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APPENDICES

Appendix A Uncompatibilized PC/PMMA Alloys

Table A1 The processing condition of twin screw extruder for uncompatibilized PC/PMMA alloys

Formulas	Temperature (°C)										Screw speed (rpm)
	Z1	Z2	Z3	Z4	Z5	Z6	Z7	Z8	Z9	Die	
PC90	255	260	270	265	265	265	270	270	270	270	20
PC80	245	250	260	255	255	255	260	260	260	260	20
PC70	240	245	255	250	250	250	255	255	255	255	20
PC60	230	235	245	240	240	240	245	245	245	245	20
PC50	225	230	240	235	235	235	240	240	240	240	20
PC10	100	225	235	240	245	245	245	250	250	250	20

Table A2 The processing condition of injection molding for PC, PMMA and uncompatibilized PC/PMMA alloys

Formulas	Temperature (°C)					Injection Pressure (kg/cm^2)	T_{mold} (°C)
	Z1	Z2	Z3	Z4	nozzle		
PC	245	250	255	260	265	1200	110
PC90	245	250	255	260	265	1200	70
PC80	240	245	250	255	260	1200	70
PC70	240	240	245	250	255	1200	70
PC60	235	235	240	240	245	1200	70
PC50	230	230	235	240	240	1200	70
PMMA	200	210	220	225	230	1220	60

Table A3 The Melt Flow Index of PC, PMMA and uncompatibilized PC/PMMA alloys

Formulas	MFI (g/10min)
PC	3.03±0.01
PC90	3.43±0.03
PC80	3.70±0.14
PC70	3.82±0.38
PC60	6.88±0.10
PC50	6.07±0.18
PMMA	7.44±0.43

Table A4 DSC results of PC, PMMA and uncompatibilized PC/PMMA alloys

Formulas	$T_{g,PC}$ (°C)	$T_{g,PMMA}$ (°C)
PC	139.1	-
PC90	133.0	-
PC80	129.4	-
PC70	130.8	107.8
PC60	132.0	109.9
PC50	139.3	112.3
PMMA	-	107.1

Table A5 TGA results of PC, PMMA and uncompatibilized PC/PMMA alloys

Formulas	T_d (°C)	Weight loss (%)
PC	504.5	78.9
PC90	374.8	85.8
PC80	357.5	88.3
PC70	362.7	86.0
PC60	361.0	87.0
PC50	359.8	89.9
PMMA	356.5	98.8

Table A6 DMA results of PC, PMMA and uncompatibilized PC/PMMA alloys

Formulas	$T_{g,PC}$ (°C)	$T_{g,PMMA}$ (°C)
PC	156.6	-
PC90	153.6	-
PC80	155.6	-
PC70	155.6	
PC60	153.2	
PC50	152.9	
PMMA	-	124.7

Table A7 Tensile testing results of PC, PMMA and uncompatibilized PC/PMMA alloys

Formulas	Tensile Strength at yield (MPa)	Elongation at yield (%)	Modulus (MPa)
PC	62.0±0.34	6.4±0.07	2573±208
PC90	69.3±0.37	6.8±0.09	3158±83
PC80	71.0±0.34	8.5±2.35	2565±224
PC70	72.7±0.72	6.7±0.11	2725±146
PC60	75.8±0.44	6.5±0.08	3052±310
PC50	75.6±0.86	6.4±0.11	2981±63
PMMA	68.7±5.47	3.3±0.64	4352±325

Table A8 Flexural testing results of PC, PMMA and uncompatibilized PC/PMMA alloys

Formulas	Flexural Strength (MPa)	Flexural Modulus (MPa)
PC	93.4±0.50	2483±24
PC90	95.8±4.33	2471±162
PC80	104.4±1.26	2744±48
PC70	104.7±0.90	2750±42
PC60	108.2±0.88	2839±26
PC50	108.5±2.17	2847±80
PMMA	85.6±13.20	2492±237

Table A9 Notched izod impact testing results of PC, PMMA and uncompatibilized PC/PMMA alloys

Formulas	Notched Izod Impact Strength (kJ/m^2)
PC	80.56±1.85
PC90	24.78±0.88
PC80	14.04±1.85
PC70	10.02±0.79
PC60	6.86±1.06
PC50	6.70±0.54
PMMA	5.08±0.38

Appendix B PC/PMMA Alloys with EMAA

Table B1 The processing condition of twin screw extruder for PC/PMMA alloys with EMAA

Formulas	Temperature (°C)										Screw speed (rpm)
	Z1	Z2	Z3	Z4	Z5	Z6	Z7	Z8	Z9	Die	
PC80EMAA0.5	245	250	260	255	255	255	260	260	260	260	20
PC80EMAA1	245	250	260	255	255	255	260	260	260	260	20
PC80EMAA1.5	245	250	260	255	255	255	260	260	260	260	20
PC50EMAA0.5	225	230	240	235	235	235	240	240	240	240	20
PC50EMAA1	225	230	240	235	235	235	240	240	240	240	20
PC50EMAA1.5	225	230	240	235	235	235	240	240	240	240	20

Table B2 The processing condition of injection molding for PC/PMMA alloys with EMAA

Formulas	Temperature (°C)					Injection Pressure (kg/cm^2)	T_{mold} (°C)
	Z1	Z2	Z3	Z4	nozzle		
PC80EMAA0.5	240	245	250	255	260	1200	70
PC80EMAA1	240	245	250	255	260	1200	70
PC80EMAA1.5	240	245	250	255	260	1200	70
PC50EMAA0.5	230	230	235	240	240	1200	70
PC50EMAA1	230	230	235	240	240	1200	70
PC50EMAA1.5	230	230	235	240	240	1200	70

Table B3 Melt Flow Index of PC/PMMA alloys with EMAA

Formulas	MFI (g/10min)
PC	3.03±0.01
PC80	3.70±0.14
PC80EMAA0.5	11.47±0.81
PC80EMAA1	15.30±0.66
PC80EMAA1.5	18.74±0.21
PC50	6.07±0.18
PC50EMAA0.5	6.72±0.18
PC50EMAA1	9.69±0.69
PC50EMAA1.5	8.89±0.53
PMMA	7.44±0.43

Table B4 DSC results of PC/PMMA alloys with EMAA

Formulas	$T_{g,PC}$ (°C)	$T_{g,PMMA}$ (°C)	$T_{g,\ alloy}$ (°C)
PC	139.1	-	-
PC80	-	-	129.4
PC80EMAA0.5	-	-	121.6
PC80EMAA1	-	-	99.6
PC80EMAA1.5	-	-	104.0
PC50	-	-	139.3, 112.3
PC50EMAA0.5	-	-	94.9
PC50EMAA1	-	-	82.9
PC50EMAA1.5	-	-	94.4
PMMA	-	107.1	-

Table B5 TGA results of PC/PMMA alloys with EMAA

Formulas	T_d (°C)	Weight loss (%)
PC	504.5	78.9
PC80	357.5	88.3
PC80EMAA0.5	358.6	85.4
PC80EMAA1	347.4	88.6
PC80EMAA1.5	353.0	90.5
PC50	359.8	89.9
PC50EMAA0.5	336.1	97.3
PC50EMAA1	332.6	98.4
PC50EMAA1.5	331.9	98.1
PMMA	356.5	98.8

Table B6 DMA results of PC/PMMA alloys with EMAA

Formulas	T_g(°C)
PC	156.6
PC80	156.6
PC80EMAA0.5	154.7
PC80EMAA1	150.4
PC80EMAA1.5	154.3
PC50	152.9
PC50EMAA0.5	150.6
PC50EMAA1	150.9
PC50EMAA1.5	149.9
PMMA	107.1

Table B7 Tensile testing results of PC/PMMA alloys with EMAA

Formulas	Tensile Strength at yield (MPa)	Elongation at yield (%)	Modulus (MPa)
PC	62.0±0.34	6.4±0.07	2573±208
PC80	70.9±0.30	7.4±0.95	2615±224
PC80EMAA0.5	70.4±0.25	6.7±0.15	2625±165
PC80EMAA1	69.8±0.27	6.6±0.07	2751±123
PC80EMAA1.5	68.6±0.30	6.6±0.07	2574±75
PC50	75.6±0.86	6.4±0.11	2981±63
PC50EMAA0.5	78.3±1.76	6.5±0.13	3354±735
PC50EMAA1	78.0±2.16	6.5±0.09	3805±681
PC50EMAA1.5	76.2±2.03	6.0±0.98	3067±304
PMMA	68.7±5.47	3.3±0.64	4352±325

Table B8 Fluxural testing results of PC/PMMA alloys with EMAA

Formulas	Flexural Strength (MPa)	Flexural Modulus (MPa)
PC	93.4±0.50	2483±24
PC80	104.4±1.26	2744±48
PC80EMAA0.5	108.5±1.05	2704±35
PC80EMAA1	106.8±0.82	2711±52
PC80EMAA1.5	105.9±1.23	2679±59
PC50	108.5±2.17	2847±80
PC50EMAA0.5	111.6±0.89	2884±26
PC50EMAA1	111.0±0.65	2872±38
PC50EMAA1.5	108.8±0.75	2837±14
PMMA	85.6±13.20	2492±237

Table B9 Notched izod impact testing results of PC/PMMA alloys with EMAA

Formulas	Notched Izod Impact Strength (kJ/m^2)
PC	80.56±1.85
PC80	14.77±0.66
PC80EMAA0.5	7.64±0.72
PC80EMAA1	11.73±1.70
PC80EMAA1.5	10.53±0.42
PC50	6.70±0.54
PC50EMAA0.5	6.92±0.67
PC50EMAA1	6.71±0.45
PC50EMAA1.5	6.42±0.36
PMMA	5.08±0.38

Appendix C PC/PMMA Alloys with EMA

Table C1 The processing condition of twin screw extruder for PC/PMMA alloys with EMA

Formulas	Temperature (°C)										Screw speed (rpm)
	Z1	Z2	Z3	Z4	Z5	Z6	Z7	Z8	Z9	Die	
PC80EMA1	245	250	260	255	255	255	260	260	260	260	20
PC80EMA5	245	250	260	255	255	255	260	260	260	260	20
PC50EMA1	225	230	240	235	235	235	240	240	240	240	20
PC50EMA5	225	230	240	235	235	235	240	240	240	240	20

Table C2 The processing condition of injection molding for PC/PMMA alloys with EMA

Formulas	Temperature (°C)					Injection Pressure (kg/cm^2)	T_{mold} (°C)
	Z1	Z2	Z3	Z4	nozzle		
PC80EMA1	240	245	250	255	260	1200	70
PC80EMA5	240	245	250	255	260	1200	70
PC50EMA1	230	230	235	240	240	1200	70
PC50EMA5	230	230	235	240	240	1200	70

Table C3 Melt Flow Index of PC/PMMA alloys with EMA

Formulas	MFI (g/10min)
PC	3.03±0.01
PC80	3.70±0.14
PC80EMA1	3.79±0.10
PC80EMA5	3.71±0.09
PC50	6.07±0.18
PC50EMA1	5.03±0.09
PC50EMA5	5.92±0.12
PMMA	7.44±0.43

Table C4 DSC results of PC/PMMA alloys with EMA

Formulas	$T_{g,PC}$ (°C)	$T_{g,PMMA}$ (°C)	$T_{g,alloy}$ (°C)
PC	139.1	-	-
PC80	-	-	129.4
PC80EMA1	-	-	134.1
PC80EMA5	-	-	131.9
PC50	-	-	139.3, 112.3
PC50EMA1	-	-	140.6, 114.2
PC50EMA5	-	-	137.3, 109.4
PMMA	-	107.1	-

Table C5 TGA results of PC/PMMA alloys with EMA

Formulas	T_d (°C)	Weight loss (%)
PC	504.5	78.9
PC80	357.5	88.3
PC80EMA1	369.7	83.2
PC80EMA5	375.0	84.7
PC50	359.8	89.9
PC50EMA1	354.1	94.4
PC50EMA5	354.5	93.4
PMMA	356.5	98.8

Table C6 DMA results of PC/PMMA alloys with EMA

Formulas	T_g(°C)
PC	156.6
PC80	156.6
PC80EMA1	154.7
PC80EMA5	158.8
PC50	152.9
PC50EMA1	155.7
PC50EMA5	156.0
PMMA	107.1

Table C7 Tensile testing results of PC/PMMA alloys with EMA

Formulas	Tensile Strength at yield (MPa)	Elongation at yield (%)	Modulus (MPa)
PC	62.0±0.34	6.4±0.07	2573±208
PC80	70.9±0.30	7.4±0.95	2615±224
PC80EMA1	69.1±0.26	6.7±0.12	2433±106
PC80EMA5	72.2±0.30	7.0±0.15	2458±99
PC50	75.6±0.86	6.4±0.11	2981±63
PC50EMA1	76.0±0.23	6.5±0.15	2840±140
PC50EMA5	70.6±0.25	6.7±0.11	2532±79
PMMA	68.7±5.47	3.3±0.64	4352±325

Table C8 Fluxural testing results of PC/PMMA alloys with EMA

Formulas	Flexural Strength (MPa)	Flexural Modulus (MPa)
PC	93.4±0.50	2483±24
PC80	104.4±1.26	2744±48
PC80EMA1	97.7±0.86	2620±35
PC80EMA5	90.6±0.67	2397±22
PC50	108.5±2.17	2847±80
PC50EMA1	106.7±1.28	2882±47
PC50EMA5	100.1±0.91	2777±29
PMMA	85.6±13.20	2492±237

Table C9 Notched izod impact testing results of PC/PMMA alloys with EMA

Formulas	Notched Izod Impact Strength (kJ/m^2)
PC	80.56±1.85
PC80	14.77±0.66
PC80EMG1	22.63±1.46
PC80EMG3	77.23±2.96
PC50	6.70±0.54
PC50EMA1	7.55±0.38
PC50EMA5	7.57±0.55
PMMA	5.08±0.38

Appendix D PC/PMMA Alloys with EMG

Table D1 The processing condition of twin screw extruder for PC/PMMA alloys with EMG

Formulas	Temperature (°C)										Screw speed (rpm)
	Z1	Z2	Z3	Z4	Z5	Z6	Z7	Z8	Z9	Die	
PC80EMG1	245	250	260	255	255	255	260	260	260	260	20
PC80EMG3	245	250	260	255	255	255	260	260	260	260	20
PC50EMG1	225	230	240	235	235	235	240	240	240	240	20
PC50EMG3	225	230	240	235	235	235	240	240	240	240	20

Table D2 The processing condition of injection molding for PC/PMMA alloys with EMG

Formulas	Temperature (°C)					Injection Pressure (kg/cm^2)	T_{mold} (°C)
	Z1	Z2	Z3	Z4	nozzle		
PC80EMG1	240	245	250	255	260	1200	70
PC80EMG3	240	245	250	255	260	1200	70
PC50EMG1	230	230	235	240	240	1200	70
PC50EMG3	230	230	235	240	240	1200	70

Table D3 Melt Flow Index of PC/PMMA alloys with EMG

Formulas	MFI (g/10min)
PC	3.03±0.01
PC80	3.70±0.14
PC80EMG1	3.33±0.01
PC80EMG3	3.35±0.01
PC50	6.07±0.18
PC50EMG1	5.06±0.02
PC50EMG3	5.29±0.01
PMMA	7.44±0.43

Table D4 DSC results of PC/PMMA alloys with EMG

Formulas	$T_{g,PC}$ (°C)	$T_{g,PMMA}$ (°C)	$T_{g,\ alloy}$ (°C)
PC	139.1	-	-
PC80	-	-	129.4
PC80EMG1	-	-	132.4
PC80EMG3	-	-	134.9
PC50	-	-	139.3, 112.3
PC50EMG1	-	-	130.7, 106.3
PC50EMG3	-	-	130.0, 108.7
PMMA	-	107.1	-

Table D5 TGA results of PC/PMMA alloys with EMG

Formulas	T_d (°C)	Weight loss (%)
PC	504.5	78.9
PC80	357.5	88.3
PC80EMG1	364.7	84.4
PC80EMG3	371.4	83.3
PC50	359.8	89.9
PC50EMG1	361.1	90.8
PC50EMG3	358.9	90.3
PMMA	356.5	98.8

Table D6 DMA results of PC/PMMA alloys with EMG

Formulas	T_g(°C)
PC	156.6
PC80	156.6
PC80EMG1	157.7
PC80EMG3	154.5
PC50	152.9
PC50EMG1	156.6
PC50EMG3	155.6
PMMA	107.1

Table D7 Tensile testing results of PC/PMMA alloys with EMG

Formulas	Tensile Strength at yield (MPa)	Elongation at yield (%)	Modulus (MPa)
PC	62.0±0.34	6.4±0.07	2573±208
PC80	70.9±0.30	7.4±0.95	2615±224
PC80EMG1	69.6±0.31	7.0±0.11	2454±148
PC80EMG3	65.8±0.31	6.9±0.11	2318±107
PC50	75.6±0.86	6.4±0.11	2981±63
PC50EMG1	76.0±0.30	6.7±0.09	2891±95
PC50EMG3	72.6±0.31	6.7±0.09	2694±121
PMMA	68.7±5.47	3.3±0.64	4352±325

Table D8 Fluxural testing results of PC/PMMA alloys with EMG

Formulas	Flexural Strength (MPa)	Flexural Modulus (MPa)
PC	93.4±0.50	2483±24
PC80	104.4±1.26	2744±48
PC80EMG1	102.7±1.11	2660±21
PC80EMG3	94.7±0.96	2377±40
PC50	108.5±2.17	2847±80
PC50EMG1	111.2±1.24	2794±39
PC50EMG3	106.5±1.01	2705±29
PMMA	85.6±13.20	2492±237

Table D9 Notched izod impact testing results of PC/PMMA alloys with EMG

Formulas	Notched Izod Impact Strength (kJ/m^2)
PC	80.56±1.85
PC80	14.77±0.66
PC80EMG1	89.40±6.02
PC80EMG3	67.5±4.05
PC50	6.70±0.54
PC50EMG1	8.38±0.79
PC50EMG3	9.32±0.90
PMMA	5.08±0.38

Appendix E PC/PMMA Alloys with EMAA(Zn)

Table E1 The processing condition of twin screw extruder for PC/PMMA alloys with EMAA(Zn)

Formulas	Temperature (°C)										Screw speed (rpm)
	Z1	Z2	Z3	Z4	Z5	Z6	Z7	Z8	Z9	Die	
PC80EMAA(Zn)0.5	245	250	260	255	255	255	260	260	260	260	20
PC80EMAA(Zn)1	245	250	260	255	255	255	260	260	260	260	20
PC80EMAA(Zn)1.5	245	250	260	255	255	255	260	260	260	260	20
PC50EMAA(Zn)0.5	225	230	240	235	235	235	240	240	240	240	20
PC50EMAA(Zn)1	225	230	240	235	235	235	240	240	240	240	20
PC50EMAA(Zn)1.5	225	230	240	235	235	235	240	240	240	240	20

Table E2 The processing condition of injection molding for PC/PMMA alloys with EMAA(Zn)

Formulas	Temperature (°C)					Injection Pressure (kg/cm^2)	T_{mold} (°C)
	Z1	Z2	Z3	Z4	nozzle		
PC80EMAA(Zn)0.5	240	245	250	255	260	1200	70
PC80EMAA(Zn)1	240	245	250	255	260	1200	70
PC80EMAA(Zn)1.5	240	245	250	255	260	1200	70
PC50EMAA(Zn)0.5	230	230	235	240	240	1200	70
PC50EMAA(Zn)1	230	230	235	240	240	1200	70
PC50EMAA(Zn)1.5	230	230	235	240	240	1200	70

Table E3 Melt Flow Index of PC/PMMA alloys with EMAA(Zn)

Formulas	MFI (g/10min)
PC	3.03±0.01
PC80	3.70±0.14
PC80EMAA(Zn)0.5	3.70±0.01
PC80EMAA(Zn)1	3.90±0.04
PC80EMAA(Zn)1.5	3.90±0.01
PC50	6.07±0.18
PC50EMAA(Zn)0.5	5.40±0.01
PC50EMAA(Zn)1	5.20±0.01
PC50EMAA(Zn)1.5	5.50 ±0.02
PMMA	7.44±0.43

Table E4 DSC results of PC/PMMA alloys with EMAA(Zn)

Formulas	$T_{g,PC}$ (°C)	$T_{g,PMMA}$ (°C)	$T_{g,\ alloy}$ (°C)
PC	139.1	-	-
PC80	-	-	129.4
PC80EMAA(Zn)0.5	-	-	128.3
PC80EMAA(Zn)1	-	-	134.6
PC80EMAA(Zn)1.5	-	-	133.3
PC50	-	-	139.3, 112.3
PC50EMAA(Zn)0.5	-	-	131.5, 107.8
PC50EMAA(Zn)1	-	-	130.3, 108.8
PC50EMAA(Zn)1.5	-	-	133.8, 110.5
PMMA	-	107.1	-

Table E5 TGA results of PC/PMMA alloys with EMAA(Zn)

Formulas	T_d (°C)	Weight loss (%)
PC	504.5	78.9
PC80	357.5	88.3
PC80EMAA(Zn)0.5	373.4	85.3
PC80EMAA(Zn)1	367.3	83.7
PC80EMAA(Zn)1.5	376.2	86.0
PC50	359.8	89.9
PC50EMAA(Zn)0.5	359.6	91.8
PC50EMAA(Zn)1	359.3	93.3
PC50EMAA(Zn)1.5	358.3	95.7
PMMA	356.5	98.8

Table E6 DMA results of PC/PMMA alloys with EMAA(Zn)

Formulas	T_g(°C)
PC	156.6
PC80	156.6
PC80EMAA(Zn)0.5	154.0
PC80EMAA(Zn)1	155.3
PC80EMAA(Zn)1.5	155.4
PC50	152.9
PC50EMAA0.5	154.2
PC50EMAA1	152.5
PC50EMAA1.5	152.0
PMMA	107.1

Table E7 Tensile testing results of PC/PMMA alloys with EMAA(Zn)

Formulas	Tensile Strength at yield (MPa)	Elongation at yield (%)	Modulus (MPa)
PC	62.0±0.34	6.4±0.07	2573±208
PC80	70.9±0.30	7.4±0.95	2615±224
PC80EMAA(Zn)0.5	69.8±0.31	7.0±0.10	2572±74
PC80EMAA(Zn)1	69.4±0.40	7.0±0.09	2498±116
PC80EMAA(Zn)1.5	68.7±0.27	7.0±0.27	2446±102
PC50	75.6±0.86	6.4±0.11	2981±63
PC50EMAA(Zn)0.5	76.7±0.75	6.8±0.12	2998±306
PC50EMAA(Zn)1	76.4±0.29	6.7±0.08	2846±70
PC50EMAA(Zn)1.5	76.1±0.21	6.8±0.17	2826±71
PMMA	68.7±5.47	3.3±0.64	4352±325

Table E8 Fluxural testing results of PC/PMMA alloys with EMAA(Zn)

Formulas	Flexural Strength (MPa)	Flexural Modulus (MPa)
PC	93.4±0.50	2483±24
PC80	104.4±1.26	2744±48
PC80EMAA(Zn)0.5	101.1±1.72	2654±22
PC80EMAA(Zn)1	100.6±1.97	2664±26
PC80EMAA(Zn)1.5	101.2±1.64	2660±25
PC50	108.5±2.17	2847±80
PC50EMAA(Zn)0.5	110.6±1.98	2872±39
PC50EMAA(Zn)1	110.9±2.09	2863±40
PC50EMAA(Zn)1.5	108.4±1.60	2718±60
PMMA	85.6±13.20	2492±237

Table E9 Notched izod impact testing results of PC/PMMA alloys with EMAA(Zn)

Formulas	Notched Izod Impact Strength (kJ/m^2)
PC	80.56±1.85
PC80	14.77±0.66
PC80EMAA(Zn)0.5	15.91±2.10
PC80EMAA(Zn)1	47.03±31.72
PC80EMAA(Zn)1.5	29.11±26.36
PC50	6.70±0.54
PC50EMAA(Zn)0.5	8.40±0.75
PC50EMAA(Zn)1	8.20±0.79
PC50EMAA(Zn)1.5	7.79± 0.42
PMMA	5.08±0.38

Appendix F PC/PMMA Alloys with SMACA

Table F1 The processing condition of twin screw extruder for PC/PMMA alloys with SMACA

Formulas	Temperature (°C)										Screw speed (rpm)
	Z1	Z2	Z3	Z4	Z5	Z6	Z7	Z8	Z9	Die	
PC80SMACA0.025	245	250	260	255	255	255	260	260	260	260	20
PC80SMACA0.05	245	250	260	255	255	255	260	260	260	260	20
PC80SMACA0.075	245	250	260	255	255	255	260	260	260	260	20
PC50SMACA0.025	225	230	240	235	235	235	240	240	240	240	20
PC50SMACA0.05	225	230	240	235	235	235	240	240	240	240	20
PC50SMACA0.075	225	230	240	235	235	235	240	240	240	240	20

Table F2 The processing condition of injection molding for PC/PMMA alloys with SMACA

Formulas	Temperature (°C)					Injection Pressure (kg/cm^2)	T_{mold} (°C)
	Z1	Z2	Z3	Z4	nozzle		
PC80SMACA0.025	240	245	250	255	260	1200	70
PC80SMACA0.05	240	245	250	255	260	1200	70
PC80SMACA0.075	240	245	250	255	260	1200	70
PC50SMACA0.025	230	230	235	240	240	1200	70
PC50SMACA0.05	230	230	235	240	240	1200	70
PC50SMACA0.075	230	230	235	240	240	1200	70

Table F3 Melt Flow Index of PC/PMMA alloys with SMACA

Formulas	MFI (g/10min)
PC	3.03±0.01
PC80	3.70±0.14
PC80SMACA0.025	11.40±0.36
PC80SMACA0.05	5.10±0.04
PC80SMACA0.075	6.40±0.12
PC50	6.07±0.18
PC50SMACA0.025	5.30±0.03
PC50SMACA0.05	6.0±0.08
PC50SMACA0.075	6.70 ±0.08
PMMA	7.44±0.43

Table F4 DSC results of PC/PMMA alloys with SMACA

Formulas	$T_{g,PC}$ (°C)	$T_{g,PMMA}$ (°C)	$T_{g,\ alloy}$ (°C)
PC	139.1	-	-
PC80	-	-	129.4
PC80SMACA0.025	-	-	129.0
PC80SMACA0.05	-	-	132.6
PC80SMACA0.075	-	-	127.0
PC50	-	-	139.3, 112.3
PC50SMACA0.025	-	-	136.2, 110.3
PC50SMACA0.05	-	-	131.2, 107.4
PC50SMACA0.075	-	-	125.4, 102.4
PMMA	-	107.1	-

Table F5 TGA results of PC/PMMA alloys with SMACA

Formulas	T_d (°C)	Weight loss (%)
PC	504.5	78.9
PC80	357.5	88.3
PC80SMACA0.025	367.8	86.8
PC80SMACA0.05	368.7	86.4
PC80SMACA0.075	376.7	84.2
PC50	359.8	89.9
PC50SMACA0.025	362.5	89.5
PC50SMACA0.05	362.7	89.9
PC50SMACA0.075	361.8	92.8
PMMA	356.5	98.8

Table F6 DMA results of PC/PMMA alloys with SMACA

Formulas	T_g (°C)
PC	156.6
PC80	156.6
PC80SMACA0.025	150.1
PC80SMACA0.05	153.7
PC80SMACA0.075	150.5
PC50	152.9
PC50SMACA0.025	155.4
PC50SMACA0.05	154.0
PC50SMACA0.075	154.4
PMMA	107.1

Table F7 Tensile testing results of PC/PMMA alloys with SMACA

Formulas	Tensile Strength at yield (MPa)	Elongation at yield (%)	Modulus (MPa)
PC	62.0±0.34	6.4±0.07	2573±208
PC80	70.9±0.30	7.4±0.95	2615±224
PC80SMACA0.025	72.5±0.34	6.8±0.12	2700±58
PC80SMACA0.05	72.2±0.30	6.6±0.09	2644±63
PC80SMACA0.075	72.0±0.28	6.3±0.22	2679±48
PC50	75.6±0.86	6.4±0.11	2981±63
PC50SMACA0.025	78.3±0.20	6.5±0.09	3178±187
PC50SMACA0.05	78.7±0.32	6.3±0.11	3120±77
PC50SMACA0.075	79.1±0.25	6.4±0.22	3049±86
PMMA	68.7±5.47	3.3±0.64	4352±325

Table E8 Notched izod impact testing results of PC/PMMA alloys with SMACA

Formulas	Notched Izod Impact Strength (kJ/m^2)
PC	80.56±1.85
PC80	14.77±0.66
PC80SMACA0.025	7.94±0.86
PC80SMACA0.05	17.09±0.93
PC80SMACA0.075	16.27±0.88
PC50	6.70±0.54
PC50SMACA0.025	8.38±0.68
PC50SMACA0.05	8.36±0.42
PC50SMACA0.075	8.12± 0.55
PMMA	5.08±0.38

Appendix G PC/PMMA Alloys with $SnCl_2.2H_2O$

Table G1 The processing condition of twin screw extruder for PC/PMMA alloys with $SnCl_2.2H_2O$

Formulas	Temperature (°C)										Screw speed (rpm)
	Z1	Z2	Z3	Z4	Z5	Z6	Z7	Z8	Z9	Die	
PC80Sn0.025	245	250	260	255	255	255	260	260	260	260	20
PC80Sn0.05	245	250	260	255	255	255	260	260	260	260	20
PC80Sn0.075	245	250	260	255	255	255	260	260	260	260	20

Table G2 The processing condition of injection molding for PC/PMMA alloys with $SnCl_2.2H_2O$

Formulas	Temperature (°C)					Injection Pressure (kg/cm^2)	T_{mold} (°C)
	Z1	Z2	Z3	Z4	nozzle		
PC80Sn0.025	240	245	250	255	260	1200	70
PC80Sn0.05	240	245	250	255	260	1200	70
PC80Sn0.075	240	245	250	255	260	1200	70

Table G3 Melt Flow Index of PC/PMMA alloys with $SnCl_2.2H_2O$

Formulas	MFI (g/10min)
PC	3.03±0.01
PC80	3.70±0.14
PC80Sn0.025	24.46±1.23
PC80Sn0.05	30.73±0.89
PC80Sn0.075	46.87±3.23
PMMA	7.44±0.43

Table G4 DSC results of PC/PMMA alloys with $SnCl_2.2H_2O$

Formulas	$T_{g,PC}$ (°C)	$T_{g,PMMA}$ (°C)	$T_{g,alloy}$ (°C)
PC	139.1	-	-
PC80	-	-	129.4
PC80Sn0.025	-	-	116.4
PC80Sn0.05	-	-	115.3
PC80Sn0.075	-	-	118.2
PC50	-	-	139.3, 112.3
PC50Sn0.025	-	-	114.5
PC50Sn0.05	-	-	100.5
PC50Sn0.075	-	-	98.2
PMMA	-	107.1	-

Table G5 TGA results of PC/PMMA alloys with $SnCl_2.2H_2O$

Formulas	T_d (°C)	Weight loss (%)
PC	504.5	78.9
PC80	357.5	88.3
PC80Sn0.025	369.1	87.3
PC80Sn0.05	369.2	88.3
PC80Sn0.075	395.8	89.6
PMMA	356.5	98.8

Table G6 Notched izod impact testing results of PC/PMMA alloys with $SnCl_2.2H_2O$

Formulas	Notched Izod Impact Strength (kJ/m^2)
PC	80.56±1.85
PC80	14.77±0.66
PC80Sn0.025	6.85±1.06
PC80Sn0.05	6.44±0.29
PC80Sn0.075	6.81±0.69
PMMA	5.08±0.38

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Proceedings:

1. Bunleechai, A.; Kunanuruksapong, R.; and Manuspiya, H. (2013, April 23) Morphology and Mechanical Properties of Polycarbonate/Poly(methyl methacrylate) Alloys Compatibilized with Sodium Ionomer of Poly(ethylene-co-methacrylic acid). Proceeding of the 4rd Research Symposium on Petroleum, Petrochemicals, and Advanced Materials and the 19th PPC Symposium on Petroleum, Petrochemicals, and Polymers, Bangkok, Thailand.

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