Thermal conductivity of pure silica MEL(Socony Mobile-eleven) and MFI(Socony Mobile-five) zeolite thin films

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Measurement method: 3ω method

Temperature: room temperature

Matrix phase: MFI and MEL zeolite

Validation: Si wafer and dense SiO_2 thin films at room temperature (thermal conductivity averaged over eight repeated experiments)

Sample	Structure	Second Stage	MEL Particle Size		Yield		Porosity		Total Pore	Micropore	BET Surface	Micropore	Thickness	Relative Crystalinity		Thermal Conductivity	
No.		Duration (h)	(nm)	Uncertainty	(%)	Uncertainty	(%)	Uncertainty	Vol. (cm^3/g)	Vol. (cm^3/g)	Area (m^2/g)	Area (m^2/g)	(nm)	(%)	Uncertainty	k (W/m K)	Uncertainty
1	MFI	…	…	…	…	…	33	± 2	0.19	0.190	457	457	320	100	± 2	0.93	± 0.05
2	MFI	…	…	…	…	…	33	± 2	0.19	0.190	457	457	350	100	± 2	1.03	± 0.04
3	MFI	…	…	…	…	…	33	± 2	0.19	0.190	457	457	310	100	± 2	1.12	± 0.02
4	MFI	…	…	…	…	…	33	± 2	0.19	0.190	457	457	310	100	± 2	0.99	± 0.01
5	MEL	15	55	± 1	16	± 1	40	± 2	0.60	0.033	691	86	350	23	± 2	1.05	± 0.10
6	MEL	15	55	± 1	16	± 1	40	± 2	0.60	0.033	691	86	330	23	± 2	0.80	± 0.03
7	MEL	15	55	± 1	16	± 1	40	± 2	0.60	0.033	691	86	370	23	± 2	1.09	± 0.07
8	MEL	18	60	± 1	20	± 1	45	± 2	0.70	0.048	750	119	310	33	± 2	1.02	± 0.06
9	MEL	18	60	± 1	20	± 1	45	± 2	0.70	0.048	750	119	300	33	± 2	0.87	± 0.06
10	MEL	18	60	± 1	20	± 1	45	± 2	0.70	0.048	750	119	300	33	± 2	1.17	± 0.03
11	MEL	21	70	± 1	38	± 1	58	± 2	0.80	0.060	852	143	280	44	± 2	1.01	± 0.07
12	MEL	21	70	± 1	38	± 1	58	± 2	0.80	0.060	852	143	280	44	± 2	1.07	± 0.05
13	MEL	21	70	± 1	38	± 1	58	± 2	0.80	0.060	852	143	270	44	± 2	1.01	± 0.07
14	MEL	21	70	± 1	38	± 1	58	± 2	0.80	0.060	852	143	270	44	± 2	1.06	± 0.00
15	MEL	24	80	± 1	55	± 1	59	± 2	0.83	0.068	889	149	330	47	± 2	0.99	± 0.02
16	MEL	24	80	± 1	55	± 1	59	± 2	0.83	0.068	889	149	390	47	± 2	0.95	± 0.02
17	MEL	24	80	± 1	55	± 1	59	± 2	0.83	0.068	889	149	310	47	± 2	0.91	± 0.02

green means: From Flanigen *et al.* Ref. 22

red means: From Tnag *et al.* Ref. 23

blue means: From Li *et al.* Ref. 6