



Research article

Experimental thermal-stability evaluation of polyester/silica aerogel composites for building insulation at elevated temperature

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Supplementary

Table S1. Polyester/silica composite (silica 1 wt.%).

Parameter	Value	Parameter	Value		
Beaker weight	34.55 g	Polyester	15.00 g		
Silica	0.15 g	MEKP	0.07 g		
Cobalt	0.04–0.05 g	Curing starting time	11:07 AM		
Hot-plate curing temperature	120 °C	Initial surface temperature, Ts	19 °C		
Serial No.	Time	Ts (°C)	Serial No.	Time	Ts (°C)
1	11:08 AM	25	9	11:16 AM	83
2	11:09 AM	35	10	11:17 AM	78
3	11:10 AM	63	11	11:18 AM	76
4	11:11 AM	82	12	11:19 AM	77
5	11:12 AM	94	13	11:20 AM	77
6	11:13 AM	86	14	11:21 AM	72
7	11:14 AM	94	15	11:22 AM	74
8	11:15 AM	89	16	11:23 AM	73

Note: Ts denotes surface temperature; MEKP denotes methyl ethyl ketone peroxide. “Serial No.” is used instead of “Sr#” for clarity.

Table S2. Polyester/silica composite (silica 2 wt.%).

Parameter	Value	Parameter	Value		
Beaker weight	34.55 g	Polyester	15.00 g		
Silica	0.30 g	MEKP	0.07 g		
Cobalt	0.04–0.05 g	Curing starting time	10:07 AM		
Hot-plate curing temperature	120 °C	Initial surface temperature, Ts	21 °C		
Serial No.	Time	Ts (°C)	Serial No.	Time	Ts (°C)
1	10:08 AM	26	10	10:17 AM	76
2	10:09 AM	39	11	10:18 AM	75
3	10:10 AM	67	12	10:19 AM	78
4	10:11 AM	88	13	10:20 AM	77
5	10:12 AM	97	14	10:21 AM	74
6	10:13 AM	83	15	10:22 AM	72
7	10:14 AM	96	16	10:23 AM	68
8	10:15 AM	88	17	10:24 AM	65
9	10:16 AM	82	18	10:25 AM	61

Table S3. Polyester/silica composite (silica 3 wt.%).

Parameter	Value	Parameter	Value
Beaker weight	34.76 g	Polyester	15.00 g
Silica	0.45 g	MEKP	0.07 g
Cobalt	0.04–0.05 g	Curing starting time	09:07 AM
Hot-plate curing temperature	120 °C	Initial surface temperature, Ts	27 °C

Serial No.	Time	Ts (°C)	Serial No.	Time	Ts (°C)
1	09:08 AM	30	9	09:16 AM	83
2	09:09 AM	42	10	09:17 AM	78
3	09:10 AM	74	11	09:18 AM	76
4	09:11 AM	93	12	09:19 AM	74
5	09:12 AM	102	13	09:20 AM	72
6	09:13 AM	98	14	09:21 AM	67
7	09:14 AM	93	15	09:22 AM	63
8	09:15 AM	89	16	09:23 AM	61

Table S4. Polyester/silica composite (silica 4 wt.%).

Parameter	Value	Parameter	Value
Beaker weight	34.79 g	Polyester	15.00 g
Silica	0.60 g	MEKP	0.07 g
Cobalt	0.05 g	Curing starting time	03:04 PM
Hot-plate curing temperature	120 °C	Initial surface temperature, Ts	20 °C

Serial No.	Time	Ts (°C)	Serial No.	Time	Ts (°C)
1	03:05 PM	21	9	03:13 PM	93
2	03:06 PM	34	10	03:14 PM	83
3	03:07 PM	37	11	03:15 PM	80
4	03:08 PM	40	12	03:16 PM	78
5	03:09 PM	43	13	03:17 PM	75
6	03:10 PM	56	14	03:18 PM	74
7	03:11 PM	82	15	03:19 PM	74
8	03:12 PM	87	16	03:20 PM	73

Table S5. Polyester/silica composite (silica 5 wt.%).

Parameter	Value	Parameter	Value
Beaker weight	34.46 g	Polyester	15.00 g
Silica	0.75 g	MEKP	0.07 g
Cobalt	0.04 g	Curing starting time	12:04 PM
Hot-plate curing temperature	120 °C	Initial surface temperature, Ts	18 °C

Serial No.	Time	Ts (°C)	Serial No.	Time	Ts (°C)
1	12:05 PM	32	8	12:12 PM	109
2	12:06 PM	37	9	12:13 PM	103
3	12:07 PM	45	10	12:14 PM	94
4	12:08 PM	72	11	12:15 PM	89
5	12:09 PM	95	12	12:16 PM	84
6	12:10 PM	103	13	12:17 PM	83
7	12:11 PM	107	14	12:18 PM	83



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