

# Global KNN-based Piezoelectric Ceramics Market Growth 2026-2032

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## Abstracts

The global KNN-based Piezoelectric Ceramics market size is predicted to grow from US\$ 14.89 million in 2025 to US\$ 43.06 million in 2032; it is expected to grow at a CAGR of 16.7% from 2026 to 2032.

Potassium sodium niobate (KNN) is a perovskite-structured material with the chemical formula  $(K,Na)NbO_3$ . KNN is a lead-free ferroelectric material with excellent piezoelectric properties, used in sensors, actuators, and energy harvesting devices. It is a promising alternative to lead-based piezo ceramics in the field of electromechanical conversion.

### Key Market Trends:

**High-performance Material Optimization:** Ongoing research focuses on improving piezoelectric coefficients and thermal stability through doping strategies (e.g., Li, Sb) and advanced sintering techniques like two-step sintering (TSS), which reduces alkali metal volatility and enhances densification.

**Policy-Driven Market Growth:** Stricter environmental regulations (e.g., EU RoHS, China's 'Dual Carbon' policy) mandate lead-free alternatives, accelerating KNN adoption in consumer electronics and industrial sectors.

### Key Market Drivers:

**Driver 1:** Regulations are in place to restrict the use of lead in commercial products and these are expected to become even stricter in the future. For example, the draft revision of the EU RoHS Directive has clearly tightened the lead content limit of piezoelectric

materials from the current 0.1% to 0.05%. The search for lead-free alternatives to  $\text{Pb}(\text{Zr}, \text{Ti})\text{O}_3$  (PZT) piezoelectric ceramics has become a major topic in functional materials research due to legislation in many countries that restricts the use of lead alloys and compounds in commercial products.

Driver 2: At present, the development of lead-free piezoelectric ceramics is that a variety of materials coexist, and different lead-free materials have their own characteristics. However, KNN is the material closest to PZT and is very likely to replace the currently widely used PZT ceramics.

Key Market Restraints:

Technical Performance Gaps: KNN ceramics still lag behind lead-based materials (e.g., PZT) in piezoelectric coefficients, temperature stability, and mechanical durability, limiting applications requiring high precision or extreme environments.

LP Information, Inc. (LPI) ' newest research report, the "KNN-based Piezoelectric Ceramics Industry Forecast" looks at past sales and reviews total world KNN-based Piezoelectric Ceramics sales in 2025, providing a comprehensive analysis by region and market sector of projected KNN-based Piezoelectric Ceramics sales for 2026 through 2032. With KNN-based Piezoelectric Ceramics sales broken down by region, market sector and sub-sector, this report provides a detailed analysis in US\$ millions of the world KNN-based Piezoelectric Ceramics industry.

This Insight Report provides a comprehensive analysis of the global KNN-based Piezoelectric Ceramics landscape and highlights key trends related to product segmentation, company formation, revenue, and market share, latest development, and M&A activity. This report also analyzes the strategies of leading global companies with a focus on KNN-based Piezoelectric Ceramics portfolios and capabilities, market entry strategies, market positions, and geographic footprints, to better understand these firms' unique position in an accelerating global KNN-based Piezoelectric Ceramics market.

This Insight Report evaluates the key market trends, drivers, and affecting factors shaping the global outlook for KNN-based Piezoelectric Ceramics and breaks down the forecast by Type, by Application, geography, and market size to highlight emerging pockets of opportunity. With a transparent methodology based on hundreds of bottom-up qualitative and quantitative market inputs, this study forecast offers a highly nuanced view of the current state and future trajectory in the global KNN-based Piezoelectric

Ceramics.

This report presents a comprehensive overview, market shares, and growth opportunities of KNN-based Piezoelectric Ceramics market by product type, application, key manufacturers and key regions and countries.

### **Segmentation by Type:**

D33: 100-200 pC/N

D33: 200-300 pC/N

### **Segmentation by Application:**

Medical

Industrial

Underwater and Defense

### **This report also splits the market by region:**

Americas

United States

Canada

Mexico

Brazil

APAC

China

Japan

Korea

Southeast Asia

India

Australia

Europe

Germany

France

UK

Italy

Russia

Middle East & Africa

Egypt

South Africa

Israel

Turkey

GCC Countries

The below companies that are profiled have been selected based on inputs gathered from primary experts and analysing the company's coverage, product portfolio, its market penetration.

PI Ceramic

CTS Corporation

Niterra

Tsingfeng Technology

### **Key Questions Addressed in this Report**

What is the 10-year outlook for the global KNN-based Piezoelectric Ceramics market?

What factors are driving KNN-based Piezoelectric Ceramics market growth, globally and by region?

Which technologies are poised for the fastest growth by market and region?

How do KNN-based Piezoelectric Ceramics market opportunities vary by end market size?

How does KNN-based Piezoelectric Ceramics break out by Type, by Application?

## Contents

### 1 SCOPE OF THE REPORT

- 1.1 Market Introduction
- 1.2 Years Considered
- 1.3 Research Objectives
- 1.4 Market Research Methodology
- 1.5 Research Process and Data Source
- 1.6 Economic Indicators
- 1.7 Currency Considered
- 1.8 Market Estimation Caveats

### 2 EXECUTIVE SUMMARY

#### 2.1 World Market Overview

- 2.1.1 Global KNN-based Piezoelectric Ceramics Annual Sales 2021-2032
- 2.1.2 World Current & Future Analysis for KNN-based Piezoelectric Ceramics by Geographic Region, 2021, 2025 & 2032
- 2.1.3 World Current & Future Analysis for KNN-based Piezoelectric Ceramics by Country/Region, 2021, 2025 & 2032
- 2.2 KNN-based Piezoelectric Ceramics Segment by Type
  - 2.2.1 D33: 100-200 pC/N
  - 2.2.2 D33: 200-300 pC/N
  - 2.2.3 KNN-based Piezoelectric Ceramics Sales by Type
    - 2.2.3.1 Global KNN-based Piezoelectric Ceramics Sales Market Share by Type (2021-2026)
    - 2.2.3.2 Global KNN-based Piezoelectric Ceramics Revenue and Market Share by Type (2021-2026)
    - 2.2.3.3 Global KNN-based Piezoelectric Ceramics Sale Price by Type (2021-2026)
- 2.3 KNN-based Piezoelectric Ceramics Segment by Application
  - 2.3.1 Medical
  - 2.3.2 Industrial
  - 2.3.3 Underwater and Defense
  - 2.3.4 KNN-based Piezoelectric Ceramics Sales by Application
    - 2.3.4.1 Global KNN-based Piezoelectric Ceramics Sale Market Share by Application (2021-2026)
    - 2.3.4.2 Global KNN-based Piezoelectric Ceramics Revenue and Market Share by Application (2021-2026)

2.3.4.3 Global KNN-based Piezoelectric Ceramics Sale Price by Application  
(2021-2026)

### **3 GLOBAL BY COMPANY**

3.1 Global KNN-based Piezoelectric Ceramics Breakdown Data by Company

3.1.1 Global KNN-based Piezoelectric Ceramics Annual Sales by Company  
(2021-2026)

3.1.2 Global KNN-based Piezoelectric Ceramics Sales Market Share by Company  
(2021-2026)

3.2 Global KNN-based Piezoelectric Ceramics Annual Revenue by Company  
(2021-2026)

3.2.1 Global KNN-based Piezoelectric Ceramics Revenue by Company (2021-2026)

3.2.2 Global KNN-based Piezoelectric Ceramics Revenue Market Share by Company  
(2021-2026)

3.3 Global KNN-based Piezoelectric Ceramics Sale Price by Company

3.4 Key Manufacturers KNN-based Piezoelectric Ceramics Producing Area Distribution,  
Sales Area, Product Type

3.4.1 Key Manufacturers KNN-based Piezoelectric Ceramics Product Location  
Distribution

3.4.2 Players KNN-based Piezoelectric Ceramics Products Offered

3.5 Market Concentration Rate Analysis

3.5.1 Competition Landscape Analysis

3.5.2 Concentration Ratio (CR3, CR5 and CR10) & (2024-2026)

3.6 New Products and Potential Entrants

3.7 Market M&A Activity & Strategy

### **4 WORLD HISTORIC REVIEW FOR KNN-BASED PIEZOELECTRIC CERAMICS BY GEOGRAPHIC REGION**

4.1 World Historic KNN-based Piezoelectric Ceramics Market Size by Geographic  
Region (2021-2026)

4.1.1 Global KNN-based Piezoelectric Ceramics Annual Sales by Geographic Region  
(2021-2026)

4.1.2 Global KNN-based Piezoelectric Ceramics Annual Revenue by Geographic  
Region (2021-2026)

4.2 World Historic KNN-based Piezoelectric Ceramics Market Size by Country/Region  
(2021-2026)

4.2.1 Global KNN-based Piezoelectric Ceramics Annual Sales by Country/Region

(2021-2026)

4.2.2 Global KNN-based Piezoelectric Ceramics Annual Revenue by Country/Region

(2021-2026)

4.3 Americas KNN-based Piezoelectric Ceramics Sales Growth

4.4 APAC KNN-based Piezoelectric Ceramics Sales Growth

4.5 Europe KNN-based Piezoelectric Ceramics Sales Growth

4.6 Middle East & Africa KNN-based Piezoelectric Ceramics Sales Growth

## **5 AMERICAS**

5.1 Americas KNN-based Piezoelectric Ceramics Sales by Country

5.1.1 Americas KNN-based Piezoelectric Ceramics Sales by Country (2021-2026)

5.1.2 Americas KNN-based Piezoelectric Ceramics Revenue by Country (2021-2026)

5.2 Americas KNN-based Piezoelectric Ceramics Sales by Type (2021-2026)

5.3 Americas KNN-based Piezoelectric Ceramics Sales by Application (2021-2026)

5.4 United States

5.5 Canada

5.6 Mexico

5.7 Brazil

## **6 APAC**

6.1 APAC KNN-based Piezoelectric Ceramics Sales by Region

6.1.1 APAC KNN-based Piezoelectric Ceramics Sales by Region (2021-2026)

6.1.2 APAC KNN-based Piezoelectric Ceramics Revenue by Region (2021-2026)

6.2 APAC KNN-based Piezoelectric Ceramics Sales by Type (2021-2026)

6.3 APAC KNN-based Piezoelectric Ceramics Sales by Application (2021-2026)

6.4 China

6.5 Japan

6.6 South Korea

6.7 Southeast Asia

6.8 India

6.9 Australia

6.10 China Taiwan

## **7 EUROPE**

7.1 Europe KNN-based Piezoelectric Ceramics by Country

7.1.1 Europe KNN-based Piezoelectric Ceramics Sales by Country (2021-2026)

- 7.1.2 Europe KNN-based Piezoelectric Ceramics Revenue by Country (2021-2026)
- 7.2 Europe KNN-based Piezoelectric Ceramics Sales by Type (2021-2026)
- 7.3 Europe KNN-based Piezoelectric Ceramics Sales by Application (2021-2026)
- 7.4 Germany
- 7.5 France
- 7.6 UK
- 7.7 Italy
- 7.8 Russia

## **8 MIDDLE EAST & AFRICA**

- 8.1 Middle East & Africa KNN-based Piezoelectric Ceramics by Country
  - 8.1.1 Middle East & Africa KNN-based Piezoelectric Ceramics Sales by Country (2021-2026)
  - 8.1.2 Middle East & Africa KNN-based Piezoelectric Ceramics Revenue by Country (2021-2026)
- 8.2 Middle East & Africa KNN-based Piezoelectric Ceramics Sales by Type (2021-2026)
- 8.3 Middle East & Africa KNN-based Piezoelectric Ceramics Sales by Application (2021-2026)
- 8.4 Egypt
- 8.5 South Africa
- 8.6 Israel
- 8.7 Turkey
- 8.8 GCC Countries

## **9 MARKET DRIVERS, CHALLENGES AND TRENDS**

- 9.1 Market Drivers & Growth Opportunities
- 9.2 Market Challenges & Risks
- 9.3 Industry Trends

## **10 MANUFACTURING COST STRUCTURE ANALYSIS**

- 10.1 Raw Material and Suppliers
- 10.2 Manufacturing Cost Structure Analysis of KNN-based Piezoelectric Ceramics
- 10.3 Manufacturing Process Analysis of KNN-based Piezoelectric Ceramics
- 10.4 Industry Chain Structure of KNN-based Piezoelectric Ceramics

## **11 MARKETING, DISTRIBUTORS AND CUSTOMER**

## 11.1 Sales Channel

### 11.1.1 Direct Channels

### 11.1.2 Indirect Channels

## 11.2 KNN-based Piezoelectric Ceramics Distributors

## 11.3 KNN-based Piezoelectric Ceramics Customer

# **12 WORLD FORECAST REVIEW FOR KNN-BASED PIEZOELECTRIC CERAMICS BY GEOGRAPHIC REGION**

## 12.1 Global KNN-based Piezoelectric Ceramics Market Size Forecast by Region

### 12.1.1 Global KNN-based Piezoelectric Ceramics Forecast by Region (2027-2032)

### 12.1.2 Global KNN-based Piezoelectric Ceramics Annual Revenue Forecast by Region (2027-2032)

## 12.2 Americas Forecast by Country (2027-2032)

## 12.3 APAC Forecast by Region (2027-2032)

## 12.4 Europe Forecast by Country (2027-2032)

## 12.5 Middle East & Africa Forecast by Country (2027-2032)

## 12.6 Global KNN-based Piezoelectric Ceramics Forecast by Type (2027-2032)

## 12.7 Global KNN-based Piezoelectric Ceramics Forecast by Application (2027-2032)

# **13 KEY PLAYERS ANALYSIS**

## 13.1 PI Ceramic

### 13.1.1 PI Ceramic Company Information

### 13.1.2 PI Ceramic KNN-based Piezoelectric Ceramics Product Portfolios and Specifications

### 13.1.3 PI Ceramic KNN-based Piezoelectric Ceramics Sales, Revenue, Price and Gross Margin (2021-2026)

### 13.1.4 PI Ceramic Main Business Overview

### 13.1.5 PI Ceramic Latest Developments

## 13.2 CTS Corporation

### 13.2.1 CTS Corporation Company Information

### 13.2.2 CTS Corporation KNN-based Piezoelectric Ceramics Product Portfolios and Specifications

### 13.2.3 CTS Corporation KNN-based Piezoelectric Ceramics Sales, Revenue, Price and Gross Margin (2021-2026)

### 13.2.4 CTS Corporation Main Business Overview

### 13.2.5 CTS Corporation Latest Developments

### 13.3 Niterra

#### 13.3.1 Niterra Company Information

#### 13.3.2 Niterra KNN-based Piezoelectric Ceramics Product Portfolios and Specifications

#### 13.3.3 Niterra KNN-based Piezoelectric Ceramics Sales, Revenue, Price and Gross Margin (2021-2026)

#### 13.3.4 Niterra Main Business Overview

#### 13.3.5 Niterra Latest Developments

### 13.4 Tsingfeng Technology

#### 13.4.1 Tsingfeng Technology Company Information

#### 13.4.2 Tsingfeng Technology KNN-based Piezoelectric Ceramics Product Portfolios and Specifications

#### 13.4.3 Tsingfeng Technology KNN-based Piezoelectric Ceramics Sales, Revenue, Price and Gross Margin (2021-2026)

#### 13.4.4 Tsingfeng Technology Main Business Overview

#### 13.4.5 Tsingfeng Technology Latest Developments

## **14 RESEARCH FINDINGS AND CONCLUSION**

## List Of Tables

### LIST OF TABLES

Table 1. KNN-based Piezoelectric Ceramics Annual Sales CAGR by Geographic Region (2021, 2025 & 2032) & (\$ millions)

Table 2. KNN-based Piezoelectric Ceramics Annual Sales CAGR by Country/Region (2021, 2025 & 2032) & (\$ millions)

Table 3. Major Players of D33: 100-200 pC/N

Table 4. Major Players of D33: 200-300 pC/N

Table 5. Global KNN-based Piezoelectric Ceramics Sales by Type (2021-2026) & (K Pcs)

Table 6. Global KNN-based Piezoelectric Ceramics Sales Market Share by Type (2021-2026)

Table 7. Global KNN-based Piezoelectric Ceramics Revenue by Type (2021-2026) & (\$ million)

Table 8. Global KNN-based Piezoelectric Ceramics Revenue Market Share by Type (2021-2026)

Table 9. Global KNN-based Piezoelectric Ceramics Sale Price by Type (2021-2026) & (US\$/Pcs)

Table 10. Global KNN-based Piezoelectric Ceramics Sale by Application (2021-2026) & (K Pcs)

Table 11. Global KNN-based Piezoelectric Ceramics Sale Market Share by Application (2021-2026)

Table 12. Global KNN-based Piezoelectric Ceramics Revenue by Application (2021-2026) & (\$ million)

Table 13. Global KNN-based Piezoelectric Ceramics Revenue Market Share by Application (2021-2026)

Table 14. Global KNN-based Piezoelectric Ceramics Sale Price by Application (2021-2026) & (US\$/Pcs)

Table 15. Global KNN-based Piezoelectric Ceramics Sales by Company (2021-2026) & (K Pcs)

Table 16. Global KNN-based Piezoelectric Ceramics Sales Market Share by Company (2021-2026)

Table 17. Global KNN-based Piezoelectric Ceramics Revenue by Company (2021-2026) & (\$ millions)

Table 18. Global KNN-based Piezoelectric Ceramics Revenue Market Share by Company (2021-2026)

Table 19. Global KNN-based Piezoelectric Ceramics Sale Price by Company

(2021-2026) & (US\$/Pcs)

Table 20. Key Manufacturers KNN-based Piezoelectric Ceramics Producing Area Distribution and Sales Area

Table 21. Players KNN-based Piezoelectric Ceramics Products Offered

Table 22. KNN-based Piezoelectric Ceramics Concentration Ratio (CR3, CR5 and CR10) & (2024-2026)

Table 23. New Products and Potential Entrants

Table 24. Market M&A Activity & Strategy

Table 25. Global KNN-based Piezoelectric Ceramics Sales by Geographic Region (2021-2026) & (K Pcs)

Table 26. Global KNN-based Piezoelectric Ceramics Sales Market Share Geographic Region (2021-2026)

Table 27. Global KNN-based Piezoelectric Ceramics Revenue by Geographic Region (2021-2026) & (\$ millions)

Table 28. Global KNN-based Piezoelectric Ceramics Revenue Market Share by Geographic Region (2021-2026)

Table 29. Global KNN-based Piezoelectric Ceramics Sales by Country/Region (2021-2026) & (K Pcs)

Table 30. Global KNN-based Piezoelectric Ceramics Sales Market Share by Country/Region (2021-2026)

Table 31. Global KNN-based Piezoelectric Ceramics Revenue by Country/Region (2021-2026) & (\$ millions)

Table 32. Global KNN-based Piezoelectric Ceramics Revenue Market Share by Country/Region (2021-2026)

Table 33. Americas KNN-based Piezoelectric Ceramics Sales by Country (2021-2026) & (K Pcs)

Table 34. Americas KNN-based Piezoelectric Ceramics Sales Market Share by Country (2021-2026)

Table 35. Americas KNN-based Piezoelectric Ceramics Revenue by Country (2021-2026) & (\$ millions)

Table 36. Americas KNN-based Piezoelectric Ceramics Sales by Type (2021-2026) & (K Pcs)

Table 37. Americas KNN-based Piezoelectric Ceramics Sales by Application (2021-2026) & (K Pcs)

Table 38. APAC KNN-based Piezoelectric Ceramics Sales by Region (2021-2026) & (K Pcs)

Table 39. APAC KNN-based Piezoelectric Ceramics Sales Market Share by Region (2021-2026)

Table 40. APAC KNN-based Piezoelectric Ceramics Revenue by Region (2021-2026) &

(\$ millions)

Table 41. APAC KNN-based Piezoelectric Ceramics Sales by Type (2021-2026) & (K Pcs)

Table 42. APAC KNN-based Piezoelectric Ceramics Sales by Application (2021-2026) & (K Pcs)

Table 43. Europe KNN-based Piezoelectric Ceramics Sales by Country (2021-2026) & (K Pcs)

Table 44. Europe KNN-based Piezoelectric Ceramics Revenue by Country (2021-2026) & (\$ millions)

Table 45. Europe KNN-based Piezoelectric Ceramics Sales by Type (2021-2026) & (K Pcs)

Table 46. Europe KNN-based Piezoelectric Ceramics Sales by Application (2021-2026) & (K Pcs)

Table 47. Middle East & Africa KNN-based Piezoelectric Ceramics Sales by Country (2021-2026) & (K Pcs)

Table 48. Middle East & Africa KNN-based Piezoelectric Ceramics Revenue Market Share by Country (2021-2026)

Table 49. Middle East & Africa KNN-based Piezoelectric Ceramics Sales by Type (2021-2026) & (K Pcs)

Table 50. Middle East & Africa KNN-based Piezoelectric Ceramics Sales by Application (2021-2026) & (K Pcs)

Table 51. Key Market Drivers & Growth Opportunities of KNN-based Piezoelectric Ceramics

Table 52. Key Market Challenges & Risks of KNN-based Piezoelectric Ceramics

Table 53. Key Industry Trends of KNN-based Piezoelectric Ceramics

Table 54. KNN-based Piezoelectric Ceramics Raw Material

Table 55. Key Suppliers of Raw Materials

Table 56. KNN-based Piezoelectric Ceramics Distributors List

Table 57. KNN-based Piezoelectric Ceramics Customer List

Table 58. Global KNN-based Piezoelectric Ceramics Sales Forecast by Region (2027-2032) & (K Pcs)

Table 59. Global KNN-based Piezoelectric Ceramics Revenue Forecast by Region (2027-2032) & (\$ millions)

Table 60. Americas KNN-based Piezoelectric Ceramics Sales Forecast by Country (2027-2032) & (K Pcs)

Table 61. Americas KNN-based Piezoelectric Ceramics Annual Revenue Forecast by Country (2027-2032) & (\$ millions)

Table 62. APAC KNN-based Piezoelectric Ceramics Sales Forecast by Region (2027-2032) & (K Pcs)

Table 63. APAC KNN-based Piezoelectric Ceramics Annual Revenue Forecast by Region (2027-2032) & (\$ millions)

Table 64. Europe KNN-based Piezoelectric Ceramics Sales Forecast by Country (2027-2032) & (K Pcs)

Table 65. Europe KNN-based Piezoelectric Ceramics Revenue Forecast by Country (2027-2032) & (\$ millions)

Table 66. Middle East & Africa KNN-based Piezoelectric Ceramics Sales Forecast by Country (2027-2032) & (K Pcs)

Table 67. Middle East & Africa KNN-based Piezoelectric Ceramics Revenue Forecast by Country (2027-2032) & (\$ millions)

Table 68. Global KNN-based Piezoelectric Ceramics Sales Forecast by Type (2027-2032) & (K Pcs)

Table 69. Global KNN-based Piezoelectric Ceramics Revenue Forecast by Type (2027-2032) & (\$ millions)

Table 70. Global KNN-based Piezoelectric Ceramics Sales Forecast by Application (2027-2032) & (K Pcs)

Table 71. Global KNN-based Piezoelectric Ceramics Revenue Forecast by Application (2027-2032) & (\$ millions)

Table 72. PI Ceramic Basic Information, KNN-based Piezoelectric Ceramics Manufacturing Base, Sales Area and Its Competitors

Table 73. PI Ceramic KNN-based Piezoelectric Ceramics Product Portfolios and Specifications

Table 74. PI Ceramic KNN-based Piezoelectric Ceramics Sales (K Pcs), Revenue (\$ Million), Price (US\$/Pcs) and Gross Margin (2021-2026)

Table 75. PI Ceramic Main Business

Table 76. PI Ceramic Latest Developments

Table 77. CTS Corporation Basic Information, KNN-based Piezoelectric Ceramics Manufacturing Base, Sales Area and Its Competitors

Table 78. CTS Corporation KNN-based Piezoelectric Ceramics Product Portfolios and Specifications

Table 79. CTS Corporation KNN-based Piezoelectric Ceramics Sales (K Pcs), Revenue (\$ Million), Price (US\$/Pcs) and Gross Margin (2021-2026)

Table 80. CTS Corporation Main Business

Table 81. CTS Corporation Latest Developments

Table 82. Niterra Basic Information, KNN-based Piezoelectric Ceramics Manufacturing Base, Sales Area and Its Competitors

Table 83. Niterra KNN-based Piezoelectric Ceramics Product Portfolios and Specifications

Table 84. Niterra KNN-based Piezoelectric Ceramics Sales (K Pcs), Revenue (\$

Million), Price (US\$/Pcs) and Gross Margin (2021-2026)

Table 85. Niterra Main Business

Table 86. Niterra Latest Developments

Table 87. Tsingfeng Technology Basic Information, KNN-based Piezoelectric Ceramics Manufacturing Base, Sales Area and Its Competitors

Table 88. Tsingfeng Technology KNN-based Piezoelectric Ceramics Product Portfolios and Specifications

Table 89. Tsingfeng Technology KNN-based Piezoelectric Ceramics Sales (K Pcs), Revenue (\$ Million), Price (US\$/Pcs) and Gross Margin (2021-2026)

Table 90. Tsingfeng Technology Main Business

Table 91. Tsingfeng Technology Latest Developments

## List Of Figures

### LIST OF FIGURES

- Figure 1. Picture of KNN-based Piezoelectric Ceramics
- Figure 2. KNN-based Piezoelectric Ceramics Report Years Considered
- Figure 3. Research Objectives
- Figure 4. Research Methodology
- Figure 5. Research Process and Data Source
- Figure 6. Global KNN-based Piezoelectric Ceramics Sales Growth Rate 2021-2032 (K Pcs)
- Figure 7. Global KNN-based Piezoelectric Ceramics Revenue Growth Rate 2021-2032 (\$ millions)
- Figure 8. KNN-based Piezoelectric Ceramics Sales by Geographic Region (2021, 2025 & 2032) & (\$ millions)
- Figure 9. KNN-based Piezoelectric Ceramics Sales Market Share by Country/Region (2025)
- Figure 10. KNN-based Piezoelectric Ceramics Sales Market Share by Country/Region (2021, 2025 & 2032)
- Figure 11. Product Picture of D33: 100-200 pC/N
- Figure 12. Product Picture of D33: 200-300 pC/N
- Figure 13. Global KNN-based Piezoelectric Ceramics Sales Market Share by Type in 2026
- Figure 14. Global KNN-based Piezoelectric Ceramics Revenue Market Share by Type (2021-2026)
- Figure 15. KNN-based Piezoelectric Ceramics Consumed in Medical
- Figure 16. Global KNN-based Piezoelectric Ceramics Market: Medical (2021-2026) & (K Pcs)
- Figure 17. KNN-based Piezoelectric Ceramics Consumed in Industrial
- Figure 18. Global KNN-based Piezoelectric Ceramics Market: Industrial (2021-2026) & (K Pcs)
- Figure 19. KNN-based Piezoelectric Ceramics Consumed in Underwater and Defense
- Figure 20. Global KNN-based Piezoelectric Ceramics Market: Underwater and Defense (2021-2026) & (K Pcs)
- Figure 21. Global KNN-based Piezoelectric Ceramics Sale Market Share by Application (2025)
- Figure 22. Global KNN-based Piezoelectric Ceramics Revenue Market Share by Application in 2026
- Figure 23. KNN-based Piezoelectric Ceramics Sales by Company in 2026 (K Pcs)

Figure 24. Global KNN-based Piezoelectric Ceramics Sales Market Share by Company in 2026

Figure 25. KNN-based Piezoelectric Ceramics Revenue by Company in 2026 (\$ millions)

Figure 26. Global KNN-based Piezoelectric Ceramics Revenue Market Share by Company in 2026

Figure 27. Global KNN-based Piezoelectric Ceramics Sales Market Share by Geographic Region (2021-2026)

Figure 28. Global KNN-based Piezoelectric Ceramics Revenue Market Share by Geographic Region in 2026

Figure 29. Americas KNN-based Piezoelectric Ceramics Sales 2021-2026 (K Pcs)

Figure 30. Americas KNN-based Piezoelectric Ceramics Revenue 2021-2026 (\$ millions)

Figure 31. APAC KNN-based Piezoelectric Ceramics Sales 2021-2026 (K Pcs)

Figure 32. APAC KNN-based Piezoelectric Ceramics Revenue 2021-2026 (\$ millions)

Figure 33. Europe KNN-based Piezoelectric Ceramics Sales 2021-2026 (K Pcs)

Figure 34. Europe KNN-based Piezoelectric Ceramics Revenue 2021-2026 (\$ millions)

Figure 35. Middle East & Africa KNN-based Piezoelectric Ceramics Sales 2021-2026 (K Pcs)

Figure 36. Middle East & Africa KNN-based Piezoelectric Ceramics Revenue 2021-2026 (\$ millions)

Figure 37. Americas KNN-based Piezoelectric Ceramics Sales Market Share by Country in 2026

Figure 38. Americas KNN-based Piezoelectric Ceramics Revenue Market Share by Country (2021-2026)

Figure 39. Americas KNN-based Piezoelectric Ceramics Sales Market Share by Type (2021-2026)

Figure 40. Americas KNN-based Piezoelectric Ceramics Sales Market Share by Application (2021-2026)

Figure 41. United States KNN-based Piezoelectric Ceramics Revenue Growth 2021-2026 (\$ millions)

Figure 42. Canada KNN-based Piezoelectric Ceramics Revenue Growth 2021-2026 (\$ millions)

Figure 43. Mexico KNN-based Piezoelectric Ceramics Revenue Growth 2021-2026 (\$ millions)

Figure 44. Brazil KNN-based Piezoelectric Ceramics Revenue Growth 2021-2026 (\$ millions)

Figure 45. APAC KNN-based Piezoelectric Ceramics Sales Market Share by Region in 2026

Figure 46. APAC KNN-based Piezoelectric Ceramics Revenue Market Share by Region (2021-2026)

Figure 47. APAC KNN-based Piezoelectric Ceramics Sales Market Share by Type (2021-2026)

Figure 48. APAC KNN-based Piezoelectric Ceramics Sales Market Share by Application (2021-2026)

Figure 49. China KNN-based Piezoelectric Ceramics Revenue Growth 2021-2026 (\$ millions)

Figure 50. Japan KNN-based Piezoelectric Ceramics Revenue Growth 2021-2026 (\$ millions)

Figure 51. South Korea KNN-based Piezoelectric Ceramics Revenue Growth 2021-2026 (\$ millions)

Figure 52. Southeast Asia KNN-based Piezoelectric Ceramics Revenue Growth 2021-2026 (\$ millions)

Figure 53. India KNN-based Piezoelectric Ceramics Revenue Growth 2021-2026 (\$ millions)

Figure 54. Australia KNN-based Piezoelectric Ceramics Revenue Growth 2021-2026 (\$ millions)

Figure 55. China Taiwan KNN-based Piezoelectric Ceramics Revenue Growth 2021-2026 (\$ millions)

Figure 56. Europe KNN-based Piezoelectric Ceramics Sales Market Share by Country in 2026

Figure 57. Europe KNN-based Piezoelectric Ceramics Revenue Market Share by Country (2021-2026)

Figure 58. Europe KNN-based Piezoelectric Ceramics Sales Market Share by Type (2021-2026)

Figure 59. Europe KNN-based Piezoelectric Ceramics Sales Market Share by Application (2021-2026)

Figure 60. Germany KNN-based Piezoelectric Ceramics Revenue Growth 2021-2026 (\$ millions)

Figure 61. France KNN-based Piezoelectric Ceramics Revenue Growth 2021-2026 (\$ millions)

Figure 62. UK KNN-based Piezoelectric Ceramics Revenue Growth 2021-2026 (\$ millions)

Figure 63. Italy KNN-based Piezoelectric Ceramics Revenue Growth 2021-2026 (\$ millions)

Figure 64. Russia KNN-based Piezoelectric Ceramics Revenue Growth 2021-2026 (\$ millions)

Figure 65. Middle East & Africa KNN-based Piezoelectric Ceramics Sales Market Share

by Country (2021-2026)

Figure 66. Middle East & Africa KNN-based Piezoelectric Ceramics Sales Market Share by Type (2021-2026)

Figure 67. Middle East & Africa KNN-based Piezoelectric Ceramics Sales Market Share by Application (2021-2026)

Figure 68. Egypt KNN-based Piezoelectric Ceramics Revenue Growth 2021-2026 (\$ millions)

Figure 69. South Africa KNN-based Piezoelectric Ceramics Revenue Growth 2021-2026 (\$ millions)

Figure 70. Israel KNN-based Piezoelectric Ceramics Revenue Growth 2021-2026 (\$ millions)

Figure 71. Turkey KNN-based Piezoelectric Ceramics Revenue Growth 2021-2026 (\$ millions)

Figure 72. GCC Countries KNN-based Piezoelectric Ceramics Revenue Growth 2021-2026 (\$ millions)

Figure 73. Manufacturing Cost Structure Analysis of KNN-based Piezoelectric Ceramics in 2026

Figure 74. Manufacturing Process Analysis of KNN-based Piezoelectric Ceramics

Figure 75. Industry Chain Structure of KNN-based Piezoelectric Ceramics

Figure 76. Channels of Distribution

Figure 77. Global KNN-based Piezoelectric Ceramics Sales Market Forecast by Region (2027-2032)

Figure 78. Global KNN-based Piezoelectric Ceramics Revenue Market Share Forecast by Region (2027-2032)

Figure 79. Global KNN-based Piezoelectric Ceramics Sales Market Share Forecast by Type (2027-2032)

Figure 80. Global KNN-based Piezoelectric Ceramics Revenue Market Share Forecast by Type (2027-2032)

Figure 81. Global KNN-based Piezoelectric Ceramics Sales Market Share Forecast by Application (2027-2032)

Figure 82. Global KNN-based Piezoelectric Ceramics Revenue Market Share Forecast by Application (2027-2032)

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