

Electric Insulator - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts (2026 - 2031)

Market Report | 2026-01-16 | 125 pages | Mordor Intelligence

AVAILABLE LICENSES:

- Single User License \$4750.00
- Team License (1-7 Users) \$5250.00
- Site License \$6500.00
- Corporate License \$8750.00

Report description:

Electric Insulator Market Analysis

The Electric Insulator Market is expected to grow from USD 21.75 billion in 2025 to USD 23.21 billion in 2026 and is forecast to reach USD 32.08 billion by 2031 at 6.68% CAGR over 2026-2031.

The market growth is supported by unprecedented grid-modernization spending and accelerating renewable-energy integration. Capital flows into transmission and distribution upgrades, wildfire-resilience programs, and rail-electrification initiatives continue to enlarge order books for traditional ceramic units and next-generation composite designs. Utilities now rank asset hardening, digital monitoring, and total lifecycle cost ahead of upfront price, pushing suppliers toward higher-margin, performance-enhanced offerings. Competitive intensity remains moderate, yet rising technical barriers in ultra-high-voltage (UHV) applications are gradually concentrating revenue among qualified manufacturers. Meanwhile, strategic risks around raw-material volatility and counterfeit components are prompting vertical integration, tighter supplier audits, and wider adoption of blockchain-based traceability.

Global Electric Insulator Market Trends and Insights

Grid-Hardening Spend for Climate-Resilient T&D Infrastructure

Utilities worldwide are redirecting budgets toward storm-, heat- and wildfire-resilient assets as climate impacts intensify, taking

Scotts International. EU Vat number: PL 6772247784

tel. 0048 603 394 346 e-mail: support@scotts-international.com

www.scotts-international.com

T&D outlays in the United States alone to USD 50.9 billion in 2023. Ceramic and composite insulators with higher mechanical strength, heat tolerance, and contamination resistance are now favored specifications. Capital earmarked for grid hardening also drives demand for smart devices to feed asset-health data into utility SCADA platforms. Vendors equipped to bundle hardware with analytics services are capturing premium contracts, while smaller manufacturers reliant on commodity porcelain struggle to defend margins. Insurance carriers likewise press utilities to adopt higher-grade components to curb outage-related liabilities.

Electrification of Rail Freight Corridors in Asia & Europe

The Asian Development Bank's rolling program of railway upgrades and the EU's Green Deal transport targets synchronize a rapid shift from diesel to electric traction along freight arteries. Overhead catenary systems require medium-voltage (25 kV AC) insulators with high vibration resistance and pollution performance, pushing rail operators to pre-qualify suppliers with proven fatigue-testing credentials. Long-haul corridors that cross climatic zones further demand composite housings with broad temperature stability. Parallel investments in bridge clearances and substation expansions amplify unit volume requirements, making rail electrification a sustained pull factor for the electric insulator market.

Raw-Material Price Volatility (Alumina, Epoxy, Silicone Rubber)

Epoxy-resin quotes rose EUR 150-200 per ton in 2024 amid petrochemical input tightness, while alumina costs swung in line with energy-price spikes emanating from Australia and China. With materials representing 35-40% of finished-insulator cost, manufacturers are widening supply footprints and instituting hedging programs to stabilize margins. Larger players increasingly pursue backward integration via minority stakes in alumina calcining plants or through multi-year silicone-polymer offtake agreements. Index-based pass-through clauses have also migrated from utility cable contracts into insulator framework deals.

Other drivers and restraints analyzed in the detailed report include:

Rapid Build-Out of >220 kV HVDC Links in China & India
Utilities' Composite-Insulator Retrofits to Cut Wildfire Risk
Counterfeit Low-Grade Insulators Causing Safety Recalls

For complete list of drivers and restraints, kindly check the Table Of Contents.

Segment Analysis

Ceramic and porcelain devices held 45.30% of the electric insulator market share in 2025 due to entrenched procurement habits and proven dielectric performance at voltage levels above 500 kV. Composite and polymer alternatives, however, are scaling at a 7.78% CAGR by leveraging hydrophobic surfaces and lower weight, which translates into reduced tower loading and simplified logistics. That premium is finding fertile ground in wildfire-prone regions and coastal zones where salt pollution previously mandated frequent washing. Glass units retain a loyal customer base in distribution grids seeking self-cleaning clarity, yet their market penetration remains capped by susceptibility to impact damage.

Lifecycle assessments now tip in favor of composites once labor and washing savings enter the equation, narrowing the apparent cost delta with porcelain. Vendors are investigating hybrid constructs-ceramic cores overmolded with silicone housings-to merge mechanical stiffness with superior contamination resistance. End-of-life recyclability remains a pain point, fostering research alliances that repurpose silicone-rubber scrap into road-surface modifiers, aligning with European circular-economy policies. These material-science advances will keep the electric insulator market in continuous technical flux over the forecast horizon.

Medium-voltage assemblies between 70 kV and 220 kV contributed a 39.55% slice of the electric insulator market size in 2025, fed by widespread sub-transmission upgrades and urban distribution reinforcement. Extra- and ultra-high-voltage tiers above 765

Scotts International. EU Vat number: PL 6772247784

tel. 0048 603 394 346 e-mail: support@scotts-international.com

www.scotts-international.com

kV are charting the briskest 7.98% CAGR, reflecting China's 1,100 kV links and India's bulk-power corridors to ferry solar and wind output from deserts to load centers. Engineering thresholds rise sharply at UHV levels; creepage distances breach 13 m, calling for advanced shed profiles and corona rings to suppress partial-discharge phenomena.

The economic allure resides in the premium pricing and multi-year project pipelines inherent to UHV work, even as the protracted type-test regime filters out less-capitalized challengers. Gas-insulated switchgear for urban substations adds another pocket of high-value demand, necessitating compact epoxy post insulators capable of withstanding SF₆-replacement gases at elevated pressures. Consequently, this voltage-rating stratification reshapes competitive dynamics and margin pools across the electric insulator market.

The Electric Insulator Market Report is Segmented by Dielectric Material (Ceramic/Porcelain, Glass, and Composite/Polymer), Voltage Rating (Low, Medium, High, and Extra- and Ultra-High), Installation Environment (Outdoor and Indoor), Application (Transmission Lines, Substations and Switchgear, and More), End User (Utilities, Residential, and More), and Geography (North America, Europe, Asia-Pacific, South America, and More).

Geography Analysis

Asia-Pacific's 53.40% hold on the electric insulator market in 2025 stems from vast capex pipelines, including China's multibillion-dollar UHVDC matrix and India's nationwide grid-modernization program. Composite-rod uptake is accelerating in Australia as wildfire-mitigation standards tighten, whereas Japan and Korea invest in sensor-rich, earthquake-resilient switchgear. ASEAN members, led by Vietnam and Indonesia, award turnkey EPC packages that specify cost-competitive porcelain yet increasingly allow optional bids for hybrid or composite types to cut lifetime washing costs. Local manufacturing clusters in China's Hebei and India's Telangana provinces help contain logistics overheads, but counterfeit-risk countermeasures remain imperative.

North America exhibits a mature installed base now skewing spend toward resilience, with California utilities swapping out glass strings for silicone-rubber rods after legislative pressure intensified. Canada's hydro-rich provinces demand ice-shedding profiles and fiberglass cores with low-temperature fracture toughness, whereas Mexico's CRE reforms draw foreign investment into 400 kV interconnectors that blend ceramic and composite technologies. The region's regulatory agencies enforce stringent ANSI and CSA test regimens, shaping global supplier quality benchmarks reverberating throughout the electric insulator market.

Europe's narrative revolves around cross-border integration and environmental stewardship. Germany's onshore corridor projects and the United Kingdom's offshore-wind landing points commission glass-insulated alternative current lines alongside polymer-sheathed HVDC export cables. Nordic operators require cold-endurance verification down to -50 °C, pushing porcelain glaze formulations into new territory. Circular-economy directives spur pilots on reclaiming alumina from retired disc strings, while EU taxonomy rules favor low-SF₆ or SF₆-free switchgear that uses epoxy post insulators compatible with eco-gases. Collectively, these actions keep Europe a bellwether for specification trends in the global electric insulator market.

List of Companies Covered in this Report:

ABB Ltd Siemens AG General Electric Co. NGK Insulators Ltd Hubbell Inc. Toshiba Corp. Bharat Heavy Electricals Ltd (BHEL) Lapp Insulators GmbH Seves Group TE Connectivity PPC Insulators Sediver SAS MacLean Power Systems Preformed Line Products (PLP) Victor Insulators Inc. Dalian Insulator Group Zhejiang TCI Composite Insulators Jiangxi Liansheng Technology Zhejiang Tailun Insulator Aditya Birla Insulators

Additional Benefits:

Scotts International. EU Vat number: PL 6772247784

tel. 0048 603 394 346 e-mail: support@scotts-international.com

www.scotts-international.com

 The market estimate (ME) sheet in Excel format
3 months of analyst support

Table of Contents:

- 1 Introduction
 - 1.1 Study Assumptions & Market Definition
 - 1.2 Scope of the Study
- 2 Research Methodology
- 3 Executive Summary
- 4 Market Landscape
 - 4.1 Market Overview
 - 4.2 Market Drivers
 - 4.2.1 Grid-hardening spend for climate-resilient T&D infrastructure
 - 4.2.2 Electrification of rail freight corridors in Asia & Europe
 - 4.2.3 Rapid build-out of >220 kV HVDC links in China & India
 - 4.2.4 Utilities' composite-insulator retrofits to cut wildfire risk
 - 4.2.5 AI-enabled predictive maintenance boosting replacement demand
 - 4.3 Market Restraints
 - 4.3.1 Raw-material price volatility (alumina, epoxy, silicone rubber)
 - 4.3.2 Counterfeit low-grade insulators causing safety recalls
 - 4.3.3 Lengthy utility pre-qualification cycles in OECD grids
 - 4.4 Supply-Chain Analysis
 - 4.5 Regulatory Landscape
 - 4.6 Technological Outlook
 - 4.7 Porter's Five Forces
 - 4.7.1 Bargaining Power of Suppliers
 - 4.7.2 Bargaining Power of Buyers
 - 4.7.3 Threat of New Entrants
 - 4.7.4 Threat of Substitutes
 - 4.7.5 Competitive Rivalry
- 5 Market Size & Growth Forecasts
 - 5.1 By Dielectric Material
 - 5.1.1 Ceramic/Porcelain
 - 5.1.2 Glass
 - 5.1.3 Composite/Polymer
 - 5.2 By Voltage Rating
 - 5.2.1 Low (Below 70 kV)
 - 5.2.2 Medium (70 to 220 kV)
 - 5.2.3 High (221 to 765 kV)
 - 5.2.4 Extra- and Ultra-High (Above 765 kV)
 - 5.3 By Installation Environment
 - 5.3.1 Outdoor
 - 5.3.2 Indoor

Scotts International. EU Vat number: PL 6772247784

tel. 0048 603 394 346 e-mail: support@scotts-international.com

www.scotts-international.com

- 5.4 By Application
 - 5.4.1 Transmission Lines
 - 5.4.2 Substations and Switchgear
 - 5.4.3 Transformers and Bushings
 - 5.4.4 Surge/Lightning Protection
- 5.5 By End User
 - 5.5.1 Utilities
 - 5.5.2 Commercial and Industrial
 - 5.5.3 Residential
- 5.6 By Geography
 - 5.6.1 North America
 - 5.6.1.1 United States
 - 5.6.1.2 Canada
 - 5.6.1.3 Mexico
 - 5.6.2 Europe
 - 5.6.2.1 Germany
 - 5.6.2.2 United Kingdom
 - 5.6.2.3 France
 - 5.6.2.4 Italy
 - 5.6.2.5 Spain
 - 5.6.2.6 Russia
 - 5.6.2.7 Rest of Europe
 - 5.6.3 Asia-Pacific
 - 5.6.3.1 China
 - 5.6.3.2 India
 - 5.6.3.3 Japan
 - 5.6.3.4 South Korea
 - 5.6.3.5 ASEAN Countries
 - 5.6.3.6 Australia and New Zealand
 - 5.6.3.7 Rest of Asia-Pacific
 - 5.6.4 South America
 - 5.6.4.1 Brazil
 - 5.6.4.2 Argentina
 - 5.6.4.3 Rest of South America
 - 5.6.5 Middle East and Africa
 - 5.6.5.1 Saudi Arabia
 - 5.6.5.2 United Arab Emirates
 - 5.6.5.3 South Africa
 - 5.6.5.4 Egypt
 - 5.6.5.5 Rest of Middle East and Africa

6 Competitive Landscape

- 6.1 Market Concentration
- 6.2 Strategic Moves (M&A, Partnerships, PPAs)
- 6.3 Market Share Analysis (Market Rank/Share for key companies)
- 6.4 Company Profiles (includes Global level Overview, Market level overview, Core Segments, Financials as available, Strategic Information, Products & Services, and Recent Developments)

Scotts International. EU Vat number: PL 6772247784

tel. 0048 603 394 346 e-mail: support@scotts-international.com

www.scotts-international.com

- 6.4.1 ABB Ltd
- 6.4.2 Siemens AG
- 6.4.3 General Electric Co.
- 6.4.4 NGK Insulators Ltd
- 6.4.5 Hubbell Inc.
- 6.4.6 Toshiba Corp.
- 6.4.7 Bharat Heavy Electricals Ltd (BHEL)
- 6.4.8 Lapp Insulators GmbH
- 6.4.9 Seves Group
- 6.4.10 TE Connectivity
- 6.4.11 PPC Insulators
- 6.4.12 Sediver SAS
- 6.4.13 MacLean Power Systems
- 6.4.14 Preformed Line Products (PLP)
- 6.4.15 Victor Insulators Inc.
- 6.4.16 Dalian Insulator Group
- 6.4.17 Zhejiang TCI Composite Insulators
- 6.4.18 Jiangxi Liansheng Technology
- 6.4.19 Zhejiang Tailun Insulator
- 6.4.20 Aditya Birla Insulators

7 Market Opportunities & Future Outlook

7.1 White-space & Unmet-Need Assessment

Scotts International. EU Vat number: PL 6772247784

tel. 0048 603 394 346 e-mail: support@scotts-international.com

www.scotts-international.com

Electric Insulator - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts (2026 - 2031)

Market Report | 2026-01-16 | 125 pages | Mordor Intelligence

To place an Order with Scotts International:

- Print this form
- Complete the relevant blank fields and sign
- Send as a scanned email to support@scotts-international.com

ORDER FORM:

Select license	License	Price
	Single User License	\$4750.00
	Team License (1-7 Users)	\$5250.00
	Site License	\$6500.00
	Corporate License	\$8750.00
		VAT
		Total

*Please circle the relevant license option. For any questions please contact support@scotts-international.com or 0048 603 394 346.

** VAT will be added at 23% for Polish based companies, individuals and EU based companies who are unable to provide a valid EU Vat Numbers.

Email*	<input type="text"/>	Phone*	<input type="text"/>
First Name*	<input type="text"/>	Last Name*	<input type="text"/>
Job title*	<input type="text"/>		
Company Name*	<input type="text"/>	EU Vat / Tax ID / NIP number*	<input type="text"/>
Address*	<input type="text"/>	City*	<input type="text"/>
Zip Code*	<input type="text"/>	Country*	<input type="text"/>
		Date	<input type="text" value="2026-02-25"/>
		Signature	

Scotts International. EU Vat number: PL 6772247784

tel. 0048 603 394 346 e-mail: support@scotts-international.com

www.scotts-international.com

