

Market Report

Global Medical Ceramics Market

2nd Edition

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Abstract

The global demand on medical ceramics / ceramic components last year was valued at approximately US\$12.3 billion. Global medical ceramics /ceramic component market will see 6.0-6.5% annual growth rate in the coming years driven by strong demand from application markets such as implantable electronic devices, medical coatings, diagnostics instruments. The market is expected to reach US\$14.7 billion by 2017 and to increase to US\$17.6 billion by 2020.

Alumina (Al_2O_3) is the largest material group of the medical ceramics, followed by zirconia (ZrO_2). Roughly 40% of medical ceramic components are made of alumina, while around one fourth are based on zirconia. Alumina-zirconia composites continue to gain their market share.

Acmite Market Intelligence has updated a most comprehensive report on global medical ceramics market. It is ready for order.

The report examines the current products and application areas, provides extensive market data of 2014, and market forecast through 2017 to 2023. It also outlines the competition landscape, evaluates market chances and risks and anticipates future trends based on a series of influence factors.

- 221 pages analyzing the market
- 60 figure tables
- 260 medical ceramics manufacturers profiled

With a multi-dimensional and in-depth view of world biomedical metal market, this report is ideal help for you with decisions about international market penetration, business expansion or project feasibility analysis.

Table of Contents

Volume I

1 Market definition and segmentation.....	1
1.1 Market definition.....	1
1.2 Market segmentation.....	3
1.3 General properties and medical applications.....	6
1.4 Manufacturing technologies and value chain.....	8
1.5 History of medical ceramics business.....	13
2 Macro-environment.....	15
2.1 Trends in the world economy.....	15
2.2 The medical devices industry.....	22
2.3 Market regulations.....	32
3 Overview of medical ceramics market.....	37
3.1 Market data and outlook.....	37
3.1.1 Medical ceramics market by material.....	37
3.1.1.1 Medical ceramics market by type.....	39
3.1.1.2 Bioinert ceramics market by material.....	40
3.1.1.3 Bioactive ceramics market by material.....	41
3.1.2 Medical ceramics market by application.....	42
3.1.3 Medical ceramics demand by region.....	45
3.1.4 Medical ceramics production by forming technology.....	47
3.2 Market trends and chances.....	49
3.3 Competition analysis.....	58
3.4 Industry dynamics.....	78
4 Medical ceramics market by material.....	87
4.1 Bioinert ceramics.....	87
4.1.1 Aluminum oxide / Alumina (Al ₂ O ₃)	88

4.1.1.1 Product, properties and applications.....	88
4.1.1.2 Market size and forecast.....	90
4.1.2 Zirconia (ZrO ₂)	95
4.1.2.1 Product, properties and uses.....	95
4.1.2.2 Market size and forecast.....	99
4.1.3 Zirconia alumina.....	104
4.1.3.1 Product, properties and uses.....	104
4.1.3.2 Market size and forecast.....	106
4.1.4 Silicon nitride.....	111
4.1.4.1 Products, properties and applications.....	111
4.1.4.2 Market size and forecast.....	113
4.1.5 Others bioinert ceramics.....	117
4.2 Bioactive ceramics.....	118
4.2.1 Products, properties and applications.....	118
4.2.2 Market size and forecast.....	123
4.2.2.1 Bioactive ceramics market by application.....	126
4.2.2.2 Bioactive ceramics market by region.....	127
4.2.3 Bioglass market and forecast.....	128
4.2.4 Glass ceramics market and forecast.....	130
4.2.5 Hydroxyapatite (HA) market and forecast.....	132
4.3 Bioresorbable ceramics.....	134
4.3.1 Products, properties and applications.....	134
4.3.2 Market size and forecast.....	135
4.3.2.1 Bioresorbable ceramics market by application.....	136
4.3.2.2 Bioresorbable ceramics market by region.....	137
4.4 Piezoelectric ceramics /Piezoceramics.....	138
4.4.1 Product, properties and uses.....	138
4.4.2 Market size and forecast.....	143
4.4.2.1 Piezoceramics market by application.....	145
4.4.2.2 Piezoceramics market by region.....	146

5 Medical ceramics market by application.....	147
5.1 Dental application.....	147
5.1.1 Market segmentation.....	147
5.1.2 Market size and outlook.....	151
5.1.2.1 Medical ceramics market in dental application by material.....	153
5.1.2.2 Medical ceramics market in dental application by segment.....	154
5.1.2.3 Medical ceramics market in dental application by region.....	155
5.1.3 Market trends and chances.....	156
5.2 Orthopaedic implant.....	158
5.2.1 Market segmentation.....	158
5.2.2 Market size and outlook.	161
5.2.2.1 Medical ceramics market in orthopaedic implant by material.....	163
5.2.2.2 Medical ceramics market in orthopaedic implant by segment.....	164
5.2.2.3 Medical ceramics market in orthopaedic implant by region.....	165
5.2.3 Market trends and chances.....	166
5.3 Implantable electronic devices.....	168
5.3.1 Market segmentation.....	168
5.3.2 Market size and outlook.....	170
5.3.2.1 Medical ceramics market in implantable electronic devices by material..	172
5.3.2.2 Medical ceramics market in implantable electronic devices by segment.	173
5.3.2.3 Medical ceramics market in implantable electronic devices by region....	174
5.3.3 Market trends and chances.....	175
5.4 Surgical instrument.....	177
5.4.1 Market segmentation.....	177
5.4.2 Market size and outlook.....	180
5.4.2.1 Medical ceramics market in surgical instrument by material.....	182
5.4.2.2 Medical ceramics market in surgical instrument by segment.....	183
5.4.2.3 Medical ceramics market in surgical instrument by region.....	184
5.4.3 Market trends and chances.....	185
5.5 Diagnostic Instrument.....	187
5.5.1 Market segmentation.....	187

5.5.2 Market size and outlook.....	190
5.5.2.1 Medical ceramics market in diagnostics instrument by material.....	192
5.5.2.2 Medical ceramics market in diagnostics instrument by segment.....	193
5.5.2.3 Medical ceramics market in diagnostics instrument by region.....	194
5.5.3 Market trends and chances.....	195
5.6 Medical coatings.....	197
5.6.1 Market segmentation.....	197
5.6.2 Market size and outlook.....	199
5.6.2.1 Medical ceramics market in medical coatings by material.....	201
5.6.2.2 Medical ceramics market in medical coatings by segment.....	202
5.6.2.3 Medical ceramics market in medical coatings by region.....	203
5.6.3 Market trends and chances.....	204
5.7 Other applications.....	206
6 Medical ceramics market by region.....	209
6.1 Western Europe.....	209
6.1.1 Medical ceramics market in W. Europe by material.....	211
6.1.2 Medical ceramics market in W. Europe by application.....	212
6.1.3 Consumption of medical ceramics by country.....	212
6.2 North America.....	213
6.2.1 Medical ceramics market in N. America by material.....	213
6.2.2 Medical ceramics market in N. America by application.....	214
6.2.3 Consumption of medical ceramics by country.....	215
6.3 Asia Pacific.....	216
6.3.1 Medical ceramics market in Asia Pacific by material.....	216
6.3.2 Medical ceramics market in Asia Pacific by application.....	217
6.3.3 Consumption of medical ceramics by country.....	218
6.4 Rest of the World.....	219
6.4.1 Medical ceramics market in ROW by material.....	219
6.4.2 Medical ceramics market in ROW by application.....	220
6.4.3 Consumption of medical ceramics by selected country.....	221

Volume II

Company profiles (ca. 260).....1-303

Note:

Regions:

North America: US, Canada, Mexico (NAFTA region)

Asia Pacific: Countries of Asia, Australia, New Zealand

Asia Pacific*: Asia Pacific excluding Japan

4.1.3 Zirconia alumina

4.1.3.1 Product, properties and uses

Zirconia alumina are also called alumina-zirconia composites or zirconia toughened alumina. Zirconia alumina are ceramic materials comprising alumina and zirconia. It is an intermediate solution between pure alumina and pure zirconia. Zirconia toughened alumina (ZTA) typically consists of alumina with a 10 to 20 percent zirconia concentration, which enhances the strength of the alumina.

Properties

Zirconia alumina is engineered to manage tetragonal-monoclinic phase transformation in zirconia to improve the overall strength of the alumina matrix composite.

Its properties depend strongly on the mixing ratio of aluminium oxide to zirconium oxide, and on the details of the processing. AZ composites feature high strength, fracture toughness, elasticity, hardness, and wear resistance.

AZ composites are commonly used in structural applications, as cutting tools, and in many medical applications.

In comparison with aluminium oxide, low proportions of zirconium oxide (up to approx. 10% by volume) in the alumina-zirconia composites lead to improved values, such as

- bending strength
- KIC factor
- modulus of elasticity

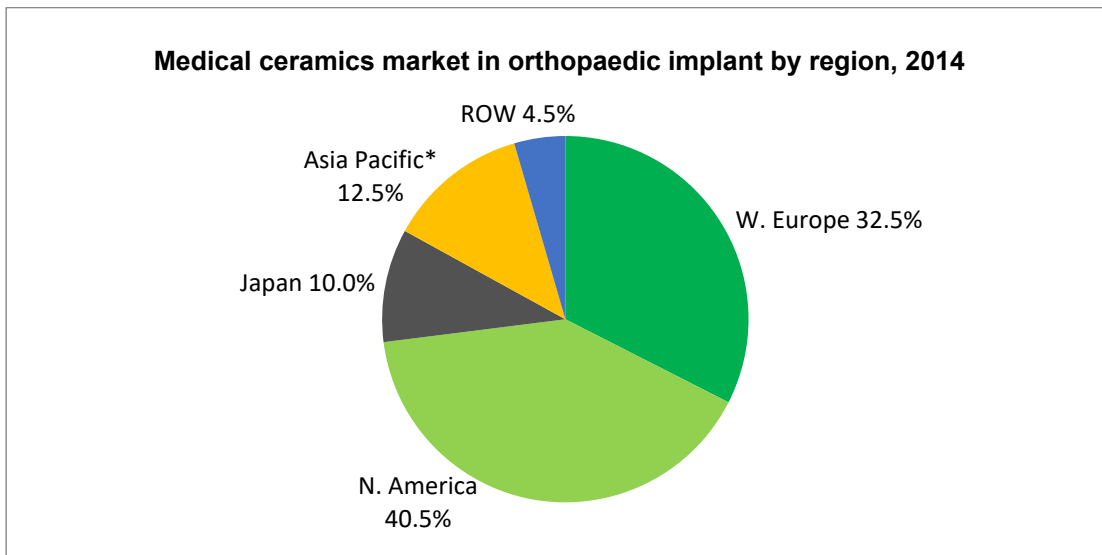
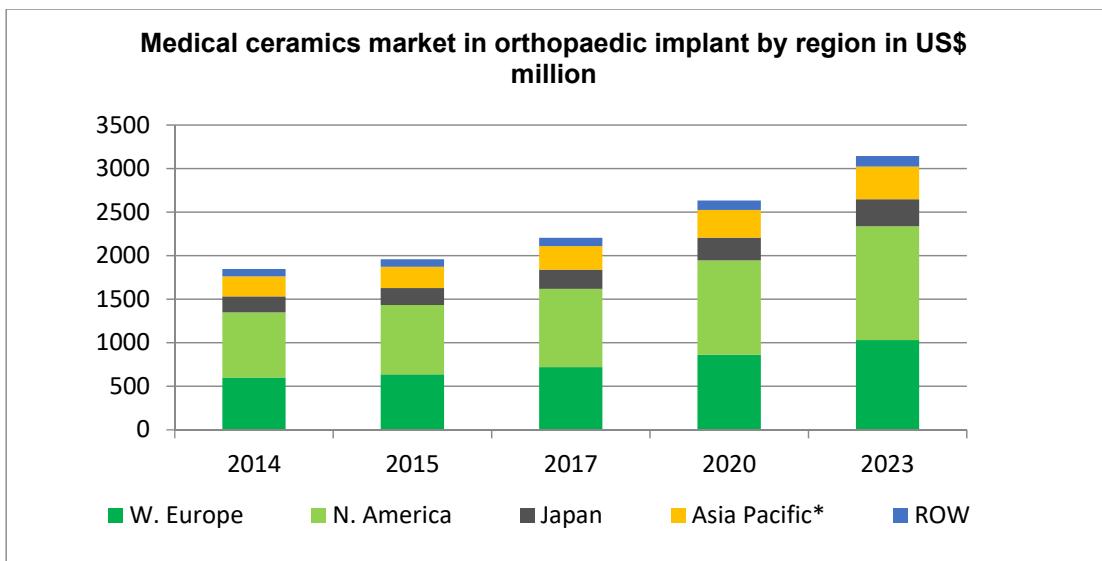
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(Vol.I P. 104)

5.2.2.3 Medical ceramics market in orthopaedic implant by region

Medical ceramics market in orthopaedic implant by region in US\$ million

	2014	2015	2017	2020	2023	CAGR
W. Europe	600	637	718	860	1030	6.2%
N. America	747	795	900	1084	1306	6.4%
Japan	185	196	220	262	312	6.0%
Asia Pacific*	231	243	271	318	373	5.5%
ROW	83	87	94	108	122	4.4%
Total	1845	1958	2204	2632	3144	6.1%



(Vol. I P.165)

5.4 Surgical instrument

5.4.1 Market segmentation

Ceramics have been increasingly used for surgical instrument. High-performance ceramics steadily expand into new fields of surgical instruments, driven by steadily development of ceramic technology and biomechanical engineering.

Ceramics are suitable for cutting tools. Ceramic cutting blades are also known for their sharpness, corrosion-free and non-magnetic properties. Zirconia ceramics is able to create extremely sharp blades that can last up to 100 times longer than traditional stainless steel cutting blades.

However, ceramic materials are not recommended for uses that can result in heavy shock to the blade.

Ceramics are mainly used in following surgical instruments:

- Electrosurgical instruments, including electrosurgical instruments with conductive ceramics and electrosurgical instruments with wear-resistant ceramic inlay eliminates electrical cross circuits
- Ceramic nonpower surgical instruments such as tweezers, scalpels, forceps, etc, which normally has ceramic tips, ceramic blades.
- Ceramic coated surgical instruments. The ceramic coating provides an exceptional hard and smooth surface. This special treatment gives the scissors a high resistance to corrosion and chemicals. The special matte black ceramic coating avoids any reflection and provides a low-friction cut which minimizes tissue damage.
- Endoscopic components, e.g. ceramic tip insulation

Compared to medical metals, main important properties of ceramics for medical applications include:

(Vol.I P.177)

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Principality of Liechtenstein

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<http://www.ivoclarvivadent.com>

Year of Foundation: 1923

Number of employees: 3,215

Revenue 2014: CHF 761 million

Company profile

Ivoclar Vivadent AG is a privately owned company specialized in the design, manufacturing and distribution of dental implants, instruments, and materials.

The company's product and service offerings include

- Adhesives
- All-Ceramics
- Alloys
- Chairside CAD/CAM Blocks
- Clinical Accessories / Instruments
- Core Build-Up / Endodontics
- Equipment
- Impression Materials
- Luting Material
- Metal-Ceramics
-

(Vol. II P.86)



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