

Material Informatics Market by Material (Chemicals, Superalloys, Solid-state Electrolytes, Composites), Technique (Statistical Analysis, Genetic Algorithm), Application (Materials Discovery, Product Development) and Region - Global Forecast to 2030

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Report description:

The global material informatics market is expected to grow from USD 170.4 million in 2025 to USD 410.4 million in 2030 at a CAGR of 19.2% over the forecast period. Growing need for sustainable materials is strongly contributing to the market growth of materials informatics. As sustainability is gaining importance among industries, producers are using materials informatics to investigate and discover materials with a lower environmental footprint. However insufficient data volume and data quality poses a challenge in material informatics growth.

"Elements segment is expected to witness highest CAGR during the forecasted period in material informatics market."

The elements segment is expected to have the highest CAGR in the material informatics market due to a few critical factors. Growth in the usage of high-tech materials in the aerospace, automobile, energy, and electronics industries is pushing for new metals and alloys that promise better performance, longevity, and sustainability. Superalloys specifically are critical to harsh environments like jet engines and power generation units, requiring an accelerated push in material informatics. Moreover, the increasing use of solid-state electrolytes in future energy storage technologies, such as solid-state batteries for electric vehicles and solar and wind energy, is fueling research and development processes. Machine learning algorithms within material informatics are changing the game in the discovery and optimization of such materials by saving enormous amounts of time needed in design and experimentation.

"Material science segment is likely to witness highest CAGR in material informatics market during forecasted period."

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Material science is expected to exhibit the highest CAGR in the materials informatics market due to the increasing demand for accelerated material discovery and innovation. With artificial intelligence and machine learning, researchers can evaluate enormous amounts of data, make predictions about material properties, and tailor formulations to make experimentation and simulation much faster. Investments by the government and private sector in next-generation materials, including high-performance alloys, nanomaterials, and sustainable substitutes, further fuel the use of materials informatics. The development of automated laboratories and high-throughput screening methods has also accelerated dependence on materials informatics to effectively process and interpret experimental data. Intersectoral collaboration between industry and academia is another critical factor, with industries looking for novel materials for niche applications.

"Asia Pacific is expected to hold the second largest market share of the material informatics market during forecasted period". The region includes economies like China, Japan, South Korea, and India, each of which boasts robust manufacturing and research strengths in materials science, semiconductors, and advanced materials. The governments of all these nations proactively invest in artificial intelligence, machine learning, and big data analytics, without which material informatics cannot exist. Moreover, the concentration of top electronics, automotive, and pharmaceutical industries in the region fuels the need for advanced materials, which requires quicker and more effective material discovery and development. The intense academic and industrial cooperation in the region also speeds up innovations in material informatics.

Breakdown of primaries

The study contains insights from various industry experts, ranging from component suppliers to Tier 1 companies and OEMs. The break-up of the primaries is as follows:

- By Company Type - Tier 1 - 40%, Tier 2 - 35%, Tier 3 - 25%
- By Designation- C-level Executives - 48%, Directors - 33%, Others - 19%
- By Region-North America - 35%, Europe - 18%, Asia Pacific - 40%, RoW - 7%

The material informatics market is dominated by a few globally established players such as players Schrodinger, Inc. (US), Dassault Systemes (France), Exabyte Inc. (US), Citrine Informatics (India), Phaseshift Technologies (Canada), and AI Materia (Canada). The study includes an in-depth competitive analysis of these key players in the pharmaceutical manufacturing equipment market, with their company profiles, recent developments, and key market strategies.

Research Coverage:

The report segments the material informatics market and forecasts its size by material type, end user, and region. The report also discusses the drivers, restraints, opportunities, and challenges pertaining to the market. It gives a detailed view of the market across four main regions-North America, Europe, Asia Pacific, and RoW. Supply chain analysis has been included in the report, along with the key players and their competitive analysis in the material informatics ecosystem.

Key Benefits to Buy the Report:

- Analysis of key drivers (Increasing reliance on AI technology to speed up material discovery and deployment, rising government initiatives to provide low-cost clean energy materials, Growing focus on mitigating climate change and environmental pollution). Restraint (Shortage of technical experts, High costs of maintenance and services), Opportunity (Emerging applications of large language models (LLMs) in material development, Ease of building material databases using digital technologies), Challenges (Insufficient data volume and quality).
- Product Development/Innovation: Detailed insights on upcoming technologies, research and development activities, and new product launches in the material informatics market.
- Market Development: Comprehensive information about lucrative markets - the report analyses the material informatics market across varied regions
- Market Diversification: Exhaustive information about new products and services, untapped geographies, recent developments,

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and investments in the material informatics market.

-Competitive Assessment: In-depth assessment of market shares, growth strategies, and service offerings of leading players Schrodinger, Inc. (US), Dassault Systemes (France), Exabyte Inc. (US), Citrine Informatics (US), Phaseshift Technologies (Canada), and AI Materia (Canada) among others in the material informatics market.

Table of Contents:

1	INTRODUCTION	22
1.1	STUDY OBJECTIVES	22
1.2	MARKET DEFINITION	22
1.3	STUDY SCOPE	23
1.3.1	MARKETS COVERED AND REGIONAL SCOPE	23
1.3.2	INCLUSIONS AND EXCLUSIONS	24
1.3.3	YEARS CONSIDERED	24
1.4	CURRENCY CONSIDERED	24
1.5	LIMITATIONS	25
1.6	STAKEHOLDERS	25
1.7	SUMMARY OF CHANGES	25
2	RESEARCH METHODOLOGY	26
2.1	RESEARCH DATA	26
2.1.1	SECONDARY DATA	27
2.1.1.1	List of key secondary sources	27
2.1.1.2	Key data from secondary sources	28
2.1.2	PRIMARY DATA	28
2.1.2.1	Breakdown of primaries	28
2.1.2.2	List of primary interview participants	29
2.1.2.3	Key data from primary sources	29
2.1.2.4	Key industry insights	30
2.1.3	SECONDARY AND PRIMARY RESEARCH	31
2.2	MARKET SIZE ESTIMATION	31
2.2.1	BOTTOM-UP APPROACH	32
2.2.1.1	Approach to arrive at market size using bottom-up analysis (demand side)	32
2.2.2	TOP-DOWN APPROACH	33
2.2.2.1	Approach to arrive at market size using top-down analysis (supply side)	33
2.3	MARKET BREAKDOWN AND DATA TRIANGULATION	35
2.4	RESEARCH ASSUMPTIONS	36
2.5	RESEARCH LIMITATIONS	36
2.6	RISK ANALYSIS	37
3	EXECUTIVE SUMMARY	38
?		
4	PREMIUM INSIGHTS	41
4.1	ATTRACTIVE OPPORTUNITIES FOR PLAYERS IN MATERIAL INFORMATICS MARKET	41
4.2	MATERIAL INFORMATICS MARKET, BY MATERIAL TYPE	41
4.3	MATERIAL INFORMATICS MARKET, BY INDUSTRY	42
4.4	MATERIAL INFORMATICS MARKET, BY COUNTRY	42
5	MARKET OVERVIEW	43

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5.1	INTRODUCTION	43
5.2	MARKET DYNAMICS	43
5.2.1	DRIVERS	44
5.2.1.1	Increasing reliance on AI technology to speed up material discovery and development	44
5.2.1.2	Rising government initiatives to provide low-cost clean energy materials	44
5.2.1.3	Growing focus on mitigating climate change and environmental pollution	44
5.2.2	RESTRAINTS	45
5.2.2.1	Shortage of technical experts	45
5.2.2.2	High costs of maintenance and services	46
5.2.3	OPPORTUNITIES	46
5.2.3.1	Emerging applications of large language models (LLMs) in material development	46
5.2.3.2	Ease of building material databases using digital technologies	47
5.2.4	CHALLENGES	47
5.2.4.1	Insufficient data volume and quality	47
5.3	VALUE CHAIN ANALYSIS	48
5.4	ECOSYSTEM ANALYSIS	50
5.5	PRICING ANALYSIS	52
5.5.1	AVERAGE SUBSCRIPTION PRICE OF MATERIAL INFORMATICS PLATFORMS OFFERED BY MAT3RA BASED ON ACCOUNT MEMBERS, 2024	52
5.6	TRENDS/DISRUPTIONS IMPACTING CUSTOMER BUSINESS	53
5.7	TECHNOLOGY ANALYSIS	54
5.7.1	KEY TECHNOLOGIES	54
5.7.1.1	Artificial intelligence (AI) and machine learning (ML)	54
5.7.1.2	High-performance computing (HPC)	55
5.7.2	COMPLEMENTARY TECHNOLOGIES	55
5.7.2.1	Internet of Things (IoT)	55
5.7.2.2	Cloud computing and storage	55
5.7.3	ADJACENT TECHNOLOGIES	56
5.7.3.1	Polymer informatics	56
5.7.3.2	Chemical informatics	56
5.7.3.3	Bioinformatics	56
?		
5.8	PORTER'S FIVE FORCES ANALYSIS	57
5.8.1	INTENSITY OF COMPETITIVE RIVALRY	58
5.8.2	BARGAINING POWER OF SUPPLIERS	58
5.8.3	BARGAINING POWER OF BUYERS	58
5.8.4	THREAT OF SUBSTITUTES	58
5.8.5	THREAT OF NEW ENTRANTS	58
5.9	KEY STAKEHOLDERS AND BUYING CRITERIA	59
5.9.1	KEY STAKEHOLDERS IN BUYING PROCESS	59
5.9.2	BUYING CRITERIA	60
5.10	CASE STUDY ANALYSIS	61
5.10.1	CITRINE INFORMATICS PROVIDES AI-DRIVEN CITRINE PLATFORM TO KCARBON TO PROCESS CARBON FIBERS	61
5.10.2	ALKIMAT ADOPTS EXPONENTIAL TECHNOLOGIES' XT SAAM SOLUTION TO OPTIMIZE PRODUCTION WORKFLOW AND REDUCE	

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LEAD TIMES AND DEVELOPMENT COSTS□61

5.10.3□MATERIALSZONE OFFERS MIP TOOL FOR INDUSTRIES AND COMPANIES TO OVERCOME CHALLENGES WHILE PRODUCING INNOVATIVE PLASTICS□62

5.10.4□BIOVIA'S MATERIAL INFORMATICS PLATFORM HELPS BOEING VIRTUALLY ANALYZE DURABILITY, ADHESION, AND CORROSION RESISTANCE OF COATING FORMULATIONS□62

5.11□INVESTMENT AND FUNDING SCENARIO□63

5.12□PATENT ANALYSIS□64

5.13□KEY CONFERENCES AND EVENTS, 2025□66

5.14□REGULATORY LANDSCAPE□67

5.14.1□REGULATORY BODIES, GOVERNMENT AGENCIES, AND OTHER ORGANIZATIONS□68

5.14.2□STANDARDS□70

5.15□IMPACT OF AI/GEN AI ON MATERIAL INFORMATICS MARKET□70

5.15.1□INTRODUCTION□70

5.15.2□USE CASES□71

6□MATERIAL INFORMATICS: PROMINENT TECHNIQUES AND TOOLS□72

6.1□INTRODUCTION□72

6.2□STATISTICAL ANALYSIS□72

6.3□GENETIC ALGORITHMS□73

6.4□OTHERS□73

7□APPLICATIONS OF MATERIAL INFORMATICS□75

7.1□INTRODUCTION□75

7.2□MATERIAL DISCOVERY & DESIGN□76

7.3□MATERIAL CHARACTERIZATION□76

7.4□MATERIAL LIFECYCLE MANAGEMENT□76

?

8□MATERIAL INFORMATICS MARKET, BY MATERIAL TYPE□77

8.1□INTRODUCTION□78

8.2□ELEMENTS□79

8.2.1□RAPID DEVELOPMENT, DISCOVERY, AND ANALYSIS BENEFITS TO SPUR DEMAND□79

8.3□CHEMICALS□81

8.3.1□ABILITY TO OPTIMIZE CATALYSTS AND ENHANCE PROCESS EFFICIENCY TO FOSTER SEGMENTAL GROWTH□81

8.4□OTHER MATERIALS□84

9□MATERIAL INFORMATICS MARKET, BY INDUSTRY□86

9.1□INTRODUCTION□87

9.2□CHEMICALS & PHARMACEUTICALS□89

9.2.1□GROWING FOCUS ON ACCELERATING THERAPEUTIC DRUG AND VACCINE DISCOVERY TO BOOST SEGMENTAL GROWTH□89

9.3□MATERIALS SCIENCE□92

9.3.1□INCREASING PURSUIT OF MATERIALS WITH DESIRABLE PROPERTIES TO AUGMENT SEGMENTAL GROWTH□92

9.4□MANUFACTURING□97

9.4.1□RISING INNOVATION IN HYBRID MATERIALS, COMPOSITES, AND ALLOYS TO FUEL SEGMENTAL GROWTH□97

9.5□FOOD SCIENCE□101

9.5.1□INCREASING NEED FOR EFFICIENT ANALYSIS OF FOOD CONSTITUENTS THROUGH STATISTICAL QUALITY CONTROL TO BOOST SEGMENTAL GROWTH□101

9.6□ENERGY□104

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9.6.1	RISING EMPHASIS ON SUSTAINABLE ENERGY PRODUCTION AND STORAGE TO BOLSTER SEGMENTAL GROWTH	104
9.7	OTHER INDUSTRIES	107
10	MATERIAL INFORMATICS MARKET, BY REGION	111
10.1	INTRODUCTION	112
10.2	NORTH AMERICA	114
10.2.1	MACROECONOMIC OUTLOOK FOR NORTH AMERICA	114
10.2.2	US	118
10.2.2.1	Strong focus on developing lightweight materials in automotive and aerospace sectors to boost market growth	118
10.2.3	CANADA	120
10.2.3.1	Government regulations to reduce plastic wastes to create opportunities for market players	120
10.2.4	MEXICO	121
10.2.4.1	Rise in semiconductor and electronics manufacturing to augment market growth	121
?		
10.3	EUROPE	123
10.3.1	MACROECONOMIC OUTLOOK FOR EUROPE	123
10.3.2	UK	127
10.3.2.1	Rising deployment of connected and autonomous vehicles to support market growth	127
10.3.3	GERMANY	128
10.3.3.1	Increasing investment in smart manufacturing technologies to bolster market growth	128
10.3.4	FRANCE	130
10.3.4.1	Booming additive manufacturing sector to fuel market growth	130
10.3.5	ITALY	132
10.3.5.1	Increasing adoption of advanced data analytics and AI technologies in materials science to drive market	132
10.3.6	REST OF EUROPE	134
10.4	ASIA PACIFIC	135
10.4.1	MACROECONOMIC OUTLOOK FOR ASIA PACIFIC	135
10.4.2	CHINA	139
10.4.2.1	Rising export of manufactured goods to stimulate market growth	139
10.4.3	JAPAN	140
10.4.3.1	Growing vehicle production to contribute to market growth	140
10.4.4	SOUTH KOREA	142
10.4.4.1	Thriving electronics & semiconductor industry to drive market	142
10.4.5	REST OF ASIA PACIFIC	144
10.5	ROW	146
10.5.1	MACROECONOMIC OUTLOOK FOR ROW	146
10.5.2	MIDDLE EAST & AFRICA	148
10.5.2.1	Increasing automobile sales and production volume to stimulate market growth	148
10.5.2.2	GCC countries	150
10.5.2.3	Africa & Rest of Middle East	150
10.5.3	SOUTH AMERICA	151
10.5.3.1	Brazil	152
10.5.3.1.1	Rising deployment of AI, ML, and data analytics technologies in materials science to accelerate market growth	152
10.5.3.2	Rest of South America	153
11	COMPETITIVE LANDSCAPE	154
11.1	OVERVIEW	154
11.2	KEY PLAYERS STRATEGIES/RIGHT TO WIN, 2021-2024	154

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11.3	REVENUE ANALYSIS, 2019-2023	156
11.4	MARKET SHARE ANALYSIS, 2024	157
11.5	COMPANY VALUATION AND FINANCIAL METRICS, 2024	160
11.6	PRODUCT COMPARISON	162
11.7	COMPANY EVALUATION MATRIX: KEY PLAYERS, 2024	163
11.7.1	STARS	163
11.7.2	EMERGING LEADERS	163
11.7.3	PERVASIVE PLAYERS	163
11.7.4	PARTICIPANTS	163
11.7.5	COMPANY FOOTPRINT: KEY PLAYERS, 2024	165
11.7.5.1	Company footprint	165
11.7.5.2	Region footprint	166
11.7.5.3	Material type footprint	167
11.7.5.4	Industry footprint	168
11.8	COMPANY EVALUATION MATRIX: STARTUPS/SMES, 2024	169
11.8.1	PROGRESSIVE COMPANIES	169
11.8.2	RESPONSIVE COMPANIES	169
11.8.3	DYNAMIC COMPANIES	169
11.8.4	STARTING BLOCKS	169
11.8.5	COMPETITIVE BENCHMARKING: STARTUPS/SMES, 2024	171
11.8.5.1	Detailed list of key startups/SMES	171
11.8.5.2	Competitive benchmarking of key startups/SMEs	171
11.9	COMPETITIVE SCENARIO	172
11.9.1	PRODUCT LAUNCHES	172
11.9.2	DEALS	173
11.9.3	EXPANSIONS	177
11.9.4	OTHER DEVELOPMENTS	178
12	COMPANY PROFILES	179
12.1	KEY PLAYERS	179
12.1.1	SCHRODINGER, INC.	179
12.1.1.1	Business overview	179
12.1.1.2	Products/Solutions/Services offered	181
12.1.1.3	Recent developments	183
12.1.1.3.1	Deals	183
12.1.1.4	MnM view	184
12.1.1.4.1	Key strengths/Right to win	184
12.1.1.4.2	Strategic choices	184
12.1.1.4.3	Weaknesses/Competitive threats	185
12.1.2	DASSAULT SYSTEMES	186
12.1.2.1	Business overview	186
12.1.2.2	Products/Solutions/Services offered	188
12.1.2.3	MnM view	188
12.1.2.3.1	Key strengths/Right to win	188
12.1.2.3.2	Strategic choices	188
12.1.2.3.3	Weaknesses/Competitive threats	188
12.1.3	EXABYTE INC.	189
12.1.3.1	Business overview	189

12.1.3.2	Products/Solutions/Services offered	189
12.1.3.3	Recent developments	190
12.1.3.3.1	Developments	190
12.1.3.4	MnM view	190
12.1.3.4.1	Key strengths/Right to win	190
12.1.3.4.2	Strategic choices	190
12.1.3.4.3	Weaknesses/Competitive threats	190
12.1.4	CITRINE INFORMATICS	191
12.1.4.1	Business overview	191
12.1.4.2	Products/Solutions/Services offered	191
12.1.4.3	Recent developments	192
12.1.4.3.1	Product launches	192
12.1.4.3.2	Deals	192
12.1.4.3.3	Other developments	195
12.1.4.4	MnM view	195
12.1.4.4.1	Key strengths/Right to win	195
12.1.4.4.2	Strategic choices	196
12.1.4.4.3	Weaknesses/Competitive threats	196
12.1.5	PHASESHIFT TECHNOLOGIES	197
12.1.5.1	Business overview	197
12.1.5.2	Products/Solutions/Services offered	197
12.1.5.3	Recent developments	198
12.1.5.3.1	Developments	198
12.1.5.4	MnM view	198
12.1.5.4.1	Key strengths/Right to win	198
12.1.5.4.2	Strategic choices	198
12.1.5.4.3	Weaknesses/Competitive threats	198
12.1.6	AI MATERIA	199
12.1.6.1	Business overview	199
12.1.6.2	Products/Solutions/Services offered	199
12.1.7	HITACHI HIGH-TECH CORPORATION	200
12.1.7.1	Business overview	200
12.1.7.2	Products/Solutions/Services offered	201
12.1.8	KEBOTIX, INC.	202
12.1.8.1	Business overview	202
12.1.8.2	Products/Solutions/Services offered	202
12.1.8.3	Recent developments	203
12.1.8.3.1	Deals	203
12.1.8.3.2	Expansions	204
12.1.8.3.3	Other developments	204
12.1.9	MATERIALSZONE	205
12.1.9.1	Business overview	205
12.1.9.2	Products/Solutions/Services offered	205
12.1.9.3	Recent developments	206
12.1.9.3.1	Product launches	206
12.1.9.3.2	Other developments	206
12.1.10	MATERIALS DESIGN, INC.	207

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12.1.10.1	Business overview	207
12.1.10.2	Products/Solutions/Services offered	207
12.1.10.3	Recent developments	208
12.1.10.3.1	Product launches	208
12.1.10.3.2	Deals	208
12.2	OTHER PLAYERS	209
12.2.1	ALBERTINVENT	209
12.2.2	EXOMATTER GMBH	210
12.2.3	EXPONENTIAL TECHNOLOGIES LTD.	210
12.2.4	INNOPHORE	211
12.2.5	INTELLEGENS LIMITED	211
12.2.6	KITWARE, INC	212
12.2.7	NOBLEAI	213
12.2.8	MATERIALSIN	213
12.2.9	REVVITY	214
12.2.10	POLYMERIZE	215
12.2.11	PREFERRED COMPUTATIONAL CHEMISTRY	216
12.2.12	QUESTEK INNOVATIONS LLC	217
12.2.13	SIMREKA	218
12.2.14	TILDE MATERIALS INFORMATICS	219
12.2.15	UNCOUNTABLE	219
13	APPENDIX	220
13.1	INSIGHTS FROM INDUSTRY EXPERTS	220
13.2	DISCUSSION GUIDE	221
13.3	KNOWLEDGESTORE: MARKETSandMARKETS' SUBSCRIPTION PORTAL	223
13.4	CUSTOMIZATION OPTIONS	225
13.5	RELATED REPORTS	225
13.6	AUTHOR DETAILS	226

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