

## Design Trends in the Revolving Rotational Molding World

I'm sure the majority of you have at one time or another wondered what design and application trends are influencing the rotational molding industry. Design trends affect everyone, including material suppliers, molders, equipment manufacturers, mold makers and OEMs. I would like to share my opinion of current design trends affecting the rotational molding industry and the opportunities they will provide to those filling the market void. My opinions are based on projects, molders and applications of which I have recently been exposed.

In my last editorial, I stated that the \$17 billion POP industry has begun to recognize the outstanding benefits of rotational molding as a highly versatile manufacturing process. The POP industry is based on

visual impact, which is expressed with exciting forms, colors, gloss and graphics. Other industries where visual impact is equally important are furniture and recreation. I've recently noticed metallic colors, such as silver becoming increasingly popular in these market sectors. This observation is based on the completion of two recent projects where a quality silver finish has been specified. Improvements in formulating PE with metallic pigments have apparently eliminated the previous problems associated with swirls and inconsistent coloration. Two companies offering such pigments are Chroma and ICO. My guess is that copper, gold and other metallic colored pigments will be requested in the near future. I have also noticed a demand for harder surfaces with a high gloss finish, especially in expensive furniture. A recent visit to a prestigious rotational molder in the mid-west introduced me to a line of high end furniture designed by Frank Gehry. In addition to its distinctive style, quality and glossy surface finish were present in all pieces. Parting lines were almost nonexistent and the surface finish had a high gloss luster.

I have also noticed a growing need for reliable physical property data, especially for polyethylene. As rotational molding applications become more sophisticated with critical structural load bearing requirements, reliable physical property data becomes extremely important. Designers such as myself are always searching for physical property data pertaining

Design trends affects everyone, including material suppliers, molders, equipment manufacturers, mold makers and OEMs.

to long term creep, change in modulus versus temperature, and data points for performing non-linear FEA analysis. PE suppliers should provide this information as a standard part of their data sheets so designers can reliably anticipate the behavior of a pallet, water tank or chair under specific loads and environmental conditions. I recently designed a line of water tanks for a manufacturer in Australia which required FEA analysis. Assumptions based on a very conservative 30% value for the modulus at room temperature exaggerated deflections

and stresses excessively.

In addition, performing a linear analysis versus non-linear also contributed to exaggerated results. Lack of physical property data based on temperature and long term creep data, prohibited

any reliable long term predictions from being calculated.

Another trend in the rotational molding industry is increased international trading. I've noticed more activity in importing and exporting rotationally molded products. This has increased the importance of including nesting, stacking and increasing packing density as part of the design requirements. Rising fuel costs are also contributing to concerns for maximizing packing density. Increased packing density will affect rotationally molded parts more drastically than other products because they are typically hollow. A recent line of various size water tanks we designed were developed to have the tops removed. The sizes were specially proportioned allow one size to nest into another and be reassembled on site. A line of rotationally molded children's furniture was also designed to stack for maximum packing density during shipment. Increased packing density can also require a single rotationally molded part to be designed as multiple flat parts for on site assembly. Flat panels are easier to store as well as transport.

These are a few of the trends I wanted to share with you. I hope you have enjoyed reading my opinions and have gained something from the column. I am interested in hearing from you, so if you would like to send me your feedback, please feel free to contact me at [paloian@idsys.com](mailto:paloian@idsys.com), or call me at 516.482.2181, ext 101.