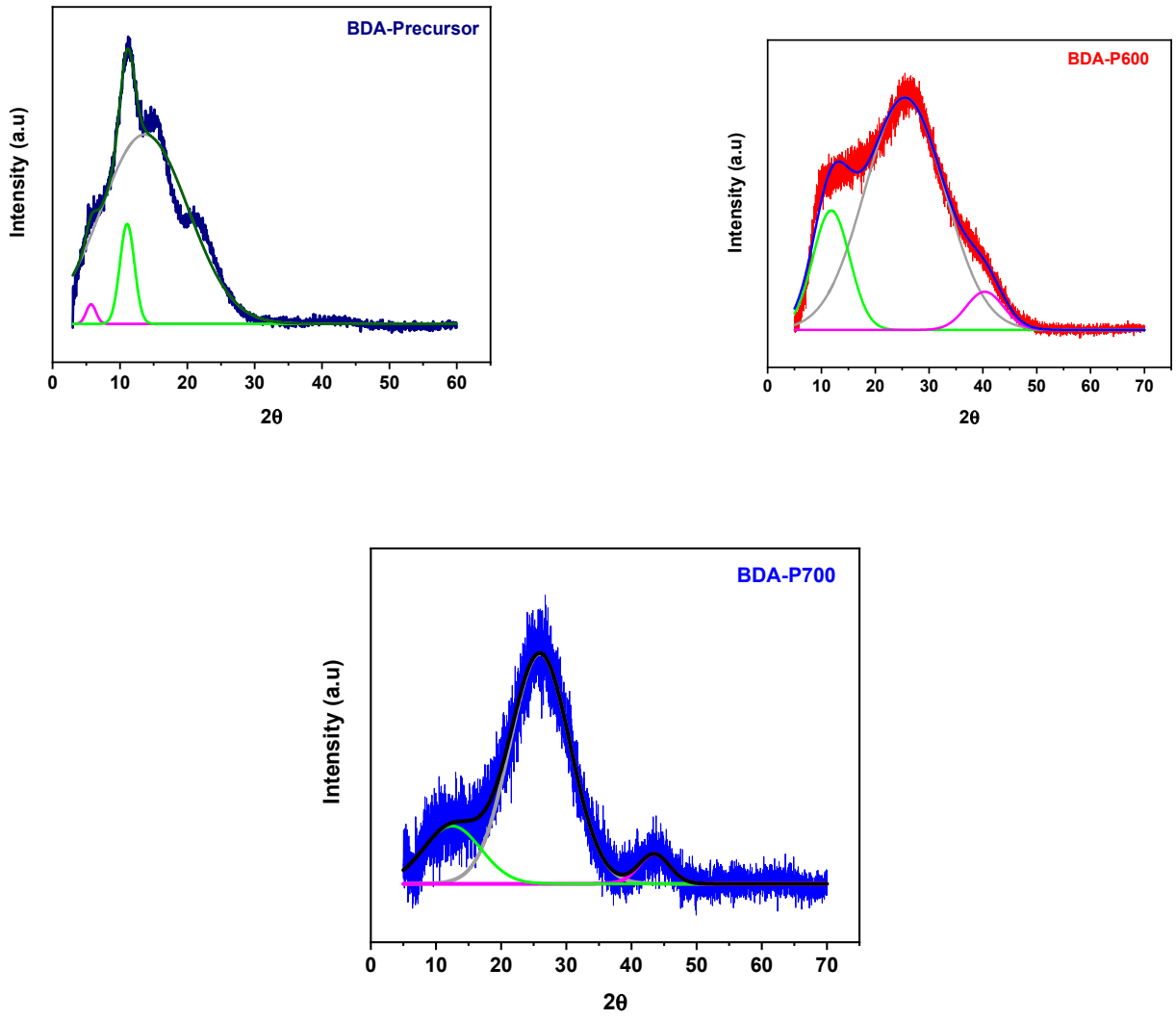


Figure S1. WAXD spectrum deconvolution of BDA Precursor, BDA-P600 and BDA-P700.

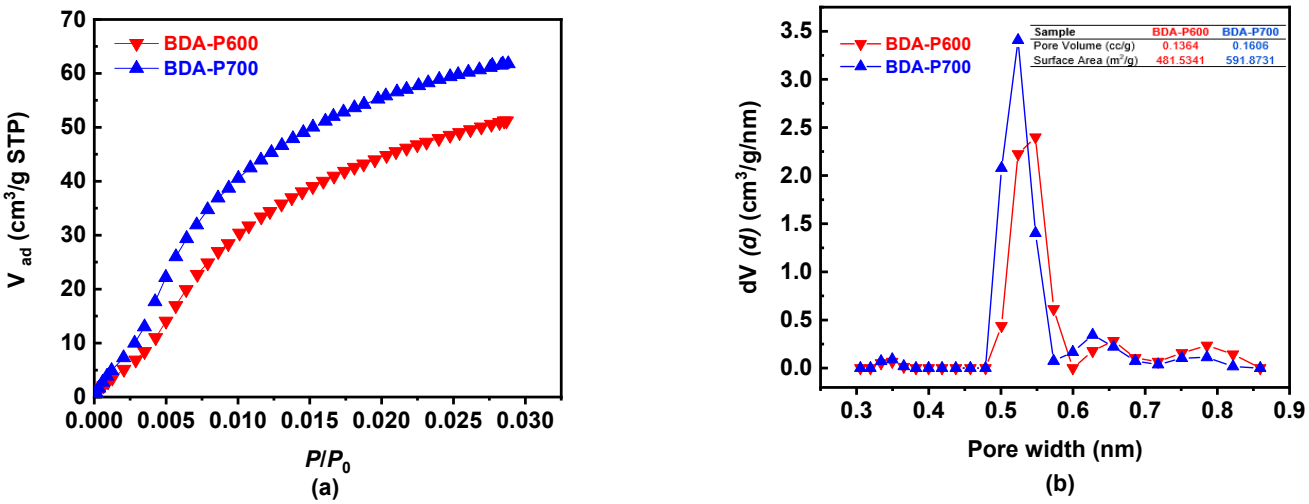


Figure S2. BDA-P600 and BDA-P700 (a) CO_2 sorption isotherms at 0°C (b) corresponding pore volume and surface area of pores smaller than 7 Å estimated using the NLDFT method.

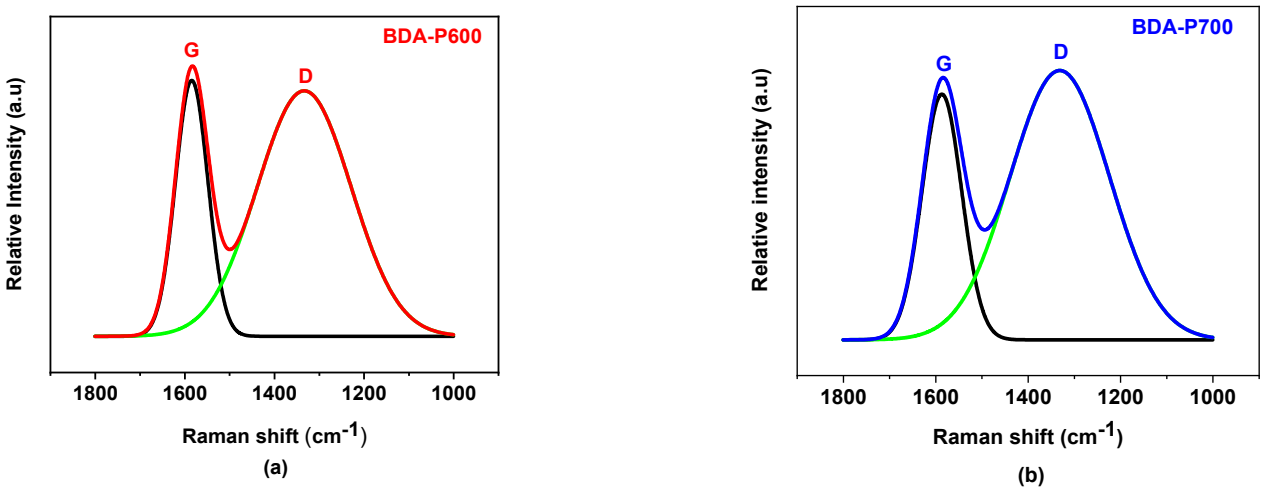


Figure S3. Raman spectrum deconvolution (a) BDA-P600 and (b) BDA-P700.

Table S1. BDA-P 600 CMSM gas Permeability coefficients and gas separation performance between 35 and 55°C and 2 atm.

BDA-P600	Permeability (Barrer)				Ideal Selectivity (α)			
(T °C)	O_2	N_2	CH_4	CO_2	O_2/N_2	CO_2/CH_4	CO_2/N_2	N_2/CH_4
35	68.6	10.7	6.7	266.1	6.4	39.7	25.0	1.6
40	80.4	15.2	9.6	294.1	5.3	30.6	19.3	1.6
45	87.6	17.5	14.1	306.0	5.0	21.7	17.5	1.2
55	93.2	19.0	17.6	324.7	4.9	18.4	17.1	1.1

Table S2. BDA-P700 CMSM gas permeability coefficients and gas separation performance between 35 to 55°C and 2 atm

BDA-P700	Permeability (Barrer)				Ideal Selectivity(α)			
T(°C)	O_2	N_2	CH_4	CO_2	O_2/N_2	CO_2/CH_4	CO_2/N_2	N_2/CH_4
35	66.4	5.9	2.2	180.5	11.3	82.0	30.6	2.7
40	75.6	7.0	2.4	203.9	10.8	85.0	29.1	2.9
45	86.0	8.8	3.6	240.7	9.8	66.8	27.3	2.4
55	110.5	12.4	4.6	307.5	8.9	66.8	24.8	2.7