SUPPLEMENTARY INFORMATION

TABLE SI: Properties of EMA (Ethylene-methyl acrylate copolymer)

Properties	Value
Composition	30 % by weight methyl acrylate comonomer content
Density	0.95 g/cm^3
Melt Flow Rate (190˚C/2.16kg)	3 g/10 min
Melting Point (DSC)	85˚C

TABLE S2: Composition of PC/EMA blends

Sample Designation	Polycarbonate (%)	Ethylene-methyl acrylate (%)
PC	100	0
PCE1	99	1
PCE3	97	3
PCE5	95	5
PCE10	90	10
PCE20	80	20
PCE30	70	30

TABLE S3: Temperature profile

Zone 1	Zone 2	Zone 3	Zone 4	Zone 5
140°C	200°C	230°C	240°C	250°C

Zone 6	Zone 7	Zone 8	Zone 9	Die
255°C	260°C	265°C	270°C	270°C

TABLE S4: Mechanical properties of PC/EMA blends

| Sample Designation	Composition PC/EMA (wt%)	Tensile Strength at yield (MPa)	Tensile Modulus (MPa)	Elongation at Break (%)	Izod Impact Strength (J/m)
PC	100	45.2±0.7	236.53±12.01	30.70±3.3	68.49±3.0
PCE1	99/1	43.3±1.3	224.32±12.9	33.56±3.5	195.03±4.6
PCE3	97/3	42.1±1.5	213.23±14.8	37.91±9.9	318.73±7.1
PCE5	95/5	40.6±1.4	193.36±12.7	43.45±12.2	329.11±10.0
PCE10	90/10	34.6±2.4	181.60±13.0	98.72±18.4	334.93±12.6
PCE20	80/20	27.9±1.9	169.48±12.5	101.62±11.1	338.30±16.1
PCE30	70/30	21.3±1.0	146.41±13.2	103.46±11.1	377.80±26.2
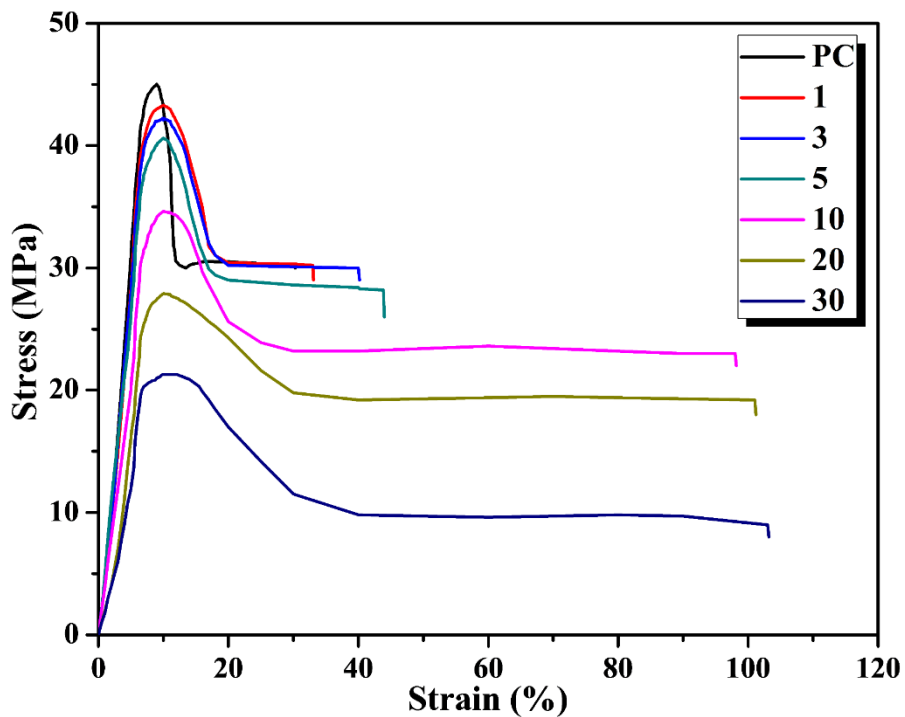
Fig. S1 Stress-Strain curves of PC, 1-30wt% PC/EMA blends.

TABLE S5: Morphological Parameters from SEM analysis

Sample Designation	Number-average diameter of domain D_n (μm)	Weight-average diameter of domain D_w (μm)
PCE1	0.103	0.107
PCE3	0.121	0.143
PCE5	0.138	0.192
PCE10	0.214	0.478
PCE20	0.409	0.834

TABLE S6: Values of Stress-concentration Parameters (S, S' and K_b) in PC/EMA blends

Sample Designation	wt% EMA	Volume Fraction of EMA (ϕ_1)	S	S'	K_b
PC	0	0	0	0	0
PCE1	1	0.01	0.969	1.021	0.862
PCE3	3	0.03	0.959	1.057	0.725
PCE5	5	0.06	0.957	1.071	0.652
PCE10	10	0.11	0.854	1.013	1.045
PCE20	20	0.24	0.816	1.016	0.984
PCE30	30	0.34	0.712	0.94	1.088
Mean	--	--	0.878	1.02	0.893

Melt Flow Index (MFI)

Melt flow index of neat PC, neat EMA and different compositions of PC/EMA blend measured by ASTM D1238 standard. The melt flow behaviour of neat PC, neat EMA and PC/EMA blends of different compositions are evaluated and represented in Fig. S2.
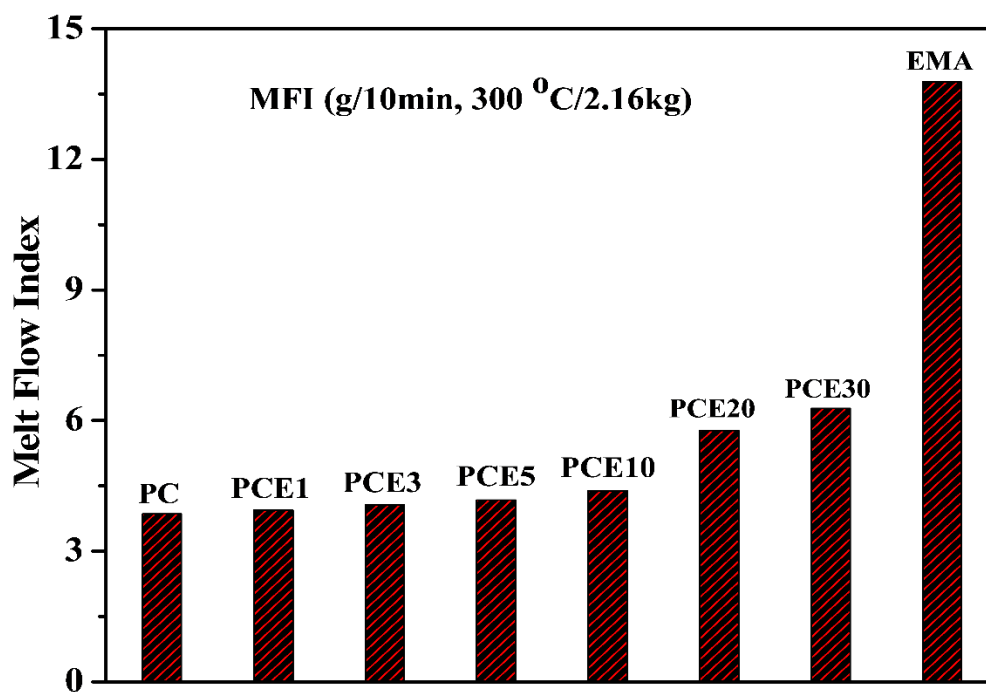

Fig. S2 MFI measurement of PC, 1-30wt% PC/EMA blends and EMA.

Incorporation of EMA in PC results in a decreased ratio of plastic to rubbery phase. The addition of EMA in PC matrix increased the flow rate. As expected the MFI values of PC/EMA blends increased with increasing in percentage of EMA in polymer blend. MFI was also calculated from the rule of mixture and there is a good agreement between experimental and theoretical values.