

4Q22_Quarterly AMOLED Materials and Components Market tracker

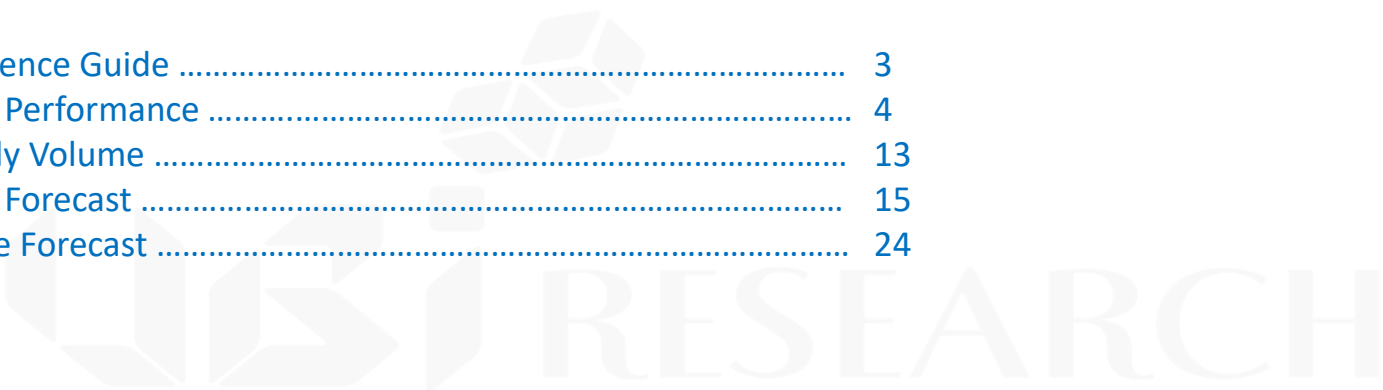
4Q, 2022

Analyst
Daejeong YOON

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

Table of Contents

1. Reference Guide	3
2. Sales Performance	4
3. Supply Volume	13
4. Sales Forecast	15
5. Usage Forecast	24



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

UBI RESEARCH

Sales Performance

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

File Home Insert Page Layout Formulas Data Review View Help

Clipboard Font Alignment Number Styles Cells Editing

Clipboard: Cut, Copy, Paste, Format Painter

Font: Arial, 11, Bold, Italic, Underline, Text Color, Background Color

Alignment: Wrap Text, Merge & Center

Number: General, Percent, Decimals, Rounding

Styles: Conditional Formatting, Format as Table

Cells: Insert, Delete, Format

Editing: AutoSum, Fill, Clear, Sort & Filter, Find & Select

A1

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z AA AB AC AD



AMOLED Components & Material Market Track

- 4Q22 Data Tables

- > [Average Sales Price of Materials_Q](#)
- > [Sales Performance](#)
- > [PIVOT Quarterly Sales](#)
- > [PIVOT Quarterly Supply Volume](#)
- > [Forecast](#)
- > [PIVOT Sales Forecast](#)
- > [PIVOT Usage Forecast](#)
- > www.ubiresearch.com

[Notice]

1. This file is published by UBI RESEARCH.
2. This file is available for buyers only, if not, he or she shall compensate ten times of the buying price due to the violation of the copyright.
3. This file is disclose-able with the consent of UBI RESEARCH.
4. This file is subject to UBI RESEARCH and the printing, copying, and binding are governed by the relevant laws.

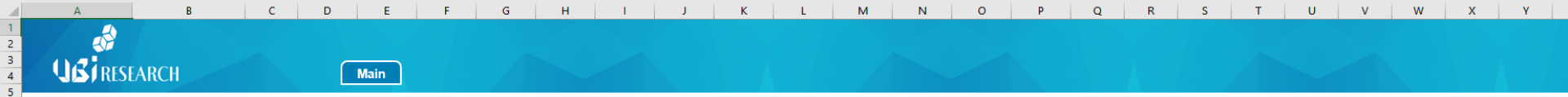
File Home Insert Page Layout Formulas Data Review View Help

Clipboard Font Alignment Number Styles Cells Editing

Clipboard: Cut, Copy, Format Painter
 Font: Arial, 11, Bold, Italic, Underline, Color, Background Color
 Alignment: Wrap Text, Merge & Center
 Number: General, Percent, Decimals, Thousands Separator
 Styles: Conditional Formatting, Format Table, Array CF_Ins...
 Cells: Insert, Delete, Format
 Editing: AutoSum, Fill, Clear, Sort & Filter, Find & Select

A1

Columns: A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y



Average Sales Price of Components & Materials

- Contents
- > Average Sales Price of Components & Materials
- * Market of Key 20 components for OLED
- * No process cost on colorless polyimide's cost based on 8 inch
- * Cost of ultra thin glass includes process cost based on 7.6 inch

> Average Sales Price of Components & Materials

Components & Material		Unit	1Q18	2Q18	3Q18	4Q18	1Q19	2Q19	3Q19	4Q19	1Q20	2Q20	3Q20	4Q20	1Q21	2Q21	3Q21	4Q21	1Q22	2Q22	3Q22	
Substrate	Substrate glass	S/m ²																				
	Carrier glass	S/m ²																				
	Polyimide	S/kg																				
TFT	PSP1	S/kg																				
	Frit glass	S/kg																				
Encapsulation	Encapsulation glass	S/m ²																				
	Thin film encapsulation	S/kg																				
	Metal Foil & FSA	S/m ²																				
Touch sensor	On-cell touch	S/m ²																				
	Add-on Touch	S/ea																				
	Over coat(on-cell touch)	S/kg																				
Polarizer	Polarizer	S/ea																				
Adhesive	OCR	S/kg																				
	OCA	S/ea																				
Cover window	2D & 3D glass	S/ea																				
	Colorless Polyimide	S/ea																				
	Ultra thin glass	S/ea																				
Module	Driver IC & COF	S/ea																				
	Complex sheet	S/m ²																				
	Process Film	S/m ²																				

*1 US\$ = 1,100 KRW

File Home Insert Page Layout Formulas Data Review View Help

Clipboard Font Alignment Number Styles Cells Editing

Conditional Formatting Format as Table

Insert Delete Format

AutoSum Fill Clear Sort & Filter Find & Select

A1

A B C D E F G H I J K L M N O P Q R S T U V W



Components & Material Market Sales Performance_Quarterly

- Nation (All)
- Company (All)
- Application (All)
- Substrate type (All)

M&C	US\$ million																			
	1Q18	2Q18	3Q18	4Q18	1Q19	2Q19	3Q19	4Q19	1Q20	2Q20	3Q20	4Q20	1Q21	2Q21	3Q21	4Q21	1Q22	2Q22	3Q22	
2D glass	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
3D glass	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Add-on Touch	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Carrier glass	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Colorless polyimide	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Complex sheet	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Driver IC&COF	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Encapsulation glass	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Frit glass	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Metal Foil & FSA	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
OCA	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
OCR	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
On-cell touch	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Over coat(on-cell touch)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Polarizer	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Polyimide	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Process Film	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PSPI	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Substrate glass	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Thin film encapsulation	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Ultra thin glass	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

File Home Insert Page Layout Formulas Data Review View Help

Clipboard Font Alignment Number Styles Cells Editing

Clipboard: Cut, Copy, Paste, Format Painter

Font: Arial, 11, Bold, Italic, Underline, Text Color, Background Color

Alignment: Wrap Text, Merge & Center

Number: General, Percent, Decimals, Rounding

Styles: Conditional Formatting, Format as Table

Cells: Insert, Delete, Format

Editing: AutoSum, Fill, Clear, Sort & Filter, Find & Select

A1

A B C D E F G H I J K L M N O P Q R S T U V



Components & Material Supply Volume_Quarterly

- Nation (All)
- Company (All)
- Application (All)
- Substrate type (All)

M&C	Unit	Value																				
		1Q18	2Q18	3Q18	4Q18	1Q19	2Q19	3Q19	4Q19	1Q20	2Q20	3Q20	4Q20	1Q21	2Q21	3Q21	4Q21	1Q22	2Q22	3Q22		
2D glass	million ea	86.2	86.4	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2
3D glass	million ea	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2
Add-on Touch	million ea	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2
Carrier glass	1,000,000 m2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2
Colorless polyimide	million ea	-	-	-	-	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2
Complex sheet	1,000,000 m2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2
Driver IC&COF	million ea	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2
Encapsulation glass	1,000,000 m2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2
Frit glass	ton	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2
Metal Foil & FSA	1,000,000 m2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2
OCA	million ea	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2
OCR	ton	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2
On-cell touch	1,000,000 m2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2
Over coat(on-cell touch)	ton	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2
Polarizer	million ea	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2
Polyimide	ton	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2
Process Film	1,000,000 m2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2
PSPI	ton	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2
Substrate glass	1,000,000 m2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2
Thin film encapsulation	ton	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2
Ultra thin glass	million ea	-	-	-	-	-	-	-	-	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2	86.2

AutoSave [off] 4Q22_Quarterly AMOLED Materials and Components Market track 이 지연

File Home Insert Page Layout Formulas Data Review View Help

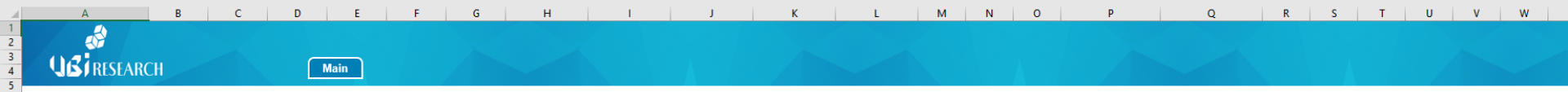
Clipboard Font Alignment Number Conditional Formatting Format as Table Styles

Insert Delete Format Cells Editing

Comments

A1

A B C D E F G H I J K L M N O P Q R S T U V W



■ Components & Materials Market Sales Forecast

8 Nation (All) ▾

9 Company (All) ▾

10 Application (All) ▾

11 Substrate type (All) ▾

US\$ million						
M&C	2022	2023	2024	2025	2026	2027
2D glass	2652.9	2613.5	2586.7	2568.4	2556.8	2545.8
3D glass	2622.7	2622.2	2617.8	2622.2	2626.9	2628.7
Add-on Touch	262.7	262.1	262.0	262.0	262.0	262.0
Carrier glass	261.0	261.0	261.0	260.8	261.0	260.8
Colorless polyimide	260.0	261.0	261.0	261.0	261.0	261.0
Complex sheet	260.7	261.6	260.7	260.1	260.7	260.8
Driver IC&COF	2600.4	2600.0	2600.1	2600.0	2610.1	2600.0
Encapsulation glass	260.0	261.0	261.0	261.7	261.0	261.0
Frit glass	260.0	260.0	260.0	261.0	261.0	261.0
Metal Foil & FSA	260.0	260.0	260.0	260.7	261.0	260.8
OCA	260.0	260.0	260.0	260.7	260.0	260.8
OCR	261.0	261.0	261.0	261.0	261.0	261.0
On-cell touch	260.0	260.0	260.0	261.0	261.0	260.0
Over coat(on-cell touch)	260.0	260.0	260.0	260.0	261.0	260.0
Polarizer	260.0	260.0	260.0	261.0	260.0	260.0
Polyimide	261.0	261.0	261.0	261.0	261.0	261.0
Process Film	260.0	260.0	260.0	260.0	260.0	260.0
PSPI	260.0	261.0	260.0	261.0	261.0	261.0
Substrate glass	260.0	260.0	260.0	260.0	260.0	260.0
Thin film encapsulation	260.0	260.0	260.0	261.0	261.0	260.0
Ultra thin glass	261.0	261.0	261.0	261.0	261.0	261.0
Grand Total	26000.0	26000.0	26000.0	26000.0	26100.0	26000.0

File Home Insert Page Layout Formulas Data Review View Help

Clipboard Font Alignment Number Conditional Formatting Format as Table Styles Cells Editing

Clipboard: Cut, Copy, Paste, Format Painter
 Font: Arial, 11, Bold, Italic, Underline, Text Color, Background Color
 Alignment: Left, Center, Right, Justify, Merge & Center, Wrap Text
 Number: General, Percent, Decimals, Thousands Separator
 Conditional Formatting: Cell Icon Sets, Data Bars, Color Scales, Text Boxes
 Format as Table: Table Styles
 Styles: Array_CF_Ins...
 Cells: Insert, Delete, Format
 Editing: AutoSum, Fill, Clear, Sort & Filter, Find & Select

A1

A B C D E F G H I J K L M N O P Q R S T U V W



Components & Materials Market Usage Forecast

- Nation (All) [v]
- Company (All) [v]
- Application (All) [v]
- Substrate type (All) [v]

M&C	Unit	Value					
		2022	2023	2024	2025	2026	2027
2D glass	million ea	287.2	288.7	282.0	288.8	277.0	281.7
3D glass	million ea	480.1	480.7	529.0	580.1	601.0	670.0
Add-on Touch	million ea	75.1	75.0	72.0	70	60	50
Carrier glass	1,000,000 m2	0.1	0.0	0.0	0.0	0.0	0.0
Colorless polyimide	million ea	0.0	0.0	0.0	0.7	0.0	0.1
Complex sheet	1,000,000 m2	0.0	0.0	0.0	0.0	0.0	0.0
Driver IC&COF	million ea	261.0	270.7	262.0	268.1	269.0	270.7
Encapsulation glass	1,000,000 m2	0.0	0.0	0.0	0.7	0.0	0.0
Frit glass	ton	0.0	0.1	0.0	0.0	0.7	0.0
Metal Foil & FSA	1,000,000 m2	0.0	0.0	0.7	0.0	0.0	0.0
OCA	million ea	480.1	480.7	529.0	580.1	601.0	670.0
OCR	ton	280.1	281.0	282.0	280.1	277.0	280.0
On-cell touch	1,000,000 m2	0.0	0.0	0.0	0.7	0.0	0.0
Over coat(on-cell touch)	ton	480.1	480.7	529.0	580.1	601.0	670.0
Polarizer	million ea	280.1	280.0	280.1	281.0	281.1	280.7
Polyimide	ton	280.1	281.1	280.0	280.1	280.7	278.1
Process Film	1,000,000 m2	0.1	0.0	0.0	0.0	0.0	0.0
PSPI	ton	280.0	280.0	280.7	278.0	278.1	280.1
Substrate glass	1,000,000 m2	0.0	0.0	0.0	0.7	0.0	0.0
Thin film encapsulation	ton	0.0	0.0	0.0	0.0	0.0	0.0
Ultra thin glass	million ea	0.0	0.0	0.0	0.0	0.0	0.0



Analyst
Daejeong YOON