



POLYMAG[®]

PLASTICS SEPARATOR AND PROCESS

A unique process for the easy separation and recovery of mixed plastic materials.



BENEFITS

- Scrap cost reduction
- Eliminates salvage labor
- Eliminates ergonomic risks
- Improves material traceability
- Provides consistent materials
- Reduces disposal costs
- Provides higher value regrind
- Separates unusable blends
- Enhances process control

NEW
ONLY FROM ERIEZ

Today' designers and manufacturers are turning to two shot injection molding, over-molding, co-extruded profiles and sequential 3-D blow molding to produce the most cost effective new designs. This results in reduced assembly costs, better part consistency and higher quality at a lower overall cost. These sophisticated moldings are more challenging to design, tool and mold. One challenge that processors face, in producing multi-material moldings, is segregating and recovering dissimilar resins. Eriez now offers a solution to this problem.

The **PolyMag[®]** Process provides an effective and automated means to recover manufacturing scrap and waste for multi-material processors. To do this the **PolyMag[®]** additive is incorporated into one of the polymers prior to molding, similar to colorant, making this resin susceptible to

the very strong magnetic field produced in the **PolyMag** Rare Earth Roll Separator. Scrap parts are run through a traditional granulator and the **PolyMag** separator can then separate the mixed polymer regrind.

Without the **PolyMag** process companies making parts with co-molded materials either incurred the costs to dispose of these parts, losing the valuable resins or they added expensive labor to manually try to separate different plastics. Manual separation often involves band saws, razor knives and peeling that add ergonomic and employee safety risks.

Eriez provides progressive multi-material processors with a simple method to reduce the cost of waste

POLYMAG[®] PROCESS OVERVIEW



Typical Plastic Regrind Mix



Separated Material

POLYMAG[®] APPLICATIONS

- Injection Molding
- Over Molding
- Insert Molding
- Two Shot Molding
- Co-Extrusion
- Exchange-Blow Molding
- Sequential 3D Blow Molding
- Assembled Components
- Applied Gaskets
- Color Separation

Process works on:

- All Resins
- Thermoplastic and Thermoset
- Mechanical and Chemical Bonds



The *PolyMag* Separator

PARTS OF THE PROCESS

The *PolyMag* Additive

- *PolyMag* additive consists of specially prepared iron oxide and a carrier agent
- Standard application is 1% loading
- Additive can be introduced with color auger or additive feeder
- *PolyMag* additive is available with a universal carrier which is acceptable for most resins

The *PolyMag* Separator

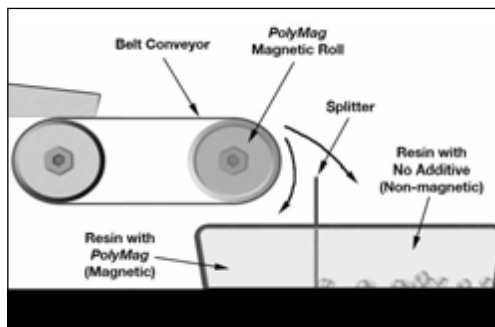
- 150-500 lbs/hr
- 110 or 220 Volt
- Heavy duty steel construction
- Permanent Rare Earth magnet
- Built-in feed hopper
- Kevlar belt
- Long-life bearings

Single Roller

Separates regrind into 2 components

Double Roller

Separates regrind into 3 components



Typical Arrangement

POLYMAG[®] PROCESS IN ACTION

POLYMAG[®] PROCESS CASE STUDY

8-Inch Wheelchair Overmold

The following is a typical plastic manufacturing application where the *PolyMag* process is used to separate the two materials of a scrap overmold part.

In this application, the *PolyMag* additive was added to the overmold material using a standard color auger. A common granulator with 3/8 screen was used for this test.



The previous method of scrap recovery required cutting the TPE and ripping it away from the nylon hub - a labor intensive and ergonomically risky procedure.

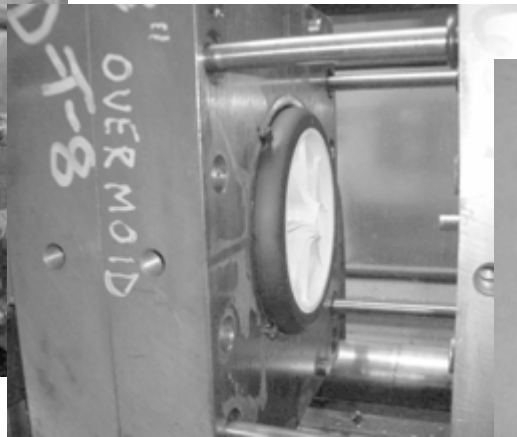
STEP 1

A 6/6 Nylon 33% Glass Hub inserted into an over mold



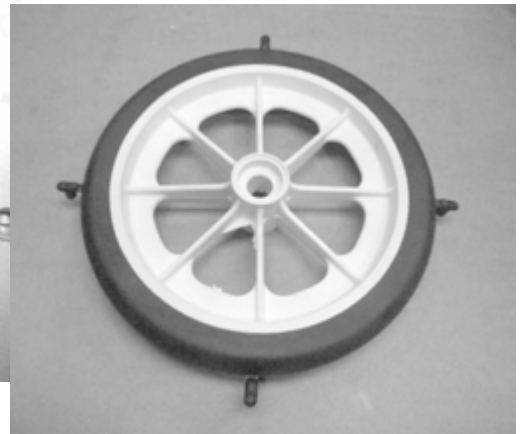
STEP 2

Hub is overmolded with a popular TPE and 1% *PolyMag* additive



STEP 3

Finished 8-inch wheelchair wheel is produced



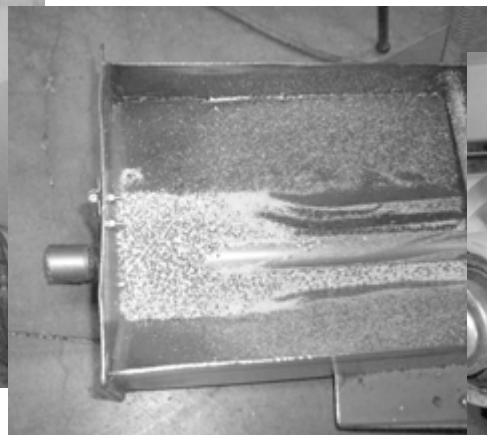
STEP 4

Rejected overmolded wheel is ground in common granulator



STEP 5

Co-mingled regrind Nylon and the TPE (w/ *PolyMag*) is accumulated



STEP 6

Co-mingled material is separated with *PolyMag* Separator



Magnetically
Susceptible TPE

Non-magnetic
6/6 Nylon
33% Glass Filled

SANTOPRENE® TPE DATA

Santoprene® a leader in thermoplastic elastomers (TPEs), has completed tests on materials with the **PolyMag®** Additive. Results indicate that the **PolyMag®** additive has little or no effect on the physical properties of the materials studied. A full report is available from Eriez upon request.

The **PolyMag** Process is designed for thermo-plastic and thermoset compatibility. All products and resins should be independently analyzed for physical properties and adhesion.

ERIEZ INNOVATION

State-of-the-Art Engineering

Computerized systems help improve Eriez efficiency and services throughout the Company. The corporate engineering department's CAD system, with compatible systems in Eriez offices around the world, enables instant access to engineering drawings and information requests from any location. The same designs, drawings, and high quality standards are followed at all plant operations, so that no matter which Eriez manufacturing facility produces the equipment, Eriez customers are assured of quality on a worldwide basis. This is especially important to multinational users of Eriez equipment, who wish to standardize production lines through one supplier.

The Eriez Technical Center

Eriez maintains one of industry's largest test laboratories at the Technical Center, adjacent to the headquarters plant, in Erie, Pennsylvania, USA. Customer products and raw materials are analyzed in the Technical Center, and ways to separate them more efficiently or economically are suggested. Both feasibility and definitive studies are conducted. Over 100 pieces of specialized test equipment are on hand. Customers are encouraged to participate in the testing. Basic materials separation equipment is also available at Eriez worldwide affiliates.

World Class Manufacturing

Eriez maintains a global perspective through manufacturing facilities at its USA headquarters, as well as in Australia, Brazil, China, India, Japan, Mexico, South Africa and the United Kingdom. To maintain a world class position, Eriez reinvests its profits in modern manufacturing equipment, applied research and development, highly qualified engineering and design staff, and up-to-date testing facilities. Computerized order entry assures consistent quality and timely response on a worldwide basis.

EriezXpress™ — when you need it now!

In the United States, select from the more than 50 most popular Eriez products including plate magnets, ferrous traps, high speed feeders and grate magnets — every one ready for next-day shipment.



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