business and market view

A regular column featuring excerpts from BCC Research reports on industry sectors involving the ceramic and glass industry.



Electronic chemicals and materials: The global market

By BCC Publishing Staff

The global market for electronic chemicals and materials was valued at \$59.4 billion in 2022 and is expected to grow at a compound annual growth rate (CAGR) of 5.0% to reach \$76.0 billion by 2027.

Chemicals and materials play a crucial role in the electronic industry, serving as both components and processing agents across all stages of production (Table 1). Throughout the forecast period, semiconductors and integrated circuits are estimated to be the highest consumers and fastest-growing application segment of electronic chemicals and materials (Table 2).

Some applications of ceramics in electronic devices include

- Wafers: Wafers are highly engineered, thin, round disks that serve as the substrate material on which most semiconductor devices are fabricated. Silicon is by far the most common wafer material, but other materials include silicon carbide, gallium nitride, and gallium arsenide.
- Chemical mechanical planarization (CMP) slurries: CMP slurries are used to remove small volumes of surface material from hard, crystalline workpieces. The slurries originally were used to planarize oxide layers in devices, but their application has extended into planarizing metal, which expands the scope of their market. Some of the chemicals used in CMP slurries include fumed silica, colloidal silica, alumina, alkalis, and acids.

Table 1. Global market for electronic chemicals and materials, by product, through 2027 (\$ millions)

* Others include metals, low-dielectrics, and miscellaneous chemicals.						
Product	2021	2022	2027	CAGR % (2022–2027)		
Wafers	15,999.8	16,756.6	22,186.9	5.8		
Polymers	10,499.9	10,901.8	13,824.1	4.9		
Printed circuit board laminates	9,799.9	10,125.9	12,532.8	4.4		
Gases	7,999.9	8,206.7	9,798.4	3.6		
Photoresist chemicals	3,799.9	4,031.7	5,696.7	7.2		
Wet chemicals and solvents	3,500.0	3,650.4	4,734.4	5.3		
Chemical mechanical planarization slurries	2,123.8	2,245.0	3,114.2	6.8		
Others*	3,400.0	3,489.8	4,069.0	3.1		
Total	57,123.2	59,407.9	75,956.5	5.0		

- as valued at \$59.4 ected to grow at a rate (CAGR) of mulating electric charges on two closely spaced surfaces that are insulated from each other. Barium titanate is used in capacitors because of its high dielectric constant and piezoelectric and ferroelectric properties.
 - Magnetic tape: Magnetic tape is a medium for magnetic storage made of a thin, magnetizable coating on a long, narrow strip of plastic film. Chromium dioxide is considered one of the best magnetic recording particulates.

• Capacitors: Capacitors store electrical energy by accu-

The key competitive strengths of leading players in this market entail a broad product line, manufacturing excellence, strong research and development infrastructure and investments, advanced quality control systems, expertise in production processes, and low total cost of ownership.

The last two decades saw a continued shift in electronics component manufacturing from the Americas to the Asia-Pacific due to the availability of cheap labor and lucrative foreign investment policies by national governments in Asia. China, Taiwan, South Korea, Hong Kong, and Vietnam are leading contributors to the overall market from the region.

About the author

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BCC Publishing Staff provides comprehensive analyses of global market sizing, forecasting, and industry intelligence, covering markets where advances in science and technology are improving the quality, standard, and sustainability of businesses, economies, and lives. Contact the staff at Helia.Jalili@bccresearch.com.

Resource

BCC Publishing Staff, "Electronic chemicals and materials: The global market," BCC Research Report SMC043F, June 2023. https://bit.ly/BCC-June-2023-electronics

Table 2. Global market for electronic chemicals and materials, by applica-

* Others include memory disks and general metal finishing.						
Product	2021	2022	2027	CAGR % (2022-2027)		
Semiconductors and integrated circuits	34,751.1	36,266.3	47,175.7	5.4		
Displays	12,358.5	12,848.0	16,399.4	5.0		
Printed circuit boards	7,586.5	7,809.8	9,487.4	4.0		
Others*	2,426.8	2,483.8	2,894.2	3.1		
Total	57,123.0	59,407.9	75,956.5	5.0		