Supporting Information for

Supercooling Behavior in the Melt Crystallization Process of Ammonium Dinitramide (ADN) and Corresponding Regulation Strategy

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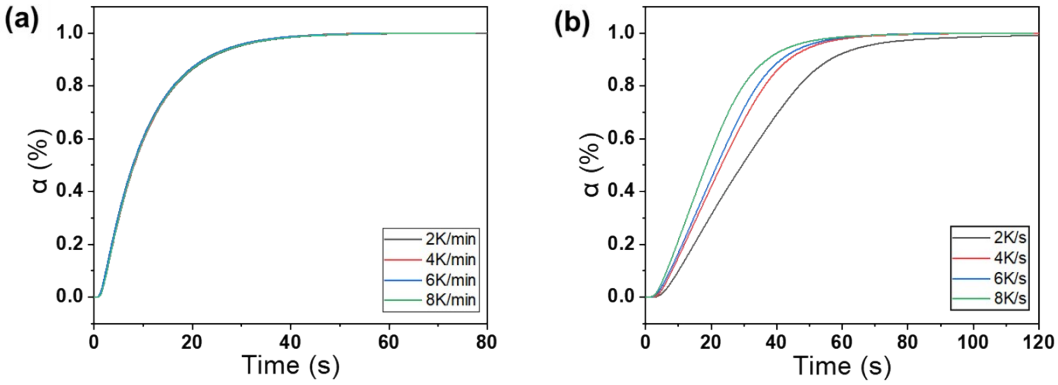

Figure S1. (a)α-time curves of ADN; (b) α-time curves of ADN-5%TKX-50;

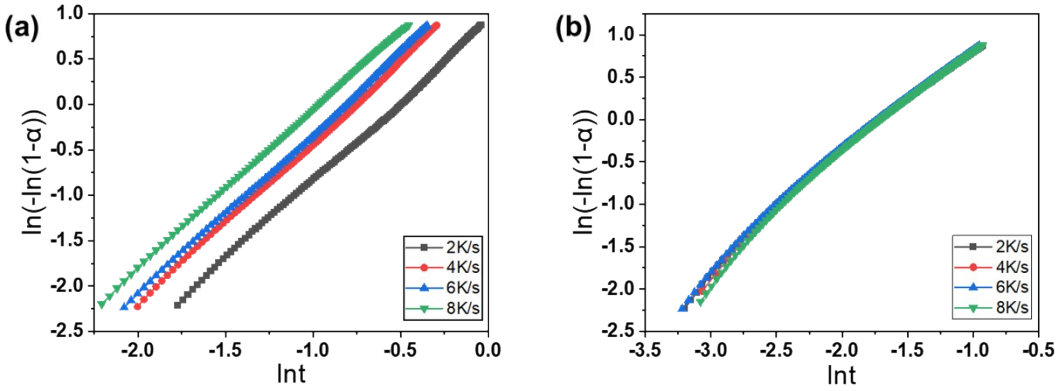

Figure S2. (a) lnt-ln(-ln(1-α)) curves of ADN; (b) lnt-ln(-ln(1-α)) curves of ADN-5%TKX-50;

Table S1. Change in mass of ADN at 20 °C and 60% RH

Time/h	ADN Percentage change in mass/%			Average value/N	Standard deviation/N
	1	**2**	**3**		
0	1.08	1.10	1.14	1.11	0.02
1	1.65	1.61	1.71	1.66	0.04
2	2.87	2.79	2.82	2.83	0.03
4	3.35	3.32	3.40	3.36	0.03
6	4.22	4.18	4.24	4.21	0.02
8	1.08	1.10	1.14	1.11	0.02

Table S2. Change in mass of ADN-TKX-50 at 20 °C and 60% RH

Time/h	ADN-5%TKX-50 Percentage change in mass/%			Average value/N	Standard deviation/N
	1	**2**	**3**		
0	1.01	1.00	1.04	1.02	0.02
1	1.44	1.46	1.49	1.46	0.02
2	2.32	2.35	2.37	2.35	0.02
4	2.83	2.79	2.84	2.82	0.02
6	3.44	3.38	3.42	3.41	0.02
8	1.01	1.00	1.04	1.02	0.02

Table S3. Crushing pressure and Particle diameter of ADN and ADN-5%TKX-50

Particle diameter/μm	Samples	Crushing pressure/N										Average value/N	Standard deviation/N
		1	2	3	4	5	6	7	8	9	10		
200	ADN	5.4	5.0	4.8	4.7	4.6	4.5	5.1	4.8	5.3	4.7	4.9	0.3
	ADN-TKX-50	6.5	6.3	6.1	5.8	6.4	6.3	6	6.4	6.2	5.9	6.2	0.2
400	ADN	3	3.4	3.1	3.2	3.7	3.6	3.9	3.3	3.1	3.9	3.4	0.3
	ADN-TKX-50	3.9	4.5	4	4.1	4.3	4.5	4.3	3.9	4.4	4.2	4.2	0.2
600	ADN	2.3	2	2.6	2.1	2.5	1.8	1.7	2.2	1.9	2.6	2.2	0.3
	ADN-TKX-50	2.8	2.9	2.2	2.3	3.2	2.2	3	2.2	3.2	2.8	2.7	0.4

Table S4. Macroscopic parameters of ADN melt crystallization in different systems (cooling rate: 4°C • min^{-1})

Samples	Mass fraction of additive	crystallization onset temperature （°C）	crystallization end temperature （°C）	ΔT（°C）	crystallization enthalpy J/g
纯 ADN	0%	25.5	20.5	66.5	131.2
ADN-x%TKX-50	1%	82.0	77.2	10	133.8
	5%	84.5	81.1	7.5	147.3
	10%	85.6	81.3	6.4	144.4
	20%	86.1	81.6	5.9	144.5

Table S5. Avrami exponent(n) and lnZ of crystallization for ADN and ADN-5%TKX-50

Samples	Cooling rates (°C • min^{-1})	Crystallization onset temperature (°C)	Crystallization enthalpy (J/g)	n	lnZ
ADN	2	27.98	131.94	2.11	1.26
	4	27.17	132.49	2.15	1.28
	6	25.11	130.02	2.15	1.27
	8	22.68	130.50	2.15	1.29
	Average value	-	-	2.14	1.28
ADN-5% TKX-50	2	86.34	149.61	0.90	1.73
	4	84.55	149.67	1.36	1.78
	6	83.97	151.88	1.47	1.78
	8	83.15	150.71	1.68	1.74
	Average value			1.35	1.76