

Global Carboxylated Fe₃O₄ Magnetic Nanoparticles Market 2026 by Manufacturers, Regions, Type and Application, Forecast to 2032

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Abstracts

According to our (Global Info Research) latest study, the global Carboxylated Fe₃O₄ Magnetic Nanoparticles market size was valued at US\$ 92.61 million in 2025 and is forecast to a readjusted size of US\$ 167 million by 2032 with a CAGR of 8.8% during review period.

In 2025, global sales volume of carboxylated Fe₃O₄ magnetic nanoparticles was approximately 12.5 tons, with a mainstream ex-factory price of about USD 7,200 per kg. Gross margins of major manufacturers in the industry were approximately 45%?65%.

Carboxylated Fe₃O₄ magnetic nanoparticles are functionalized magnetic nanomaterials with Fe₃O₄ as the magnetic core and carboxyl functional groups introduced onto the surface. They are typically supplied as aqueous dispersions, lyophilized powders, or magnetic microsphere suspensions. Their key features are the combination of superparamagnetism and surface reactivity. The Fe₃O₄ core enables rapid enrichment, separation, and recovery under an external magnetic field, while the surface carboxyl groups can form covalent bonds with amino-containing biomolecules such as proteins, antibodies, enzymes, peptides, and nucleic acids through EDC/NHS coupling systems.

The upstream supply chain mainly includes iron salt precursors, precipitants, reduction/oxidation control reagents, carboxylation modifiers, polymer coating materials, silica shell materials, dispersion stabilizers, and purification and packaging consumables. Among these, particle size distribution, magnetic response strength, carboxyl group density, dispersion stability, biocompatibility, and batch-to-batch consistency determine product performance. Downstream applications are concentrated in life science research, in vitro diagnostics, nanomedicine, and environmental and food

testing. Typical use cases include biomagnetic separation, nucleic acid extraction, immunoassays, antibody conjugation, cell sorting, drug delivery, medical imaging, pollutant enrichment, and complex sample pretreatment. It is one of the more widely used surface-modified products among magnetic functional nanomaterials.

This report is a detailed and comprehensive analysis for global Carboxylated Fe₃O₄ Magnetic Nanoparticles market. Both quantitative and qualitative analyses are presented by manufacturers, by region & country, by Type and by Application. As the market is constantly changing, this report explores the competition, supply and demand trends, as well as key factors that contribute to its changing demands across many markets. Company profiles and product examples of selected competitors, along with market share estimates of some of the selected leaders for the year 2025, are provided.

Key Features:

Global Carboxylated Fe₃O₄ Magnetic Nanoparticles market size and forecasts, in consumption value (\$ Million), sales quantity (Tons), and average selling prices (US\$/kg), 2021-2032

Global Carboxylated Fe₃O₄ Magnetic Nanoparticles market size and forecasts by region and country, in consumption value (\$ Million), sales quantity (Tons), and average selling prices (US\$/kg), 2021-2032

Global Carboxylated Fe₃O₄ Magnetic Nanoparticles market size and forecasts, by Type and by Application, in consumption value (\$ Million), sales quantity (Tons), and average selling prices (US\$/kg), 2021-2032

Global Carboxylated Fe₃O₄ Magnetic Nanoparticles market shares of main players, shipments in revenue (\$ Million), sales quantity (Tons), and ASP (US\$/kg), 2021-2026

The Primary Objectives in This Report Are:

To determine the size of the total market opportunity of global and key countries

To assess the growth potential for Carboxylated Fe₃O₄ Magnetic Nanoparticles

To forecast future growth in each product and end-use market

To assess competitive factors affecting the marketplace

This report profiles key players in the global Carboxylated Fe₃O₄ Magnetic Nanoparticles market based on the following parameters - company overview, sales quantity, revenue, price, gross margin, product portfolio, geographical presence, and key developments. Key companies covered as a part of this study include Ocean NanoTech, Micromod Partikeltechnologie, NanoComposix, EPRUI Biotech, Ademtech, Nanjing Nanoeast Biotech, etc.

This report also provides key insights about market drivers, restraints, opportunities, new product launches or approvals.

Market Segmentation

Carboxylated Fe₃O₄ Magnetic Nanoparticles market is split by Type and by Application. For the period 2021-2032, the growth among segments provides accurate calculations and forecasts for consumption value by Type, and by Application in terms of volume and value. This analysis can help you expand your business by targeting qualified niche markets.

Market segment by Type

Small-molecule carboxyl-functionalized type

Polymer carboxyl-functionalized type

Inorganic-shell carboxyl-functionalized type

Market segment by Particle Size

Ultra-small Particle Size (<10 nm)

Standard Particle Size (10-50 nm)

Large Particle Size (50-200 nm)

Market segment by Application

Life Science Research

In Vitro Diagnostics

Nanomedicine

Environmental and Food Testing

Other

Major players covered

Ocean NanoTech

Micromod Partikeltechnologie

NanoComposix

EPRUI Biotech

Ademtech

Nanjing Nanoeast Biotech

Market segment by region, regional analysis covers

North America (United States, Canada, and Mexico)

Europe (Germany, France, United Kingdom, Russia, Italy, and Rest of Europe)

Asia-Pacific (China, Japan, Korea, India, Southeast Asia, and Australia)

South America (Brazil, Argentina, Colombia, and Rest of South America)

Middle East & Africa (Saudi Arabia, UAE, Egypt, South Africa, and Rest of Middle East & Africa)

The content of the study subjects, includes a total of 15 chapters:

Chapter 1, to describe Carboxylated Fe₃O₄ Magnetic Nanoparticles product scope, market overview, market estimation caveats and base year.

Chapter 2, to profile the top manufacturers of Carboxylated Fe₃O₄ Magnetic Nanoparticles, with price, sales quantity, revenue, and global market share of Carboxylated Fe₃O₄ Magnetic Nanoparticles from 2021 to 2026.

Chapter 3, the Carboxylated Fe₃O₄ Magnetic Nanoparticles competitive situation, sales quantity, revenue, and global market share of top manufacturers are analyzed emphatically by landscape contrast.

Chapter 4, the Carboxylated Fe₃O₄ Magnetic Nanoparticles breakdown data are shown at the regional level, to show the sales quantity, consumption value, and growth by regions, from 2021 to 2032.

Chapter 5 and 6, to segment the sales by Type and by Application, with sales market share and growth rate by Type, by Application, from 2021 to 2032.

Chapter 7, 8, 9, 10 and 11, to break the sales data at the country level, with sales quantity, consumption value, and market share for key countries in the world, from 2021 to 2026. and Carboxylated Fe₃O₄ Magnetic Nanoparticles market forecast, by regions, by Type, and by Application, with sales and revenue, from 2027 to 2032.

Chapter 12, market dynamics, drivers, restraints, trends, and Porters Five Forces analysis.

Chapter 13, the key raw materials and key suppliers, and industry chain of Carboxylated Fe₃O₄ Magnetic Nanoparticles.

Chapter 14 and 15, to describe Carboxylated Fe₃O₄ Magnetic Nanoparticles sales channel, distributors, customers, research findings and conclusion.

Contents

1 MARKET OVERVIEW

1.1 Product Overview and Scope

1.2 Market Estimation Caveats and Base Year

1.3 Market Analysis by Type

1.3.1 Overview: Global Carboxylated Fe₃O₄ Magnetic Nanoparticles Consumption
Value by Type: 2021 Versus 2025 Versus 2032

1.3.2 Small-molecule carboxyl-functionalized type

1.3.3 Polymer carboxyl-functionalized type

1.3.4 Inorganic-shell carboxyl-functionalized type

1.4 Market Analysis by Particle Size

1.4.1 Overview: Global Carboxylated Fe₃O₄ Magnetic Nanoparticles Consumption
Value by Particle Size: 2021 Versus 2025 Versus 2032

1.4.2 Ultra-small Particle Size (

List Of Tables

LIST OF TABLES

Table 1. Global Enzymatic Plastic Recycling Consumption Value by Type, (USD Million), 2021 & 2025 & 2032

Table 2. Global Enzymatic Plastic Recycling Consumption Value by Application, (USD Million), 2021 & 2025 & 2032

Table 3. Global Enzymatic Plastic Recycling Consumption Value by Region (2021-2026) & (USD Million)

Table 4. Global Enzymatic Plastic Recycling Consumption Value by Region (2027-2032) & (USD Million)

Table 5. Carbios Company Information, Head Office, and Major Competitors

Table 6. Carbios Major Business

Table 7. Carbios Enzymatic Plastic Recycling Product and Solutions

Table 8. Carbios Enzymatic Plastic Recycling Revenue (USD Million), Gross Margin and Market Share (2021-2026)

Table 9. Carbios Recent Developments and Future Plans

Table 10. Samsara Eco Company Information, Head Office, and Major Competitors

Table 11. Samsara Eco Major Business

Table 12. Samsara Eco Enzymatic Plastic Recycling Product and Solutions

Table 13. Samsara Eco Enzymatic Plastic Recycling Revenue (USD Million), Gross Margin and Market Share (2021-2026)

Table 14. Samsara Eco Recent Developments and Future Plans

Table 15. Protein Evolution Company Information, Head Office, and Major Competitors

Table 16. Protein Evolution Major Business

Table 17. Protein Evolution Enzymatic Plastic Recycling Product and Solutions

Table 18. Protein Evolution Enzymatic Plastic Recycling Revenue (USD Million), Gross Margin and Market Share (2021-2026)

Table 19. Epoch Biodesign Company Information, Head Office, and Major Competitors

Table 20. Epoch Biodesign Major Business

Table 21. Epoch Biodesign Enzymatic Plastic Recycling Product and Solutions

Table 22. Epoch Biodesign Enzymatic Plastic Recycling Revenue (USD Million), Gross Margin and Market Share (2021-2026)

Table 23. Epoch Biodesign Recent Developments and Future Plans

Table 24. Yuantian Biotechnology Company Information, Head Office, and Major Competitors

Table 25. Yuantian Biotechnology Major Business

Table 26. Yuantian Biotechnology Enzymatic Plastic Recycling Product and Solutions

Table 27. Yuantian Biotechnology Enzymatic Plastic Recycling Revenue (USD Million), Gross Margin and Market Share (2021-2026)
Table 28. Yuantian Biotechnology Recent Developments and Future Plans
Table 29. Birch Biosciences Company Information, Head Office, and Major Competitors
Table 30. Birch Biosciences Major Business
Table 31. Birch Biosciences Enzymatic Plastic Recycling Product and Solutions
Table 32. Birch Biosciences Enzymatic Plastic Recycling Revenue (USD Million), Gross Margin and Market Share (2021-2026)
Table 33. Birch Biosciences Recent Developments and Future Plans
Table 34. Enzymity Company Information, Head Office, and Major Competitors
Table 35. Enzymity Major Business
Table 36. Enzymity Enzymatic Plastic Recycling Product and Solutions
Table 37. Enzymity Enzymatic Plastic Recycling Revenue (USD Million), Gross Margin and Market Share (2021-2026)
Table 38. Enzymity Recent Developments and Future Plans
Table 39. Plasticentropy Company Information, Head Office, and Major Competitors
Table 40. Plasticentropy Major Business
Table 41. Plasticentropy Enzymatic Plastic Recycling Product and Solutions
Table 42. Plasticentropy Enzymatic Plastic Recycling Revenue (USD Million), Gross Margin and Market Share (2021-2026)
Table 43. Plasticentropy Recent Developments and Future Plans
Table 44. Global Enzymatic Plastic Recycling Revenue (USD Million) by Players (2021-2026)
Table 45. Global Enzymatic Plastic Recycling Revenue Share by Players (2021-2026)
Table 46. Breakdown of Enzymatic Plastic Recycling by Company Type (Tier 1, Tier 2, and Tier 3)
Table 47. Market Position of Players in Enzymatic Plastic Recycling, (Tier 1, Tier 2, and Tier 3), Based on Revenue in 2025
Table 48. Head Office of Key Enzymatic Plastic Recycling Players
Table 49. Enzymatic Plastic Recycling Market: Company Product Type Footprint
Table 50. Enzymatic Plastic Recycling Market: Company Product Application Footprint
Table 51. Enzymatic Plastic Recycling New Market Entrants and Barriers to Market Entry
Table 52. Enzymatic Plastic Recycling Mergers, Acquisition, Agreements, and Collaborations
Table 53. Global Enzymatic Plastic Recycling Consumption Value (USD Million) by Type (2021-2026)
Table 54. Global Enzymatic Plastic Recycling Consumption Value Share by Type (2021-2026)

Table 55. Global Enzymatic Plastic Recycling Consumption Value Forecast by Type (2027-2032)

Table 56. Global Enzymatic Plastic Recycling Consumption Value by Application (2021-2026)

Table 57. Global Enzymatic Plastic Recycling Consumption Value Forecast by Application (2027-2032)

Table 58. North America Enzymatic Plastic Recycling Consumption Value by Type (2021-2026) & (USD Million)

Table 59. North America Enzymatic Plastic Recycling Consumption Value by Type (2027-2032) & (USD Million)

Table 60. North America Enzymatic Plastic Recycling Consumption Value by Application (2021-2026) & (USD Million)

Table 61. North America Enzymatic Plastic Recycling Consumption Value by Application (2027-2032) & (USD Million)

Table 62. North America Enzymatic Plastic Recycling Consumption Value by Country (2021-2026) & (USD Million)

Table 63. North America Enzymatic Plastic Recycling Consumption Value by Country (2027-2032) & (USD Million)

Table 64. Europe Enzymatic Plastic Recycling Consumption Value by Type (2021-2026) & (USD Million)

Table 65. Europe Enzymatic Plastic Recycling Consumption Value by Type (2027-2032) & (USD Million)

Table 66. Europe Enzymatic Plastic Recycling Consumption Value by Application (2021-2026) & (USD Million)

Table 67. Europe Enzymatic Plastic Recycling Consumption Value by Application (2027-2032) & (USD Million)

Table 68. Europe Enzymatic Plastic Recycling Consumption Value by Country (2021-2026) & (USD Million)

Table 69. Europe Enzymatic Plastic Recycling Consumption Value by Country (2027-2032) & (USD Million)

Table 70. Asia-Pacific Enzymatic Plastic Recycling Consumption Value by Type (2021-2026) & (USD Million)

Table 71. Asia-Pacific Enzymatic Plastic Recycling Consumption Value by Type (2027-2032) & (USD Million)

Table 72. Asia-Pacific Enzymatic Plastic Recycling Consumption Value by Application (2021-2026) & (USD Million)

Table 73. Asia-Pacific Enzymatic Plastic Recycling Consumption Value by Application (2027-2032) & (USD Million)

Table 74. Asia-Pacific Enzymatic Plastic Recycling Consumption Value by Region

(2021-2026) & (USD Million)

Table 75. Asia-Pacific Enzymatic Plastic Recycling Consumption Value by Region
(2027-2032) & (USD Million)

Table 76. South America Enzymatic Plastic Recycling Consumption Value by Type
(2021-2026) & (USD Million)

Table 77. South America Enzymatic Plastic Recycling Consumption Value by Type
(2027-2032) & (USD Million)

Table 78. South America Enzymatic Plastic Recycling Consumption Value by
Application (2021-2026) & (USD Million)

Table 79. South America Enzymatic Plastic Recycling Consumption Value by
Application (2027-2032) & (USD Million)

Table 80. South America Enzymatic Plastic Recycling Consumption Value by Country
(2021-2026) & (USD Million)

Table 81. South America Enzymatic Plastic Recycling Consumption Value by Country
(2027-2032) & (USD Million)

Table 82. Middle East & Africa Enzymatic Plastic Recycling Consumption Value by
Type (2021-2026) & (USD Million)

Table 83. Middle East & Africa Enzymatic Plastic Recycling Consumption Value by
Type (2027-2032) & (USD Million)

Table 84. Middle East & Africa Enzymatic Plastic Recycling Consumption Value by
Application (2021-2026) & (USD Million)

Table 85. Middle East & Africa Enzymatic Plastic Recycling Consumption Value by
Application (2027-2032) & (USD Million)

Table 86. Middle East & Africa Enzymatic Plastic Recycling Consumption Value by
Country (2021-2026) & (USD Million)

Table 87. Middle East & Africa Enzymatic Plastic Recycling Consumption Value by
Country (2027-2032) & (USD Million)

Table 88. Global Key Players of Enzymatic Plastic Recycling Upstream (Raw Materials)

Table 89. Global Enzymatic Plastic Recycling Typical Customers

List Of Figures

LIST OF FIGURES

- Figure 1. Enzymatic Plastic Recycling Picture
- Figure 2. Global Enzymatic Plastic Recycling Consumption Value by Type, (USD Million), 2021 & 2025 & 2032
- Figure 3. Global Enzymatic Plastic Recycling Consumption Value Market Share by Type in 2025
- Figure 4. PET
- Figure 5. PEF
- Figure 6. PE
- Figure 7. Global Enzymatic Plastic Recycling Consumption Value by Application, (USD Million), 2021 & 2025 & 2032
- Figure 8. Enzymatic Plastic Recycling Consumption Value Market Share by Application in 2025
- Figure 9. Food and Beverage Packaging Picture
- Figure 10. Clothing and Textiles Picture
- Figure 11. Others Picture
- Figure 12. Global Enzymatic Plastic Recycling Consumption Value, (USD Million): 2021 & 2025 & 2032
- Figure 13. Global Enzymatic Plastic Recycling Consumption Value and Forecast (2021-2032) & (USD Million)
- Figure 14. Global Market Enzymatic Plastic Recycling Consumption Value (USD Million) Comparison by Region (2021 VS 2025 VS 2032)
- Figure 15. Global Enzymatic Plastic Recycling Consumption Value Market Share by Region (2021-2032)
- Figure 16. Global Enzymatic Plastic Recycling Consumption Value Market Share by Region in 2025
- Figure 17. North America Enzymatic Plastic Recycling Consumption Value (2021-2032) & (USD Million)
- Figure 18. Europe Enzymatic Plastic Recycling Consumption Value (2021-2032) & (USD Million)
- Figure 19. Asia-Pacific Enzymatic Plastic Recycling Consumption Value (2021-2032) & (USD Million)
- Figure 20. South America Enzymatic Plastic Recycling Consumption Value (2021-2032) & (USD Million)
- Figure 21. Middle East & Africa Enzymatic Plastic Recycling Consumption Value (2021-2032) & (USD Million)

- Figure 22. Company Three Recent Developments and Future Plans
- Figure 23. Global Enzymatic Plastic Recycling Revenue Share by Players in 2025
- Figure 24. Enzymatic Plastic Recycling Market Share by Company Type (Tier 1, Tier 2, and Tier 3) in 2025
- Figure 25. Market Share of Enzymatic Plastic Recycling by Player Revenue in 2025
- Figure 26. Top 3 Enzymatic Plastic Recycling Players Market Share in 2025
- Figure 27. Top 6 Enzymatic Plastic Recycling Players Market Share in 2025
- Figure 28. Global Enzymatic Plastic Recycling Consumption Value Share by Type (2021-2026)
- Figure 29. Global Enzymatic Plastic Recycling Market Share Forecast by Type (2027-2032)
- Figure 30. Global Enzymatic Plastic Recycling Consumption Value Share by Application (2021-2026)
- Figure 31. Global Enzymatic Plastic Recycling Market Share Forecast by Application (2027-2032)
- Figure 32. North America Enzymatic Plastic Recycling Consumption Value Market Share by Type (2021-2032)
- Figure 33. North America Enzymatic Plastic Recycling Consumption Value Market Share by Application (2021-2032)
- Figure 34. North America Enzymatic Plastic Recycling Consumption Value Market Share by Country (2021-2032)
- Figure 35. United States Enzymatic Plastic Recycling Consumption Value (2021-2032) & (USD Million)
- Figure 36. Canada Enzymatic Plastic Recycling Consumption Value (2021-2032) & (USD Million)
- Figure 37. Mexico Enzymatic Plastic Recycling Consumption Value (2021-2032) & (USD Million)
- Figure 38. Europe Enzymatic Plastic Recycling Consumption Value Market Share by Type (2021-2032)
- Figure 39. Europe Enzymatic Plastic Recycling Consumption Value Market Share by Application (2021-2032)
- Figure 40. Europe Enzymatic Plastic Recycling Consumption Value Market Share by Country (2021-2032)
- Figure 41. Germany Enzymatic Plastic Recycling Consumption Value (2021-2032) & (USD Million)
- Figure 42. France Enzymatic Plastic Recycling Consumption Value (2021-2032) & (USD Million)
- Figure 43. United Kingdom Enzymatic Plastic Recycling Consumption Value (2021-2032) & (USD Million)

Figure 44. Russia Enzymatic Plastic Recycling Consumption Value (2021-2032) & (USD Million)

Figure 45. Italy Enzymatic Plastic Recycling Consumption Value (2021-2032) & (USD Million)

Figure 46. Asia-Pacific Enzymatic Plastic Recycling Consumption Value Market Share by Type (2021-2032)

Figure 47. Asia-Pacific Enzymatic Plastic Recycling Consumption Value Market Share by Application (2021-2032)

Figure 48. Asia-Pacific Enzymatic Plastic Recycling Consumption Value Market Share by Region (2021-2032)

Figure 49. China Enzymatic Plastic Recycling Consumption Value (2021-2032) & (USD Million)

Figure 50. Japan Enzymatic Plastic Recycling Consumption Value (2021-2032) & (USD Million)

Figure 51. South Korea Enzymatic Plastic Recycling Consumption Value (2021-2032) & (USD Million)

Figure 52. India Enzymatic Plastic Recycling Consumption Value (2021-2032) & (USD Million)

Figure 53. Southeast Asia Enzymatic Plastic Recycling Consumption Value (2021-2032) & (USD Million)

Figure 54. Australia Enzymatic Plastic Recycling Consumption Value (2021-2032) & (USD Million)

Figure 55. South America Enzymatic Plastic Recycling Consumption Value Market Share by Type (2021-2032)

Figure 56. South America Enzymatic Plastic Recycling Consumption Value Market Share by Application (2021-2032)

Figure 57. South America Enzymatic Plastic Recycling Consumption Value Market Share by Country (2021-2032)

Figure 58. Brazil Enzymatic Plastic Recycling Consumption Value (2021-2032) & (USD Million)

Figure 59. Argentina Enzymatic Plastic Recycling Consumption Value (2021-2032) & (USD Million)

Figure 60. Middle East & Africa Enzymatic Plastic Recycling Consumption Value Market Share by Type (2021-2032)

Figure 61. Middle East & Africa Enzymatic Plastic Recycling Consumption Value Market Share by Application (2021-2032)

Figure 62. Middle East & Africa Enzymatic Plastic Recycling Consumption Value Market Share by Country (2021-2032)

Figure 63. Turkey Enzymatic Plastic Recycling Consumption Value (2021-2032) & (USD Million)

Million)

Figure 64. Saudi Arabia Enzymatic Plastic Recycling Consumption Value (2021-2032) & (USD Million)

Figure 65. UAE Enzymatic Plastic Recycling Consumption Value (2021-2032) & (USD Million)

Figure 66. Enzymatic Plastic Recycling Market Drivers

Figure 67. Enzymatic Plastic Recycling Market Restraints

Figure 68. Enzymatic Plastic Recycling Market Trends

Figure 69. Porters Five Forces Analysis

Figure 70. Enzymatic Plastic Recycling Industrial Chain

Figure 71. Methodology

Figure 72. Research Process and Data Source

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