

High Purity Boron Global Market Insights 2025, Analysis and Forecast to 2030, by Manufacturers, Regions, Technology, Application

<https://marketpublishers.com/r/H56E1AABB4ADEN.html>

Date: April 2025

Pages: 78

Price: US\$ 3,200.00 (Single User License)

ID: H56E1AABB4ADEN

Abstracts

High Purity Boron Market Summary

Introduction

High Purity Boron is a specialized material integral to the production of monocrystalline silicon wafers, primarily used as a dopant in the Czochralski process. In this process, polysilicon is melted in a quartz crucible with a small amount of High Purity Boron to impart a positive electrical orientation (p-type silicon), a critical step for most solar cells and semiconductor devices. The market is closely linked to the photovoltaic industry's growth, with installations rising from 117 GW in 2019 to 375 GW in 2024, and projected to reach 540 GW by 2028. High Purity Boron's role in enabling high-quality silicon wafers underscores its importance in the global shift toward renewable energy and advanced electronics. The market features a small group of key players, including 3M, Tokuyama Corporation, Yamanaka Advanced Materials, and Vital Materials, reflecting the technical complexity and stringent purity requirements of the product. The High Purity Boron market is estimated to reach USD 100-300 million by 2025, with a projected CAGR of 4.5%-8.5% from 2025 to 2030, driven by its critical applications in photovoltaics and semiconductors.

Market Size and Growth Forecast

The High Purity Boron market is expected to achieve a valuation of USD 100-300 million by 2025, with a CAGR ranging from 4.5% to 8.5% through 2030. Growth is fueled by the increasing demand for monocrystalline silicon in solar and semiconductor applications, though its niche status and potential shifts in doping technologies may

moderate expansion.

Regional Analysis

The High Purity Boron market reflects regional trends in photovoltaic and semiconductor manufacturing.

Asia Pacific: Growth ranges from 5.0% to 9.0%. China, Japan, and South Korea dominate due to their leadership in solar cell production and semiconductor fabrication. China's photovoltaic surge, targeting 540 GW by 2028, drives boron demand, with trends focusing on renewable energy scalability.

North America: Growth is estimated at 4.0% to 8.0%. The U.S. leads with rising solar installations and semiconductor investments, with trends emphasizing energy independence and domestic manufacturing.

Europe: Growth ranges from 4.5% to 8.5%. Germany and the Netherlands contribute through photovoltaic growth and semiconductor innovation, with trends leaning toward sustainable energy solutions.

Rest of the World: Growth is projected at 3.5% to 7.5%. Emerging markets like India show potential in solar manufacturing, though their impact remains limited.

Application Analysis

High Purity Boron's primary application is in monocrystalline silicon production, with specific growth characteristics.

Monocrystalline Silicon: Growth ranges from 4.5% to 8.5%. Boron dopes silicon to produce p-type wafers, which dominate solar cell manufacturing. Trends focus on enhancing efficiency and reducing costs, though the rise of n-type wafers doped with phosphorus for high-efficiency cells presents a potential shift.

Key Market Players

The High Purity Boron market is served by a select group of specialized producers.

3M: A U.S.-based firm, 3M applies its materials science expertise to supply high-purity boron for semiconductors.

Tokuyama Corporation: Headquartered in Japan, Tokuyama excels in chemical processing for photovoltaic and electronics applications.

Yamanaka Advanced Materials: A Japanese company, it focuses on high-purity materials for industrial uses.

Vital Materials: A global supplier, it provides critical materials for electronics and renewable energy markets.

Porter's Five Forces Analysis

The High Purity Boron market's competitive landscape is analyzed through Porter's Five Forces.

Threat of New Entrants: Low. High technical barriers, purity standards, and capital costs limit new entrants.

Threat of Substitutes: Moderate. Phosphorus-doped n-type silicon competes in high-efficiency applications, though boron retains dominance in p-type wafers.

Bargaining Power of Buyers: High. Large solar and semiconductor manufacturers hold significant sway due to their scale.

Bargaining Power of Suppliers: Moderate to high. A limited number of high-purity boron producers exert pricing influence.

Industry Rivalry: Moderate. Competition is concentrated among a few specialized firms, driven by purity and supply reliability.

Market Opportunities and Challenges

Opportunities

The photovoltaic sector's growth, with installations reaching 540 GW by 2028, boosts demand for boron-doped silicon wafers.

Semiconductor expansion, driven by AI and HPC, opens new avenues for high-purity boron in wafer production.

Emerging solar markets like India offer growth potential as manufacturing scales.

Challenges

The shift to n-type silicon wafers in high-efficiency solar cells reduces boron's dominance.

High production costs and energy-intensive purification limit scalability.

Supply chain risks for raw boron materials threaten continuity.

Competition from alternative dopants challenges market share.

Contents

CHAPTER 1 EXECUTIVE SUMMARY

CHAPTER 2 ABBREVIATION AND ACRONYMS

CHAPTER 3 PREFACE

- 3.1 Research Scope
- 3.2 Research Sources
 - 3.2.1 Data Sources
 - 3.2.2 Assumptions
- 3.3 Research Method

CHAPTER 4 MARKET LANDSCAPE

- 4.1 Market Overview
- 4.2 Classification/Types
- 4.3 Application/End Users

CHAPTER 5 MARKET TREND ANALYSIS

- 5.1 Introduction
- 5.2 Drivers
- 5.3 Restraints
- 5.4 Opportunities
- 5.5 Threats

CHAPTER 6 INDUSTRY CHAIN ANALYSIS

- 6.1 Upstream/Suppliers Analysis
- 6.2 High Purity Boron Analysis
 - 6.2.1 Technology Analysis
 - 6.2.2 Cost Analysis
 - 6.2.3 Market Channel Analysis
- 6.3 Downstream Buyers/End Users

CHAPTER 7 LATEST MARKET DYNAMICS

- 7.1 Latest News
- 7.2 Merger and Acquisition
- 7.3 Planned/Future Project
- 7.4 Policy Dynamics

CHAPTER 8 TRADING ANALYSIS

- 8.1 Export of High Purity Boron by Region
- 8.2 Import of High Purity Boron by Region
- 8.3 Balance of Trade

CHAPTER 9 HISTORICAL AND FORECAST HIGH PURITY BORON MARKET IN NORTH AMERICA (2020-2030)

- 9.1 High Purity Boron Market Size
- 9.2 High Purity Boron Demand by End Use
- 9.3 Competition by Players/Suppliers
- 9.4 Type Segmentation and Price
- 9.5 Key Countries Analysis
 - 9.5.1 United States
 - 9.5.2 Canada
 - 9.5.3 Mexico

CHAPTER 10 HISTORICAL AND FORECAST HIGH PURITY BORON MARKET IN SOUTH AMERICA (2020-2030)

- 10.1 High Purity Boron Market Size
- 10.2 High Purity Boron Demand by End Use
- 10.3 Competition by Players/Suppliers
- 10.4 Type Segmentation and Price
- 10.5 Key Countries Analysis
 - 10.5.1 Brazil
 - 10.5.2 Argentina
 - 10.5.3 Chile
 - 10.5.4 Peru

CHAPTER 11 HISTORICAL AND FORECAST HIGH PURITY BORON MARKET IN ASIA & PACIFIC (2020-2030)

- 11.1 High Purity Boron Market Size
- 11.2 High Purity Boron Demand by End Use
- 11.3 Competition by Players/Suppliers
- 11.4 Type Segmentation and Price
- 11.5 Key Countries Analysis
 - 11.5.1 China
 - 11.5.2 India
 - 11.5.3 Japan
 - 11.5.4 South Korea
 - 11.5.5 Southeast Asia
 - 11.5.6 Australia

CHAPTER 12 HISTORICAL AND FORECAST HIGH PURITY BORON MARKET IN EUROPE (2020-2030)

- 12.1 High Purity Boron Market Size
- 12.2 High Purity Boron Demand by End Use
- 12.3 Competition by Players/Suppliers
- 12.4 Type Segmentation and Price
- 12.5 Key Countries Analysis
 - 12.5.1 Germany
 - 12.5.2 France
 - 12.5.3 United Kingdom
 - 12.5.4 Italy
 - 12.5.5 Spain
 - 12.5.6 Belgium
 - 12.5.7 Netherlands
 - 12.5.8 Austria
 - 12.5.9 Poland
 - 12.5.10 Russia

CHAPTER 13 HISTORICAL AND FORECAST HIGH PURITY BORON MARKET IN MEA (2020-2030)

- 13.1 High Purity Boron Market Size
- 13.2 High Purity Boron Demand by End Use
- 13.3 Competition by Players/Suppliers
- 13.4 Type Segmentation and Price
- 13.5 Key Countries Analysis

- 13.5.1 Egypt
- 13.5.2 Israel
- 13.5.3 South Africa
- 13.5.4 Gulf Cooperation Council Countries
- 13.5.5 Turkey

CHAPTER 14 SUMMARY FOR GLOBAL HIGH PURITY BORON MARKET (2020-2025)

- 14.1 High Purity Boron Market Size
- 14.2 High Purity Boron Demand by End Use
- 14.3 Competition by Players/Suppliers
- 14.4 Type Segmentation and Price

CHAPTER 15 GLOBAL HIGH PURITY BORON MARKET FORECAST (2025-2030)

- 15.1 High Purity Boron Market Size Forecast
- 15.2 High Purity Boron Demand Forecast
- 15.3 Competition by Players/Suppliers
- 15.4 Type Segmentation and Price Forecast

CHAPTER 16 ANALYSIS OF GLOBAL KEY VENDORS

- 16.1 3M
 - 16.1.1 Company Profile
 - 16.1.2 Main Business and High Purity Boron Information
 - 16.1.3 SWOT Analysis of 3M
 - 16.1.4 3M High Purity Boron Sales, Revenue, Price and Gross Margin (2020-2025)
- 16.2 Tokuyama Corporation
 - 16.2.1 Company Profile
 - 16.2.2 Main Business and High Purity Boron Information
 - 16.2.3 SWOT Analysis of Tokuyama Corporation
 - 16.2.4 Tokuyama Corporation High Purity Boron Sales, Revenue, Price and Gross Margin (2020-2025)
- 16.3 Yamanaka Advanced Materials
 - 16.3.1 Company Profile
 - 16.3.2 Main Business and High Purity Boron Information
 - 16.3.3 SWOT Analysis of Yamanaka Advanced Materials
 - 16.3.4 Yamanaka Advanced Materials High Purity Boron Sales, Revenue, Price and

Gross Margin (2020-2025)

16.4 Vital Materials

16.4.1 Company Profile

16.4.2 Main Business and High Purity Boron Information

16.4.3 SWOT Analysis of Vital Materials

16.4.4 Vital Materials High Purity Boron Sales, Revenue, Price and Gross Margin (2020-2025)

Please ask for sample pages for full companies list

Tables and Figures

Table Abbreviation and Acronyms List

Table Research Scope of High Purity Boron Report

Table Data Sources of High Purity Boron Report

Table Major Assumptions of High Purity Boron Report

Figure Market Size Estimated Method

Figure Major Forecasting Factors

Figure High Purity Boron Picture

Table High Purity Boron Classification

Table High Purity Boron Applications List

Table Drivers of High Purity Boron Market

Table Restraints of High Purity Boron Market

Table Opportunities of High Purity Boron Market

Table Threats of High Purity Boron Market

Table Raw Materials Suppliers List

Table Different Production Methods of High Purity Boron

Table Cost Structure Analysis of High Purity Boron

Table Key End Users List

Table Latest News of High Purity Boron Market

Table Merger and Acquisition List

Table Planned/Future Project of High Purity Boron Market

Table Policy of High Purity Boron Market

Table 2020-2030 Regional Export of High Purity Boron

Table 2020-2030 Regional Import of High Purity Boron

Table 2020-2030 Regional Trade Balance

Figure 2020-2030 Regional Trade Balance

Table 2020-2030 North America High Purity Boron Market Size and Market Volume List

Figure 2020-2030 North America High Purity Boron Market Size and CAGR

Figure 2020-2030 North America High Purity Boron Market Volume and CAGR

Table 2020-2030 North America High Purity Boron Demand List by Application

Table 2020-2025 North America High Purity Boron Key Players Sales List

Table 2020-2025 North America High Purity Boron Key Players Market Share List
Table 2020-2030 North America High Purity Boron Demand List by Type
Table 2020-2025 North America High Purity Boron Price List by Type
Table 2020-2030 United States High Purity Boron Market Size and Market Volume List
Table 2020-2030 United States High Purity Boron Import & Export List
Table 2020-2030 Canada High Purity Boron Market Size and Market Volume List
Table 2020-2030 Canada High Purity Boron Import & Export List
Table 2020-2030 Mexico High Purity Boron Market Size and Market Volume List
Table 2020-2030 Mexico High Purity Boron Import & Export List
Table 2020-2030 South America High Purity Boron Market Size and Market Volume List
Figure 2020-2030 South America High Purity Boron Market Size and CAGR
Figure 2020-2030 South America High Purity Boron Market Volume and CAGR
Table 2020-2030 South America High Purity Boron Demand List by Application
Table 2020-2025 South America High Purity Boron Key Players Sales List
Table 2020-2025 South America High Purity Boron Key Players Market Share List
Table 2020-2030 South America High Purity Boron Demand List by Type
Table 2020-2025 South America High Purity Boron Price List by Type
Table 2020-2030 Brazil High Purity Boron Market Size and Market Volume List
Table 2020-2030 Brazil High Purity Boron Import & Export List
Table 2020-2030 Argentina High Purity Boron Market Size and Market Volume List
Table 2020-2030 Argentina High Purity Boron Import & Export List
Table 2020-2030 Chile High Purity Boron Market Size and Market Volume List
Table 2020-2030 Chile High Purity Boron Import & Export List
Table 2020-2030 Peru High Purity Boron Market Size and Market Volume List
Table 2020-2030 Peru High Purity Boron Import & Export List
Table 2020-2030 Asia & Pacific High Purity Boron Market Size and Market Volume List
Figure 2020-2030 Asia & Pacific High Purity Boron Market Size and CAGR
Figure 2020-2030 Asia & Pacific High Purity Boron Market Volume and CAGR
Table 2020-2030 Asia & Pacific High Purity Boron Demand List by Application
Table 2020-2025 Asia & Pacific High Purity Boron Key Players Sales List
Table 2020-2025 Asia & Pacific High Purity Boron Key Players Market Share List
Table 2020-2030 Asia & Pacific High Purity Boron Demand List by Type
Table 2020-2025 Asia & Pacific High Purity Boron Price List by Type
Table 2020-2030 China High Purity Boron Market Size and Market Volume List
Table 2020-2030 China High Purity Boron Import & Export List
Table 2020-2030 India High Purity Boron Market Size and Market Volume List
Table 2020-2030 India High Purity Boron Import & Export List
Table 2020-2030 Japan High Purity Boron Market Size and Market Volume List
Table 2020-2030 Japan High Purity Boron Import & Export List

Table 2020-2030 South Korea High Purity Boron Market Size and Market Volume List
Table 2020-2030 South Korea High Purity Boron Import & Export List
Table 2020-2030 Southeast Asia High Purity Boron Market Size List
Table 2020-2030 Southeast Asia High Purity Boron Market Volume List
Table 2020-2030 Southeast Asia High Purity Boron Import List
Table 2020-2030 Southeast Asia High Purity Boron Export List
Table 2020-2030 Australia High Purity Boron Market Size and Market Volume List
Table 2020-2030 Australia High Purity Boron Import & Export List
Table 2020-2030 Europe High Purity Boron Market Size and Market Volume List
Figure 2020-2030 Europe High Purity Boron Market Size and CAGR
Figure 2020-2030 Europe High Purity Boron Market Volume and CAGR
Table 2020-2030 Europe High Purity Boron Demand List by Application
Table 2020-2025 Europe High Purity Boron Key Players Sales List
Table 2020-2025 Europe High Purity Boron Key Players Market Share List
Table 2020-2030 Europe High Purity Boron Demand List by Type
Table 2020-2025 Europe High Purity Boron Price List by Type
Table 2020-2030 Germany High Purity Boron Market Size and Market Volume List
Table 2020-2030 Germany High Purity Boron Import & Export List
Table 2020-2030 France High Purity Boron Market Size and Market Volume List
Table 2020-2030 France High Purity Boron Import & Export List
Table 2020-2030 United Kingdom High Purity Boron Market Size and Market Volume List
Table 2020-2030 United Kingdom High Purity Boron Import & Export List
Table 2020-2030 Italy High Purity Boron Market Size and Market Volume List
Table 2020-2030 Italy High Purity Boron Import & Export List
Table 2020-2030 Spain High Purity Boron Market Size and Market Volume List
Table 2020-2030 Spain High Purity Boron Import & Export List
Table 2020-2030 Belgium High Purity Boron Market Size and Market Volume List
Table 2020-2030 Belgium High Purity Boron Import & Export List
Table 2020-2030 Netherlands High Purity Boron Market Size and Market Volume List
Table 2020-2030 Netherlands High Purity Boron Import & Export List
Table 2020-2030 Austria High Purity Boron Market Size and Market Volume List
Table 2020-2030 Austria High Purity Boron Import & Export List
Table 2020-2030 Poland High Purity Boron Market Size and Market Volume List
Table 2020-2030 Poland High Purity Boron Import & Export List
Table 2020-2030 Russia High Purity Boron Market Size and Market Volume List
Table 2020-2030 Russia High Purity Boron Import & Export List
Table 2020-2030 MEA High Purity Boron Market Size and Market Volume List
Figure 2020-2030 MEA High Purity Boron Market Size and CAGR

Figure 2020-2030 MEA High Purity Boron Market Volume and CAGR
Table 2020-2030 MEA High Purity Boron Demand List by Application
Table 2020-2025 MEA High Purity Boron Key Players Sales List
Table 2020-2025 MEA High Purity Boron Key Players Market Share List
Table 2020-2030 MEA High Purity Boron Demand List by Type
Table 2020-2025 MEA High Purity Boron Price List by Type
Table 2020-2030 Egypt High Purity Boron Market Size and Market Volume List
Table 2020-2030 Egypt High Purity Boron Import & Export List
Table 2020-2030 Israel High Purity Boron Market Size and Market Volume List
Table 2020-2030 Israel High Purity Boron Import & Export List
Table 2020-2030 South Africa High Purity Boron Market Size and Market Volume List
Table 2020-2030 South Africa High Purity Boron Import & Export List
Table 2020-2030 Gulf Cooperation Council Countries High Purity Boron Market Size and Market Volume List
Table 2020-2030 Gulf Cooperation Council Countries High Purity Boron Import & Export List
Table 2020-2030 Turkey High Purity Boron Market Size and Market Volume List
Table 2020-2030 Turkey High Purity Boron Import & Export List
Table 2020-2025 Global High Purity Boron Market Size List by Region
Table 2020-2025 Global High Purity Boron Market Size Share List by Region
Table 2020-2025 Global High Purity Boron Market Volume List by Region
Table 2020-2025 Global High Purity Boron Market Volume Share List by Region
Table 2020-2025 Global High Purity Boron Demand List by Application
Table 2020-2025 Global High Purity Boron Demand Market Share List by Application
Table 2020-2025 Global High Purity Boron Capacity List
Table 2020-2025 Global High Purity Boron Key Vendors Capacity Share List
Table 2020-2025 Global High Purity Boron Key Vendors Production List
Table 2020-2025 Global High Purity Boron Key Vendors Production Share List
Figure 2020-2025 Global High Purity Boron Capacity Production and Growth Rate
Table 2020-2025 Global High Purity Boron Key Vendors Production Value List
Figure 2020-2025 Global High Purity Boron Production Value and Growth Rate
Table 2020-2025 Global High Purity Boron Key Vendors Production Value Share List
Table 2020-2025 Global High Purity Boron Demand List by Type
Table 2020-2025 Global High Purity Boron Demand Market Share List by Type
Table 2020-2025 Regional High Purity Boron Price List
Table 2025-2030 Global High Purity Boron Market Size List by Region
Table 2025-2030 Global High Purity Boron Market Size Share List by Region
Table 2025-2030 Global High Purity Boron Market Volume List by Region
Table 2025-2030 Global High Purity Boron Market Volume Share List by Region

Table 2025-2030 Global High Purity Boron Demand List by Application
Table 2025-2030 Global High Purity Boron Demand Market Share List by Application
Table 2025-2030 Global High Purity Boron Capacity List
Table 2025-2030 Global High Purity Boron Key Vendors Capacity Share List
Table 2025-2030 Global High Purity Boron Key Vendors Production List
Table 2025-2030 Global High Purity Boron Key Vendors Production Share List
Figure 2025-2030 Global High Purity Boron Capacity Production and Growth Rate
Table 2025-2030 Global High Purity Boron Key Vendors Production Value List
Figure 2025-2030 Global High Purity Boron Production Value and Growth Rate
Table 2025-2030 Global High Purity Boron Key Vendors Production Value Share List
Table 2025-2030 Global High Purity Boron Demand List by Type
Table 2025-2030 Global High Purity Boron Demand Market Share List by Type
Table 2025-2030 High Purity Boron Regional Price List
Table 3M Information
Table SWOT Analysis of 3M
Table 2020-2025 3M High Purity Boron Product Capacity Production Price Cost Production Value
Figure 2020-2025 3M High Purity Boron Capacity Production and Growth Rate
Figure 2020-2025 3M High Purity Boron Market Share
Table Tokuyama Corporation Information
Table SWOT Analysis of Tokuyama Corporation
Table 2020-2025 Tokuyama Corporation High Purity Boron Product Capacity Production Price Cost Production Value
Figure 2020-2025 Tokuyama Corporation High Purity Boron Capacity Production and Growth Rate
Figure 2020-2025 Tokuyama Corporation High Purity Boron Market Share
Table Yamanaka Advanced Materials Information
Table SWOT Analysis of Yamanaka Advanced Materials
Table 2020-2025 Yamanaka Advanced Materials High Purity Boron Product Capacity Production Price Cost Production Value
Figure 2020-2025 Yamanaka Advanced Materials High Purity Boron Capacity Production and Growth Rate
Figure 2020-2025 Yamanaka Advanced Materials High Purity Boron Market Share
Table Vital Materials Information
Table SWOT Analysis of Vital Materials
Table 2020-2025 Vital Materials High Purity Boron Product Capacity Production Price Cost Production Value
Figure 2020-2025 Vital Materials High Purity Boron Capacity Production and Growth Rate

Figure 2020-2025 Vital Materials High Purity Boron Market Share

.....

I would like to order

Product name: High Purity Boron Global Market Insights 2025, Analysis and Forecast to 2030, by Manufacturers, Regions, Technology, Application

Product link: <https://marketpublishers.com/r/H56E1AABB4ADEN.html>

Price: US\$ 3,200.00 (Single User License / Electronic Delivery)

If you want to order Corporate License or Hard Copy, please, contact our Customer Service:

info@marketpublishers.com

Payment

To pay by Credit Card (Visa, MasterCard, American Express, PayPal), please, click button on product page <https://marketpublishers.com/r/H56E1AABB4ADEN.html>