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Global Sulfide-Based Solid Electrolytes Supply, Demand and Key Producers, 2026-2032

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Abstracts

The global Sulfide-Based Solid Electrolytes market size is expected to reach $ 346 million by 2032, rising at a market growth of 14.0% CAGR during the forecast period (2026-2032).
Sulfide-based solid electrolytes are a class of inorganic solid-state ionic conductive media with sulfur as the core anionic component. They are mainly formed by composite and crystallization processes of lithium/sodium sulfides and sulfides of elements such as phosphorus, silicon, and germanium. Charge conduction is achieved through the migration of ion vacancies or interstitial atoms within the crystal lattice. As one of the core materials of all-solid-state lithium batteries, sulfide-based solid electrolytes can fundamentally solve the leakage and explosion risks of traditional liquid lithium batteries, and are a key candidate material for next-generation high-safety, high-energy-density energy storage devices.
In 2025, the global production of sulfide-based solid electrolytes is estimated at 16.6 tons, with an average price of US$8,190 per kg.
Upstream of sulfide-based solid electrolytes mainly includes lithium sulfide, phosphorus sulfides, germanium- or silicon-based compounds, dopants, as well as high-purity inert gases and sealed packaging materials, with extremely strict requirements for raw material purity and moisture and oxygen control. Downstream is highly concentrated in all-solid-state and semi-solid-state batteries, representing the highest value and technical intensity segment, mainly serving power battery manufacturers, automotive OEMs, battery technology companies, and selected high-end energy storage and consumer electronics applications. Downstream customers focus on room-temperature ionic conductivity, interfacial resistance, formability, compressibility, and compatibility with electrode materials, and current demand is dominated by joint development, sample validation, and pilot-scale introduction rather than mass commercialization.
Industry trends indicate a shift from laboratory-scale materials toward scalable synthesis

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and composite systems, with improvements in air stability and cycle life through elemental substitution, glass?ceramic engineering, and interface coatings. Key drivers include the superior safety and power performance potential of solid-state batteries, sustained long-term investment by OEMs in solid-state battery roadmaps, and continued policy and capital support for advanced battery materials. Major constraints arise from extreme sensitivity to moisture and oxygen, resulting in high manufacturing and logistics costs, significant raw material price volatility, long validation cycles for large-scale consistency and reliability, and an overall immature supply chain. Gross margins for sulfide-based solid electrolytes are currently relatively high but volatile. R&D-grade and customized products can achieve margins of 40% to 60%, while products approaching industrialization typically see margins in the 25% to 35% range due to heavy equipment investment, yield challenges, and safety-related cost burdens. As scale expands and processes mature, margins are likely to normalize and stabilize over time.

This report studies the global Sulfide-Based Solid Electrolytes production, demand, key manufacturers, and key regions.

This report is a detailed and comprehensive analysis of the world market for Sulfide-Based Solid Electrolytes and provides market size (US$ million) and Year-over-Year (YoY) Growth, considering 2025 as the base year. This report explores demand trends and competition, as well as details the characteristics of Sulfide-Based Solid Electrolytes that contribute to its increasing demand across many markets.

Highlights and key features of the study

Global Sulfide-Based Solid Electrolytes total production and demand, 2021-2032, (Tons)

Global Sulfide-Based Solid Electrolytes total production value, 2021-2032, (USD Million)

Global Sulfide-Based Solid Electrolytes production by region & country, production, value, CAGR, 2021-2032, (USD Million) & (Tons), (based on production site)

Global Sulfide-Based Solid Electrolytes consumption by region & country, CAGR, 2021-2032 & (Tons)

U.S. VS China: Sulfide-Based Solid Electrolytes domestic production, consumption, key domestic manufacturers and share

Global Sulfide-Based Solid Electrolytes production by manufacturer, production, price, value and market share 2021-2026, (USD Million) & (Tons)

Global Sulfide-Based Solid Electrolytes production by Type, production, value, CAGR, 2021-2032, (USD Million) & (Tons)

Global Sulfide-Based Solid Electrolytes production by Application, production, value, CAGR, 2021-2032, (USD Million) & (Tons)

This report profiles key players in the global Sulfide-Based Solid Electrolytes market based on the following parameters - company overview, production, value, price, gross

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margin, product portfolio, geographical presence, and key developments. Key companies covered as a part of this study include MITSUI KINZOKU COMPANY, Idemitsu Kosan Co., Ltd., AGC Inc., Mitsubishi Materials Corporation, Ganfeng Lithium Co., Ltd., Solid Power, Inc., Ampcera Inc., NEI Corporation, Jeong Kwan Co., Ltd., POSCO JK Solid Solution Co., Ltd., etc.
This report also provides key insights about market drivers, restraints, opportunities, new product launches or approvals.
Stakeholders would have ease in decision-making through various strategy matrices used in analyzing the World Sulfide-Based Solid Electrolytes market
Detailed Segmentation:
Each section contains quantitative market data including market by value (US$ Millions), volume (production, consumption) & (Tons) and average price (US$/kg) by manufacturer, by Type, and by Application. Data is given for the years 2021-2032 by year with 2025 as the base year, 2026 as the estimate year, and 2027-2032 as the forecast year.
Global Sulfide-Based Solid Electrolytes Market, By Region:

United States

China

Europe

Japan

South Korea

ASEAN

India

Rest of World

Global Sulfide-Based Solid Electrolytes Market, Segmentation by Type:

Glass-Ceramic System

NASICON Sulfide System

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Garnet Sulfide System

Anti-Perovskite Sulfide System

Ternary Sulfide System

Global Sulfide-Based Solid Electrolytes Market, Segmentation by Processes:

Solid-Phase Reaction Method

Liquid-Phase Synthesis Method

Vacuum-Phase Deposition Method

Mechanical-Chemical Method

Global Sulfide-Based Solid Electrolytes Market, Segmentation by Ion Conduction Types:

Lithium-Ion Conduction

Sodium-Ion Conduction

Global Sulfide-Based Solid Electrolytes Market, Segmentation by Application:

All-Solid-State Lithium Batteries

Specialty Batteries

Electrochemical Sensors

Companies Profiled:

MITSUI KINZOKU COMPANY

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Idemitsu Kosan Co., Ltd.

AGC Inc.

Mitsubishi Materials Corporation

Ganfeng Lithium Co., Ltd.

Solid Power, Inc.

Ampcera Inc.

NEI Corporation

Jeong Kwan Co., Ltd.

POSCO JK Solid Solution Co., Ltd.

Guangzhou Tinci Materials Technology Co., Ltd.

Key Questions Answered:

1. How big is the global Sulfide-Based Solid Electrolytes market?
2. What is the demand of the global Sulfide-Based Solid Electrolytes market?
3. What is the year over year growth of the global Sulfide-Based Solid Electrolytes market?
4. What is the production and production value of the global Sulfide-Based Solid Electrolytes market?
5. Who are the key producers in the global Sulfide-Based Solid Electrolytes market?
6. What are the growth factors driving the market demand?

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