7.6
	343	45	55	1.8	9.4
vSBR_s	293	85	15	0.6	4.8
	303	82	18	0.7	4.2
	313	75	25	0.8	4.1
	323	68	32	1.0	4.9
	333	59	41	1.4	6.3
	343	50	50	1.7	8.2
Dertoline MG	293	8	92	1.5	16.9
	303	7	93	2.2	18.8
	313	7	93	2.5	20.8
	323	6	94	2.0	22.8
	333	6	94	1.8	24.8
	343	6	94	1.4	25.9
SMD-31144	293	3	97	1.0	33.5
	303	4	96	2.1	35.6
	313	4	96	3.0	37.5
	323	5	95	3.3	38.6
	333	4	96	1.5	37.9
	343	4	96	1.8	37.5
Kristalex™ 5140	293	8	92	1.4	7.7
	303	8	92	1.3	8.1
	313	7	93	1.3	8.3
	323	8	92	1.2	8.3
	333	8	92	1.3	8.3
	343	9	91	1.3	8.2

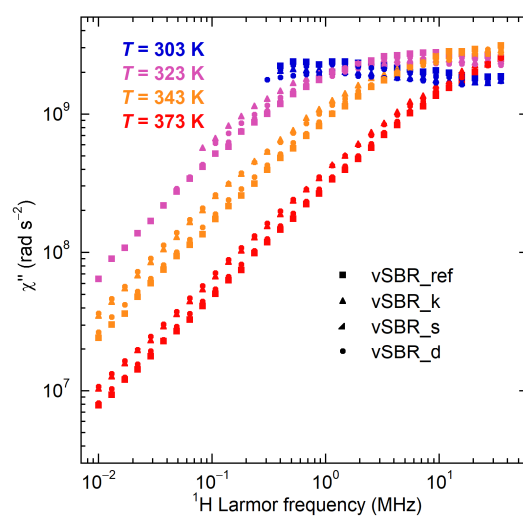


Figure S4. $\chi''(\omega)$ curves at different temperatures of the cured SBR compounds.