Subambient Temperature CO_2 and Light Gas Permeation Through Segmented Block Copolymers with Tailored Soft Phase

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Supporting Information

Table S1: Pure gas permeation properties of PEO-*ran*-PPO-T6T6T block copolymers and several other block copolymers used as a reference at 35°C. SS: soft segment, HS: hard segment, T: terephthalic unit, M_{CRL}: the molecular weight between physical crosslinks in g/mol, T_g: glass transition temperature, T_m: melting temperature and n-P_{CO_2}: soft segment concentration normalized CO_2 permeability.

Sample	SS	HS	T	M_{CRL}	T_g	$T_{m,SS}$	$T_{m,HS}$	Permeability [Barrer]						Selectivity [-]			n-P_{CO_2}
	[wt.%]	[wt.%]	[wt.%]	[g/mol]	[°C]	[°C]	[°C]	CO_2	He	H_2	O_2	N_2	CH_4	CO_2/H_2	CO_2/N_2	CO_2/CH_4	[Barrer]
PEO-*ran*-PPO_{1000}-T6T6T	61.6	38.4	-	935	-53	-	183	123	11	17	8	3	9	7	46	13	200
PEO-*ran*-PPO_{2500}-T6T6T	80.0	20.0	-	2337	-63	-13	163	348	19	35	19	8	26	10	45	13	435
(PEO-*ran*-PPO_{2500}/T)$_{3750}$-T6T6T	85.1	14.2	0.7	3505	-59	-5	151	440	24	43	25	10	38	10	44	12	516
(PEO-*ran*-PPO_{2500}/T)$_{5000}$-T6T6T	85.8	11.0	3.2	4674	-60	-6	147	448	25	44	25	11	35	10	43	13	522
(PEO-*ran*-PPO_{2500}/T)$_{7500}$-T6T6T	88.2	7.3	4.5	7010	-60	-5	149	442	24	42	25	10	33	11	44	13	502
(PEO-*ran*-PPO_{2500}/T)$_{10000}$-T6T6T	89.3	5.6	5.1	9347	-60	-6	144	470	26	45	27	11	37	10	43	13	526
PEO_{1000}-T6T6T (15)	61.6	38.4	-	1000	-45	-2	195	75	6	10	5	2	6	7	41	14	122
PEO_{2000}-T6T6T (15)	76.2	23.8	-	2000	-48	21	167	180	11	18	8	4	11	10	49	16	236
(PEO_{600}/T)$_{2500}$-T6T6T (15)	69.0	20.0	11.0	2500	-44	-6	187	121	9	15	6	2	7	8	50	17	175
(PEO_{600}/T)$_{5000}$-T6T6T (15)	74.8	11.1	14.1	5000	-43	-3	171	174	12	19	9	3	10	9	53	17	235
PPO_{4200}-T6T6T	87.4	12.6	-		-66	-	na	640	60	102	65	27	87	6	24	7	732
PEO_{2000}/PPO_{2200}-TΦT (75/25) (16)	87.2	12.8	-		-45	32	96	178	14	22	10	4	14	8	45	14	204