UB RESEARCH

3Q22_Quarterly AMOLED Materials and Components Market Sample

3Q, 2022

Analyst Daejeong YOON

ydj7211@ubiresearch.com Website : www.ubiresearch.com

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Reference Guide

Application Covered

- Smartphone
- TV

Nation Covered

- Korea
- China

Purpose Covered

- Cover window: 2D, 3D, CPI, UTG
- Touch: Add-on, On-cell
- Polarizer
- OCA, OCR
- Encapsulation: Glass, Frit glass, TFE, Metal foil
- Substrate: Glass, Carrier glass, Polyimide
- PSPI
- Process Film
- Complex sheet
- Driver IC

Actual and Forecast

- Quarterly update
- History : 3-year, Forecast : 5-year

Unit

- Revenue : US\$ millions
- Volume : kg, ea, m²

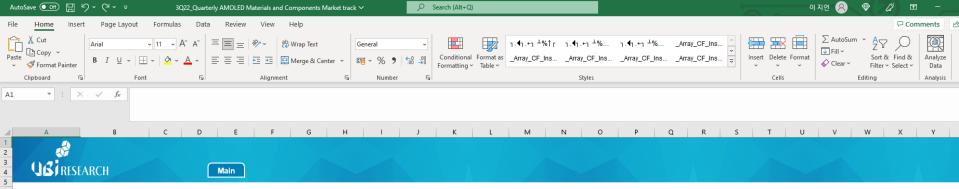
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Sales Performance

- Total
- By Nation
- By Company
- By Application
- By Substrate Type
- By Material



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6 Average Sales Price of Components & Materials

7 - Contents

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8 > Average Sales Price of Components & Materials

9 * Market of Key 20 components for OLED

10 * No process cost on colorless polyimide's cost based on 8 inch

11 * Cost of ultra thin glass includes process cost based on 7.6 inch

13 > Average Sales Price of Components & Materials

15	-	-																			
14 15 16 17	Componen	its & Material	Unit	1Q18	2Q18	3Q18	4Q18	1Q19	2Q19	3Q19	4Q19	1Q20	2Q20	3Q20	4Q20	1Q21	2Q21	3Q21	4Q21	1Q22	2Q22
15		Substrate glass	S/mỉ	10.1	10.0	811	87	10.0	10.1	10.0	10.1	10.4	10.0	20.0	10.4	10.0	10.0	10.0	10.4	10.0	10.0
16	Substrate	Carrier glass	S/m		10.0						8.7	817	81	81	10.1	10.1	8.1		10.1	10.0	1.0
17		Polyimide	\$/kg	40.0	61.0	10.4	10.1	61.4	10.1	16.1	46.1	40.0	41	41	41.1	41	-		40.1	1011	
18	TFT	PSPI	S/kg	100.0		100.0	1007	100.7	1014	108.1		100.0		100.0	100.1	10.4	100.7	100.1	100.0	1001	100.0
19		Frit glass	S/kg	1,000-1	1,000.1	1.001.0	1,000.1	1,007-0	1,000-0	1,0014	1,000.1	1.0881	1,007-0	1,000.0	1,080-4		1.084	1.084.0		1,000.0	1,000
20	Encapsulation	Encapsulation glass	S/m		8.7			11.4	11.0		10.0	10.1	8.0	8.0	8.0	8.0	4.1	1.0		10.4	10.0
19 20 21 22 23 24 25 26	Encopsoration	Thin film encapsulation	S/kg	100.1	100.0	600.0	100-1	10011	80.1		100.1	600.0	1114	101.1	100.4	10.4	10.4	100.0	100.1	100-1	100.0
22		Metal Foil & FSA	S/m	8.4	81.0	10.4	8.4	10.0	10.0	31.4	8.4	8.4	10.0	31.0	8.4	10.0	0.4	10.0	10.0	21.4	100
23		On-cell touch	S/m	100.0	101.0	101.1	10.4	1001	100.0	1001	100.1	100.0	10.4	10.4				10.4		100.0	101.4
24	Touch sensor	Add-on Touch	\$/ea	1.6	1.0	6.5	6.7		81	6.1	6.7	0.0		1.8	1.8	61	8.1	6.2	8.2		1.0
25		Over coat(on-cell touch)	S/kg	10.4	81.0	81.0	10.4	10.1	8.1	10.4	10.4	10.0	10.0	81.1	10.4	11.0	10.4	10.7	81.1	10.1	
26	Polarizer	Polarizer	\$/ea	1.0	1.0	1.0	1.0	1.0	0.0	1.0	8.5	1.0	4.5	8.7	1.0	1.0	6.7	4.7	87	8.7	87
27	Adhesive	OCR	S/kg	16.4	10.0	19.7	10.0		61.0	49-1	41.1	61-1	6.4	61.0	41.1	61.0	6.1	61.0	81.1	-	16.0
28	Adhesive	OCA	\$/ea	14	8.0	6.0							14	84	6.4	14	8.4	1.4	1.4		
29		2D & 3D glass	\$/ea			4.4		4.0							1.4	1.4	1.8	6.0	4.1	8.1	1.0
30	Cover window	Colorless Polyimide	\$/ea					8.0				8.0			81						
27 28 29 30 31 32 33 34		Ultra thin glass	\$/ea																		
32		Driver IC & COF	\$/ea			10							14	1.0				- 11			
33	Module	Complex sheet	\$/mi																		
		Process Film	\$/mi			11.4		10.4			81		81	84	81	81	81	81			
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15 2D glass	100.0	178.0	100.7	4 109.0	389.2 28	N.1 275.5	185.7 155.0	345.2		0.0 00.0	200.0	100.7	175.4	198.0			
16 3D glass	200.7	205.5	18.1 454			6.7 400.1	48.4 101.4			6.7 756.7	1000.0	1,108-7	940.1	756.0			
17 Add-on Touch	114		206.7 201			12.4 238.2	206.2 105.4			1.7 201.9	100.0	1000.0	385.2	202.4			
18 Carrier glass	5.6		10.0			1.0 5.0	10.7 10.7			8.0 18.0	38.2	100.0	106.7	16.2			
19 Colorless polyimide				- 82		1.4 10.2	11.0 8.0	4.5		14 18	1.0	10.0	101.0	8.0			
20 Complex sheet	10.4		386.2 386.			8.0 76.0	80 30			1.0 10.0	100.0	10011	108.2	108.0			
21 Driver IC&COF 22 Encapsulation glass			14 1			B.8 80.3 B.7 8.7	81 12		10 1.0	13 LARSA 17 NA	1.000.0	1000	1,000.1	1.775.0			
23 Frit glass			14 1			17 18	1.0 1.0			1.2 1.2		10	1.0	1.4			
24 Metal Foil & FSA						-	-			1.4 17.5	10.0	-	10.0	10.7			
25 OCA	10.4		22.2			N.N. 2014	25.0 18.4			6.7 20.4	10.0	10.4	10.7	10.4			
26 OCR			50 6			54 52	4.7 5.8			1.7 1.8		8.1	1.0	8.0			
27 On-cell touch	10.4	100.0	100.0	a ana	101.0	1.0	100.1 10.7	86.0	101.0 10	4.8 101.9	100.0	108.7	10.0	10010			
28 Over coat(on-cell touch)	5.8	1.0			1.0	1.1 0.9	1.6 1.7	2.0	8.8	4.0 4.0		1.0		6.0			
29 Polarizer	85.2		101.1 10.			8.2 81.4	47.4 52.9			6.0 III.4	100.5	104.1	124.0	108.0			
30 Polyimide			48 5			14 17	43 47			6.6 7.5		10.0	1.4	-			
31 Process Film	10.4		46.0 10.			6.8 10.7	45.0 17.0			1.9 40.0	10.0	-	100.2	46.2			
32 PSPI	38.2	10.0	20.0			6.5 95.2	36.0 36.0			1.4 16.1	186.2	-	100.7	100.0			
33 Substrate glass			8.1 8.			E.F. 16.1	8.2 263			6.0 46.2	45.5	100.00	40.0	45.2			
34 Thin film encapsulation35 Ultra thin glass	1.4	1.0			10	14 1.4				43 5.8 53 86.7				10			
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12 13 14 M&C 15 = 2D glass	▼ Unit ▼ million ea	Value] 1Q18 2	78.4	60.0	17.2 MA	96.0	87.5	10.0	18.1	10.1	10.0	80.0	15.0	75.4	15.0	75,7	98.0	-		
12 13 14 M&C 15 = 2D glass 16 = 3D glass	▼ Unit ▼ million ea million ea	Value] 1Q18 2	10.4	#1.1	17.2 IN.8 16.1 IN.8	16.2	901.3 365.7	-	18.3 18.3	10.0	10.0	45.8 101.9	12.4	10.0	10.0	10.7	100.0 100.7		18	
12 13 14 M&C 15 = 2D glass	▼ Unit ▼ million ea	Value 1Q18 2	78.4	#1.1	17.2 MA	96.0 25.0 35.7	87.5	10.0	18.1	10.1	10.0	80.0	15.0	75.4	15.0	75,7	98.0		18	
12 13 14 M&C 15 © 2D glass 16 © 3D glass 17 © Add-on Touch	VIII VIII VIIIIION ea million ea million ea	Value 1Q18 2	78,4 27.4 10.4	40.0 40.1 30.0	17.2 58.4 58.5 86.4 59.9 38.5	96.0 25.0 35.0 5.0	9013 582.7 2012	181.4 181.3 36.7	18.3 19.3 20.4	181.9 40.9 30.5	102.0 175.0 45.1	81.8 101.8 40.5	75.4 186.4 185.7	76.5 60.5 30.6	10.0 10.4 20.4	75,7 108,5 208,5	101.7 101.7		17	
12 13 14 15 ≅ 2D glass 16 ≅ 3D glass 17 ≅ Add-on Touch 18 ≅ Carrier glass	▼ Unit ▼ million ea million ea million ea 1,000,000 m2	Value]1Q18 2	78,4 27.4 10.9 6.7	61.0 61.1 10.0 1.1	17.2 38.4 36.1 38.4 36.9 36.1 1.2 1.4	96.0 25.0 35.0 35.0 45.0	- 90.3 98.7 97.2 5.2	86.4 46.2 36.9 5.0	86.3 36.3 35.4 5.3	38.9 40.9 30.5 3.5	52.3 75.6 45.1 5.2	40.8 100.8 40.5 1.8	72.0 (00.4 30.0 1.0	76.5 96.5 35.0 3.0	10.0 105.0 25.0 25.0	76,7 108,0 86,6 2,5	94.3 105.7 25.8 2.0		17 18 17	
12 13 14 M&C 15 = 2D glass 16 = 3D glass 17 = Add-on Touch 18 = Colorless polyimide 20 = Complex sheet 21 = Driver IC&COF	▼ Unit ▼ million ea million ea 1,000,000 m2 million ea 1,000,000 m2	Value] 1Q18 2	10 C C C C C C C C C C C C C C C C C C C	813 1 813 1 11 11 12 18 13	112 844 843 844 859 345 52 54 53 55 54 55 54 55 54 555	86.8 35.8 35.3 35.3 35.3 35.3 35.3 35.3 35	813 817 812 812 812 812 812 812 812 812 812 812	84 82 80 83 80 83 80 83 80 83 80 83 80 83 80 83 80 83 80 83 80 83 80 83 80 83 80 83 80 80 80 80 80 80 80 80 80 80 80 80 80	80 80 80 80 80 80 80 80 80	80 40 31 31 31 31 31 31 31 31 31 31 31 31 31	10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0	81.8 10.7 41.5 1.8 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5	12.0 (0.4 0.0 10 10 10 10 10 10 10 10 10 10 10 10 10	76.1 10.0 10.0 10.0 10.0 10.0 10.0 10.0 1	10.0 10.0 10.0 10.0 10.0 10.0 10.0	1000	80 10.7 10.8 10.7 10.7 10.7 10.7 10.7 10.7 10.7 10.7		2 2 3 8	
12 13 14 15 16 17 20 glass 18 19 20 complex sheet 20 20 20 21 21 22 23 24 25 26 27 28 29 20 20 20 21 22 21 22 22 21 22 22 23 24 25 26 27 28 29 20 20 20 21 21 22 21 21 21 21 22 21 22 22 21 22 21 21 21 21 21 21 21 21	Unit Unit	Value 1Q18 2	10 C C C C C C C C C C C C C C C C C C C		172 844 843 844 849 944 52 53 54 54 55 54 55 64 55 65 55 65 55	1 E C C C C E E	1000000	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	82 2 2 2 2 8 2 2 2 3 2 3 2 8 2 3 2 3 2 3 2 8 3 3 2 3 2 3 2 3 3 3 3 3 3 3 3 3 3 3 3 3	10 10 10 10 10 10 10 10 10 10 10 10 10 1	10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0	81.8 10.7 41.8 1.8 1.8 1.8 1.8 1.0	10 H H H H H H H H H H H H H H H H H H H		r Broth Br	r Hunselle	2 10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		2 2 3 3 4 3 4 3 3 3 3 3 3 3 3 3 3 3 3 3	
12 13 14 M&C 15 = 2D glass 16 = 3D glass 17 = Add-on Touch 18 = Carrier glass 19 = Colorless polyimide 20 = Conplex sheet 21 = Driver IC&COF 22 = Encapsulation glass 23 = Frit glass	Unit million ea million ea million ea 1,000,000 m2 million ea 1,000,000 m2 million ea 1,000,000 m2 ton	Value 1Q18 2	5 0 1 c . c 0 2 8		12 84 84 84 85 84 12 14 14 14 15 14 15 14 16 16 14 16 16 16 16 16 16 16 16 16 16 16 16 16 16 16 16 16 16 16 1					r e E c e c e é é	c e 🖥 c e e e e e	83 30 40 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5					10 10 10 10 10 10 10 10 10 10 10 10 10 1		17 12 13 14 14 15 15 15 15 15 15 15 15 15 15 15 15 15	
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12 13 14 M&C 15 = 2D glass 16 = 3D glass 17 = Add-on Touch 18 = Corrier glass 19 = Colorless polyimide 20 = Complex sheet 21 = Driver IC&COF 22 = Encapsulation glass 23 = Frit glass 24 = Metal Foil & FSA 25 = OCA	▼ Unit ▼ million ea million ea 1,000,000 m2 million ea 1,000,000 m2 ton 1,000,000 m2 ton 1,000,000 m2	Value]1Q18 2	26655.6028		112 883 863 863 853 863 853 863 853 863 853 853 853 853 853 853 853 863 853	84 85 85 85 85 85 85 85 85 85 85 85 85 85	Ecc. Ecc. 253	2	Ecce Ecce 2 2 2	8ccs8ccc88	8000800088	Eccelered 5	Frultrutt	2222322222	North Control 2	医化乙酸医化医胆己	Essetsset			
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17 GAdd-on Touch	million ea	10.0	441.7	10.0	10.0	-												
18 © Carrier glass	1,000,000 m2	1.0				1011												
19 Colorless polyimide	million ea				10.7													
20 Complex sheet	1,000,000 m2		10.00	10.0	10.0	10.0												
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25 © OCA	million ea	-	-	-		-												
26 © OCR	ton	100.0	1000.0	1001.00		100.0												
27 On-cell touch	1,000,000 m2	1.8		1.0	11	1.0												
28 Over coat(on-cell touch)	ton	475.0	100.0	108.7		10011												
29 Polarizer	million ea	-	101.0	100.7	196.0	10010												
30 Polyimide	ton	-	10.0	10.1		-												
31 Process Film 32 PSPI	1,000,000 m2 ton		-			10.0												
32 Substrate glass	1,000,000 m2					10.1												
34 Thin film encapsulation	ton		-			10.0												
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Analyst Daejeong YOON

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www.ubiresearch.com A-1901, Samho Mulsan Bldg, 83 Nonhyeon-ro, Seocho-gu, Seoul, 06296, South Korea TEL : +82-2-577-4391 E-MAIL : info@ubiresearch.com