The pandemic has presented three distinct phases for the plastics industry. In 2020, the priority was human health as economic disruption created asymmetric demand for plastic products. Supply shortages were the challenge in 2021, exacerbated by Winter Storm Uri, which severely impacted production capacity. Supply returned in 2022, but supply chains became the dominant concern. Entering 2023, odds favor an economic soft landing as opposed to a recession. We can expect steadily improving

demand for the plastics industry as businesses work through excess inventories accumulated as a hedge against supply chain disruptions. Resin supply should be plentiful compared with the past two years. New PE and PP capacity in the U.S. and China should increase both domestic and export supply. Easing supply chain and energy costs should help with the availability and cost of imported resins. The industry has demonstrated remarkable resilience during the past three years. Barring another "black swan" event,

we can expect it to find a new and less disruptive "normal" as 2023 progresses. - Dwight Morgan, Executive Vice President, Corporate Development

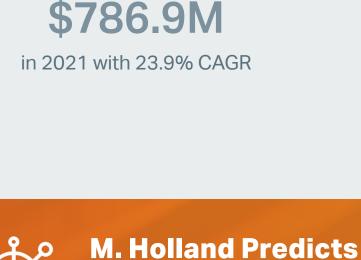
3D Printing

applications, allowing fast prototyping to extend beyond just form and fit evaluations. The expanded capabilities of new additive manufacturing applications will benefit the plastics market in multiple ways. It makes 3D printing a cost-competitive option that manufacturers are

incorporating more broadly into their operations across the entire manufacturing process, from ideation and design through production. Many OEMs are now designing facilities around additive manufacturing as the technology gains functionality. 3D printing will only become more integrated into the manufacturing process as time goes on." - Carlos Aponte, Market Manager, 3D Printing

"Process and material innovation have made 3D printing a viable alternative for full production

GLOBAL MARKET SIZE

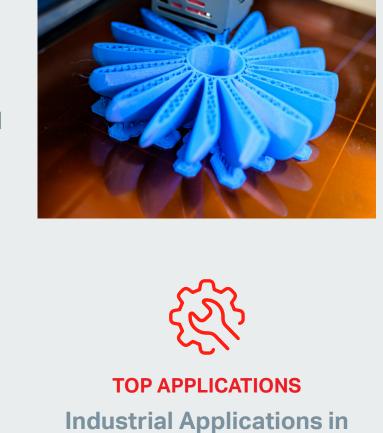






The 3D printing industry will see new additive manufacturing facilities open this year as OEMs take advantage of prototypes that have evolved to meet form, fit and functional testing requirements.

TOP MATERIALS



Automotive, Aerospace,

Medical



Automotive

Source: grandviewresearch.com

so will sustainable material development and innovation. Getting in front of the sustainability wave will be extremely important. However, OEMs are actively looking for more ways to get sustainable materials into both EVs and internal combustion engines (ICEs), which place the focus on durability when it comes to material development and selection." - Matt Zessin, Director, Global Automotive

PROJECTED MARKET SIZE

\$43.4B

by the end of 2030

"Electrification is the most transformative technology we have seen in the automotive industry in

recent years. The push and presence of electric vehicles (EVs) is not just a trend but an enduring

recent government incentives have increased consumer demand. As EV production continues,

part of the automotive fold going forward. New EV manufacturers are entering the market as

\$28.7B

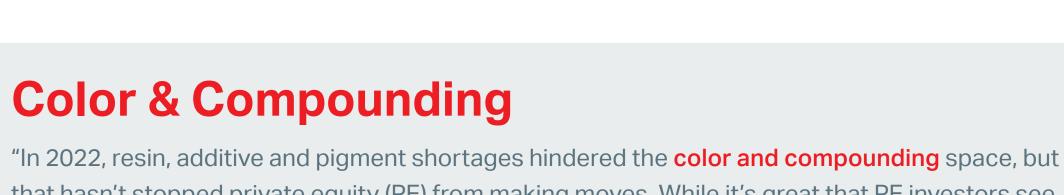
GLOBAL MARKET SIZE











that hasn't stopped private equity (PE) from making moves. While it's great that PE investors see value in the industry, the consolidation is making sourcing difficult for smaller operations. Lowmargin molders are struggling to find new compounding sources as compounders make a long-

internal combustion engines.

Source: grandviewresearch.com

their belts further to conserve cash due to recessionary fears and work to unload accumulated inventory. Despite recent availability improvements, dual-sourcing resin will remain an important backup plan for producers in the coming year." - Scott Arnold, Market Manager, Color & Compounding **Color Masterbatch TOP MATERIALS PROJECTED MARKET SIZE GLOBAL MARKET SIZE** Polypropylene, \$9.7B \$5.6B Polyethylene

by the end of 2030

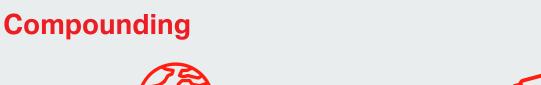
PROJECTED MARKET SIZE

by the end of 2030

term play for bigger business opportunities and cut back on sales and support functions. Luckily

actual material shortages are less problematic than they have been in recent months. Inventory

has largely caught up to demand as warehouses have filled. In 2023, I expect customers to tighten

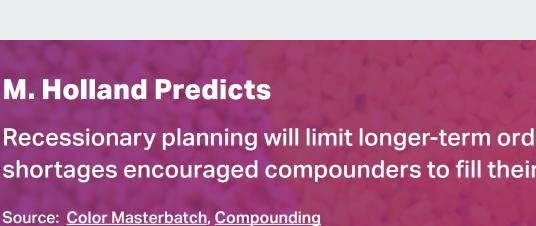






in 2021 with 6.3% CAGR





supply chains have loosened the Asian stronghold on electrical manufacturing. U.S.-based

corporations and foreign actors alike are bringing product development and manufacturing



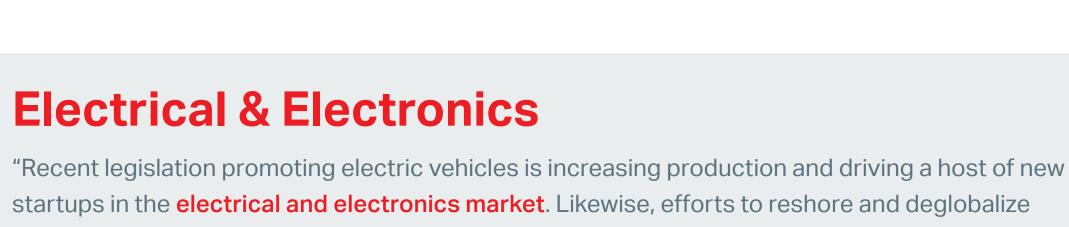
TOP MATERIALS



TOP APPLICATIONS

Packaging, Automotive,

Consumer Goods



to North America. As electrical and electronics products are constantly becoming smarter, faster and more innovative, research and development (R&D) that takes place in the U.S. is also increasing the volume of domestically owned intellectual property (IP) rights. By controlling the IP and engineering through manufacturing, U.S.-based companies will be more competitive globally by increasing their speed to market." - Carlos Aponte, Market Manager, Electrical & Electronics

Source: grandviewresearch.com

GLOBAL MARKET SIZE

Polycarbonate, \$5.4B Polyamides, **Thermoplastic Elastomers** by the end of 2028 in 2021 with 3.8% CAGR **M. Holland Predicts** Reshoring of electrical and electronics R&D and engineering processes will improve the time to market for U.S.-based corporations.

"The healthcare industry continues to adapt to market challenges. We've seen many OEMs

take inventory positions on plastic resins, so they have safety stocks for their various molders

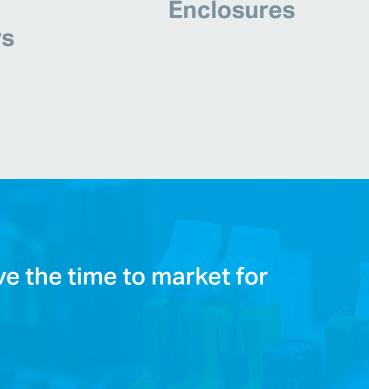
pandemic. Nearshoring molds and manufacturing plants, qualifying secondary resins, plus taking

PROJECTED MARKET SIZE

in a 'never again' effort to combat raw material shortages that have persisted throughout the

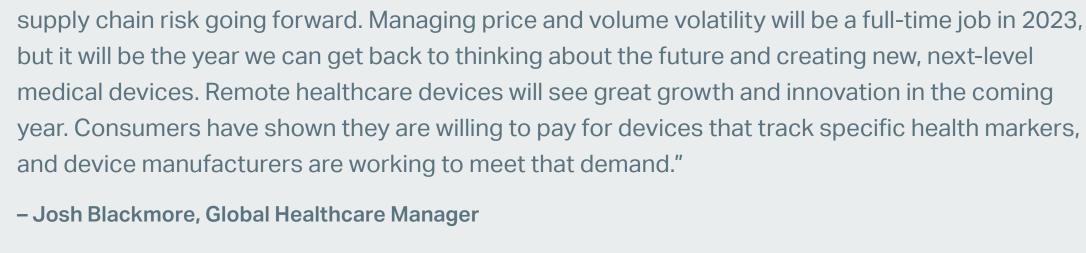
inventory positions are a few examples of how the medical industry is attempting to remove

PROJECTED MARKET SIZE



TOP APPLICATIONS

Appliances & White Goods,



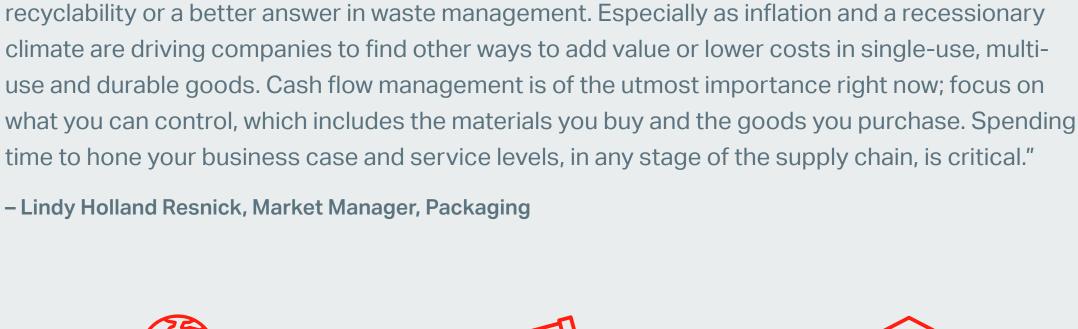
Healthcare

TOP APPLICATIONS GLOBAL MARKET SIZE Polypropylene, **Medical Components,** \$88.4B \$46.1B **Mobility Aids & Medical Polycarbonate Device Packaging** by the end of 2030 in 2021 with 7.5% CAGR

and smart devices will grow while the number of newly approved medical devices increases.

After a few reactive years, 2023 will see healthcare return to a more proactive position. Telehealth, patient monitoring

TOP MATERIALS



GLOBAL MARKET SIZE

\$355B

in 2021 with 4.2% CAGR

₽

M. Holland Predicts

Rotational Molding

that supports more traditional methods."

- Bill Christian, Product Manager for Rotational Molding

Source: <u>transparencymarketresearch.com</u>

despite a less-than-ideal economy.

Source: <u>grandviewresearch.com</u>, <u>statista.com</u>

Packaging

M. Holland Predicts

Source: grandviewresearch.com



by the end of 2027

"The first three quarters of 2022 showed constrained material supply and high demand in the

coupled with additional polyethylene capacity looming, which most molders view as a sense

of price relief. That is a boon after economic conditions last year caused rotational molders

to reevaluate their business, and many eliminated less profitable and more complex orders.

rotational molding space. However, we project an ebb in demand back to a pre-pandemic level,

OEMs that were displaced by those changes have opened new manufacturing facilities causing

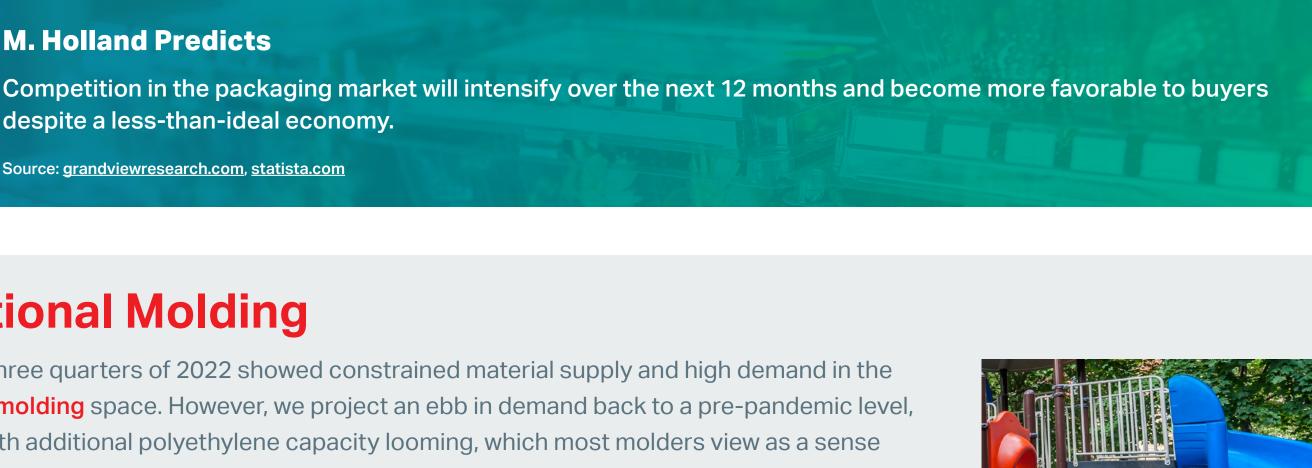
increased pressure on machine and equipment suppliers. Automation efforts have evolved to fill

the gaps as new molders develop manufacturing processes without access to the volume of labor

"Sustainability continues to dominate the conversation throughout the packaging market."

Worldwide brands are committed to sustainable materials in their packaging and are designing for





TOP APPLICATIONS

Building & Construction,

Sports & Recreation.

TOP APPLICATIONS

Food & Beverage, Personal &

Household Care, Cosmetics,

Industrial Shipping &

Packaging Materials



Sustainability

PROJECTED MARKET SIZE TOP MATERIAL GLOBAL MARKET SIZE Polyethylene \$8.3B \$4.5B by the end of 2031 in 2020 with 5.9% CAGR **M. Holland Predicts** Worker scarcity will significantly impact business as processors embrace automation with primary machinery and secondary operational equipment to fill the gaps.

"Sustainability was at the forefront at the largest plastic industry event — K 2022 in Dusseldorf,

Germany. Attendees were inspired to take ownership and action to address issues surrounding

climate change and a circular economy. This visibility on the world's stage has proven every

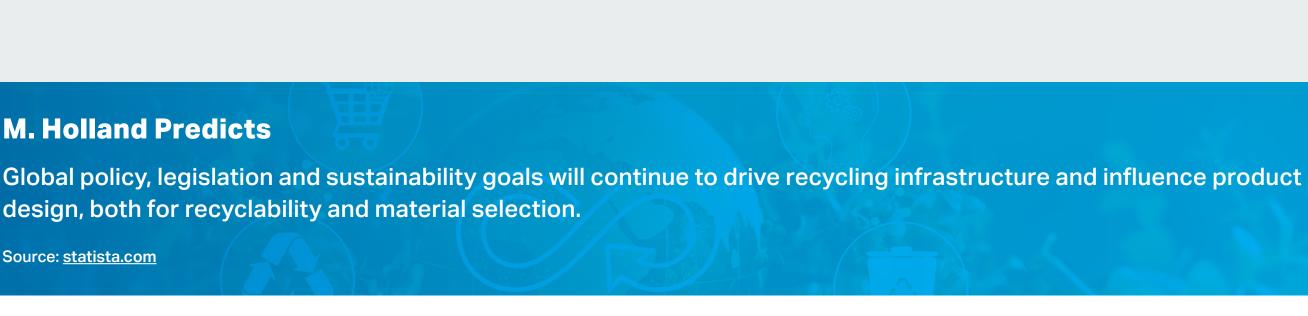
and the circular economy should be central to product development."



GLOBAL MARKET SIZE FOR SUSTAINABLE PACKAGING

- Debbie Prenatt, Market Manager, Sustainability





wind power are coming down as they reach scale. This increased affordability, combined with tax

incentives, a desire for more reliable energy and global sustainability initiatives, are accelerating

adoption and positively influencing demand for power cables. Similar government funding efforts

are driving network creators to invest heavily in digital infrastructure in 2023, especially in rural







- Todd Waddle, Director, Wire & Cable

2023 predictions are on

and low-income areas with minimal internet coverage."





