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United States Molding Compounds Market Assessment, By Molding Type [Sheet molding compound, Bulk molding compound, Thick molding compound], By Compound Type [Thermoset Plastic Molding Compounds, Long Fiber Reinforced Composites, Thermoplastic Molding Compounds], By End-user [Aerospace, Automotive, Semiconductors/Electronics Industry, Oil, Gas, & Energy Industry, Others] By Region, Opportunities and Forecast, 2016-2030F

https://marketpublishers.com/r/U17E75E465C8EN.html
Date: February 2025
Pages: 132
Price: US$ 3,300.00 (Single User License)
ID: U17E75E465C8EN

Abstracts

The United States Molding Compounds Market size was valued at USD 1.45 billion in 2022, which is expected to reach USD 2.26 billion in 2030 with a CAGR of 5.7% for the forecast period between 2023 and 2030. The many distinctive properties of thermoplastic compounds result in attractive product advantages. These advantages, individually or collectively, offer compelling reasons to use thermoplastic compounds in various applications. Thermoplastic compounds are frequently chosen as alternatives to metals, replacements for poor-performing plastics, or alternatives to more expensive engineering polymers by re-engineering less expensive plastics due to their high mechanical performance qualities. Long fiber compounds offer the finest structural performance in injection moldable thermoplastics. A single substance has a sizable quantity of stiffness, strength, and toughness. No other kind of reinforcing can equal the performance trifecta of important properties provided by melt-processable thermoplastics. Demand for many consumer items has increased due to the extensive use of molding compounds in manufacturing films and wraps.

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Increase Usage in Semi-Conductor Packaging Requirements

The fine-filled, electrically stable compounds used in semiconductor molding compounds are perfect for the demands of miniaturized semiconductor packing. They can be electrically stable at high temperatures and have tiny filler sizes and excellent spiral flow. Nano packages are considered while creating epoxy molding compounds graded for semiconductor application and CTE suited to popular dye substrates. They pass the most rigorous moisture and temperature testing while covering and safeguarding the die and the wire bonding. For epoxy molding materials used to encapsulate high power, discrete semiconductor applications running at high temperatures, excellent electrical stability is desired. These molding materials often have the lowest ionic content, maximum dielectric strength, most stable dielectrics, and lowest ionic conductivity over the broadest temperature range. United States semiconductor companies continue to invest roughly one-fifth of annual revenue in R&D which amounts to USD 50.2 billion in 2021. These investments across the United States are expected to help further to develop the molding compounds market in the coming years.

Rise In Construction and Infrastructure

Polyphenylene Sulfide (PPS) is used commercially in the oil and gas industry as filler to increase the extrusion and deformation resistance of Polytetrafluoroethylene (PTFE), which is primarily used in sealing liquid natural gas and coating heat exchangers for oil and gas. This is due to PPS's excellent balance of properties. PPS compounds are used in dynamic and static, high-duty cycle, hardened metal running surfaces, pump bearings, and wear components. Compounds frequently offer lower tooling costs and the flexibility to combine several elements into a single component, reducing complexity, waste, and labor costs associated with assembly. For example, fiber-reinforced polymer (FRP) can be used as a replacement for metallic materials in applications where great load-bearing strength is required.

Increase Adoption in Automotive Industries

The automotive industry is going through a significant shift to address pressing issues affecting consumers and the environment. Getting automobiles lighter to reduce energy usage is one of the most challenging jobs. A 10% drop in curb weight is projected to lead to an energy consumption reduction of 6% to 8%. The manufacturer’s conception, design, and production for lightweight components use molding compound materials

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due to their superior strength-to-weight ratio. Utilizing developing compound materials in the automotive industry would lighten and affect electric vehicles' aerodynamics. Thus, the rise in demand for e-vehicles is expected to create major traction for the market in United States. More recently, as the automotive industry ramps up production of battery-electric vehicles (BEV), new potential for molding compounds on commercial mid- and high-volume cars have emerged.

For instance, according to the U.S. Department of Energy (DOE), sale of plug-in vehicles (including BEVs and hybrid electric vehicles) rose nearly twice in 2021 compared to 2020. Batteries in BEV are heavier than internal combustion engine (ICE) vehicle batteries, necessitating lightweighting elsewhere to maximize the vehicle’s range and efficiency. Thus, the application of the molding compounds is expected to increase in demand for in the automotive industry.

Impact of COVID-19

The building and construction industry was affected by COVID-19, which suspended manufacturing and temporarily reduced the market for phenolic resin insulations. The temporary lockdown in practically all nations brought about by the COVID-19 epidemic has impacted the oil and gas industry. Due to worker shortages and operational challenges brought on by numerous social distances, the consumer electronics and furniture industries are also hampered. Recovery is anticipated, which could lead to a return to market growth throughout the anticipated term.

Due to the travel bans and restrictions, the transportation and automotive industries also saw a drop in output and sales, which impacted the phenolic resin market. The International Organization of Motor Vehicle Manufacturers (OICA) reports that the third quarter of 2020 saw a dramatic drop in worldwide vehicle production, from 65 million units in the third quarter of 2019 to about 50 million in the third quarter of 2020. Overall, COVID-19's effects have negatively hampered the market for molding compounds.

Impact of Russia-Ukraine War

Russia's invasion of Ukraine has significantly impacted people, the economy, and industry. Along with supply networks, industries, and economies, it has disturbed people's lives and way of life. Even before the battle fully escalated, oil prices were increasing across the world. But after Russia invaded Ukraine, the cost of crude oil on the international market soared, rising from around USD 76 per barrel at the beginning of January 2022 to more than USD 110 per barrel by March 4. However, following

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Russia's invasion of Ukraine in February 2022, President Biden of the United States issued an executive order on March 8th prohibiting imports of Russian coal, natural gas, and oil. The gap between supply and demand was predicted to increase to 2% in 2022 due to the rebound in demand after lifting pandemic restrictions. The sector needs to increase its adaptability and relevance in a rapidly evolving energy environment.

Key Players Landscape and Outlook

Companies are interested in achieving sustainability goals to lower or remove carbon emissions from the surroundings. The projects are accredited by accounting firms which verify the number of emission reductions and provide certification to use carbon offsets. Toray Advanced Composites' Morgan Hill (CA, USA) plant operations will be expanded. Toray Advanced Composites is the industry leader in creating and manufacturing sophisticated thermoplastic and thermoset composite materials. The new building will increase the campus's total floor space by 74,000 square feet (6,800 square meters).

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Contents

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10. MARKET MAPPING, 2022

10.1. By Molding Type
10.2. By Compound Type
10.3. By End-user
10.4. By Region

11. MACRO ENVIRONMENT AND INDUSTRY STRUCTURE

11.1. Supply Demand Analysis
11.2. Import Export Analysis – Volume and Value
11.3. Supply/Value Chain Analysis
11.4. PESTEL Analysis
  11.4.1. Political Factors
  11.4.2. Economic System
  11.4.3. Social Implications
  11.4.4. Technological Advancements
  11.4.5. Environmental Impacts
  11.4.6. Legal Compliances and Regulatory Policies (Statutory Bodies Included)
11.5. Porter’s Five Forces Analysis
  11.5.1. Supplier Power
  11.5.2. Buyer Power
  11.5.3. Substitution Threat
  11.5.4. Threat from New Entrant
  11.5.5. Competitive Rivalry

12. MARKET DYNAMICS

12.1. Growth Drivers
12.2. Growth Inhibitors (Challenges, Restraints)

13. KEY PLAYERS LANDSCAPE

13.1. Competition Matrix of Top Five Market Leaders
13.2. Market Revenue Analysis of Top Five Market Leaders (in %, 2022)
13.3. Mergers and Acquisitions/Joint Ventures (If Applicable)
13.4. SWOT Analysis (For Five Market Players)
13.5. Patent Analysis (If Applicable)

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