



# RMD News

The Rotational Molding Division of SPE

[www.spe-rotomolding.org](http://www.spe-rotomolding.org)



1st Quarter 2014

## 2013-2014 Rotational Molding Product Design Competition Previews of 1st Place Winners



**PROFESSIONAL DIVISION**  
**Kitchen Community Garden Bed**  
*More on page 7*



**Student Division-iCoustics**  
*More on page 14*

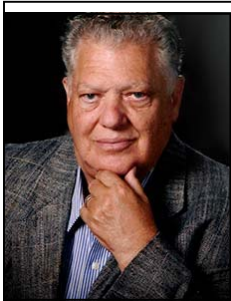
## TopCon 2014

Call for Papers  
Conference Brochure  
and Registration

*More info starts on page 9*

**RMD People in the News**  
**PD3 Supports the Glenn and  
Patsy Beall / Plastics Pioneers  
Reading Room**

*Story on page 3*



### Consultants Corner

With **Bruce Muller**

**BLOW HOLES AND  
VACUUM HOLES**

**Defects in Rotationally Molded Parts**  
*Technical Bulletin on page 4*



### Material Thoughts

With **Mike Gehrig**

**HOW CONDUCTIVE  
ARE YOU?**

**Understanding ESD**  
*Article page 17*

**Plus:**

**Chairman's Message-New RMD website-RMD Classified-Treasurers Report-and much more**

## Chairman's Message



**Rob Donaldson**

### Chair's Message

Hello fellow RMD Members.  
After the long winter a reprieve from the cold would be nice. It feels like the winter weather was never relenting and still hasn't; in some parts of North America. The RMD has been keeping busy so when the weather does change we will be ready and have our tasks completed to enjoy the spring.

We have accomplished a lot over the last 3 long, cold and dark winter months.

- The RMD website committee has put up a new website at [www.spe-rotomolding.org](http://www.spe-rotomolding.org). This new site will be kept up to date with current and future events and issues in the world of SPE and Rotational Molding.
- This will be the easiest way for our membership to provide feedback and suggestions.
- Please feel free to offer pictures and feedback for this process.
- The RMD a parts design contest was completed and judged. The winners have been announced for both the commercial and academic entries.
- These winners will now feed into the SPE part design competition.
- The RMD Technical committee has set up a session at the 2014 ANTEC in April at Las Vegas.
- RMD TOPCON in June 2014, at Independence, OH is firming up speakers and setting the final schedule.
- We are gathering bio's for our election of new board members and allotting volunteers for ad hawk projects.

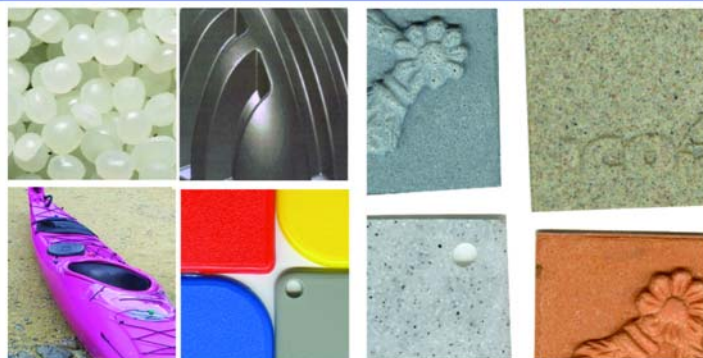
Spring is always the time of renewal and growth. As always we are always asking for volunteers to contribute to any or all of these activities both directly and indirectly. The time commitment can as minimal as you make it. Nothing makes you feel better than giving.

Thank you for your continued support of the SPE Rotational Molding Division.

Yours in Rotomolding,

Rob Donaldson  
RMD Chair

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Visit the new RMD Website at  
[www.spe-rotomolding.org](http://www.spe-rotomolding.org)

## RMD People in the News

*SPE - Product Design and Development Division (PD3)*

### NewsBrief - PD3 Supports the Glenn and Patsy Beall / Plastics Pioneers Reading Room

The Executive Board of PD3 authorized and funded a contribution in support of the efforts of Glenn Beall to secure and underwrite a permanent home for the history of plastics. A dedication was held on September 27<sup>th</sup>, 2013 at Syracuse University to formally open the Plastics Pioneers Reading Room, funded in part by a generous gift from Glenn and Patsy Beall. During the dedication ceremony, Glenn and Patsy were honored by the University for their generosity in underwriting the Reading Room and for their years of work in making the collection possible.

PD3 members Mark Wolverton, Michael Paloian, Anne Bernhardt, Jordan Rotheiser, Larry Schneider, Lance Neward and Mark MacLean-Blevins assisted in presenting the Syracuse University Libraries with a \$2,500.00 contribution from PD3 in support of the Glenn and Patsy Beall / Plastics Pioneers Reading Room on the Sixth floor of the E.S. Bird Library, on the main campus of the Syracuse University. The basis for the reading room is "The Plastics Collection" which is administered under the



Special Collections Research Center, a part of the Syracuse University Libraries. The collection is the world's largest university based resource on the history of plastics and includes books, periodicals, manuscripts, drawings, sketches, and plastic object artifacts (over 2,500 of them). The reading room is open to the public, free of charge, and has a representative sample of these plastic artifacts and objects on display. The entirety of the collection is to be a virtual museum, available to all for research and browsing via the internet. You can see the collection by visiting [plastics.syr.edu/](http://plastics.syr.edu/). The Special Collections Research Center is also looking for donations of anything related to the history and development of plastics, including quality artifacts, plastic parts or objects, publications, manuscripts, photographs and the like. Visit the online site [plastics.syr.edu/give/](http://plastics.syr.edu/give/) for more information on becoming a donor.

The collection was started in 2007 as a joint project between Syracuse University and the Plastic History and Artifacts Committee of the Plastics Pioneers Association (PPA), chaired by Glenn Beall. It was expanded when the documents and artifacts formerly held in the National Plastics Center and Museum in Leominster, Massachusetts were transferred to the Syracuse Library in 2008 after the closing of the museum. Founded in 1942, the PPA is an organization of not more than 250 persons of accomplishment who have been in the Plastics Industry for a minimum of twenty-five years. To learn more about the Plastics Pioneers of America you can visit [www.plasticspioneers.org](http://www.plasticspioneers.org).

PD3 is the Plastic Product Design & Development Division of the Society of Plastics Engineers (SPE), to learn more or to participate in PD3 visit [www.4SPE.org](http://www.4SPE.org).

Contributed by Mark MacLean-Blevins, 2013-2016 Counselor for PD3.

## Consultants Corner with Bruce Muller



### BLOW HOLES AND VACUUM HOLES Defects in Rotationally Molded Parts

#### *The Problem*

Every rotational molder has experienced scrap parts due to holes in the parting lines, leaks near inserts, and excessive flash. One member survey, by the Association of Rotational Molders (ARM), reported blow holes and vacuum holes to be the number one defect in parts produced by ARM members. **Improper venting causes scrap.**

#### *Identifying the Problem*

Parting line holes are commonly called pin or blow holes, but are often holes created by vacuum. It is important to determine which problem you are attempting to correct. A vacuum hole is created by air sucking in thru the parting line of the mold during cooling, usually leaving a bubble or funnel shaped hole on the inside of the part.

A hole created from pressure build up inside the mold, during the heating cycle, may blow out thru the molten plastic thru the mold parting line, creating a blow hole without an internal bubble. Venting thru the parting line is normal until the polymer begins to soften and cover the inside of the parting line. At that point the vent tubes hopefully become the path of least resistance, venting the pressure build up inside the mold.

### The Path of Least Resistance

#### *The Cause*

Air moving out of or into the mold, expanding during the heating cycle and contracting during the cooling cycle, will **follow the path of least resistance** equalizing to atmospheric pressure. In other words, internal air must move in and out of the part during the rotational molding process. Using **properly placed and sized vents will reduce scrap**. Polyethylene molds are routinely vented with one or more Teflon tubes. The tubes are often packed to prevent powder from falling out of the mold during early rotation or water entering the part during cooling.

#### *Intentional Mold Venting*

Venting a new mold often seems to be an after thought. Often molds are shipped from the mold builder to a rotomolder without the vents placed and drilled. Often, vent placement, size, and tube length may be handled by the maintenance department in a **routine non-scientific** manner. According to Roy Crawford, "Venting is one of the most important aspects of rotational moulding and yet it is one of the least understood".

#### *Factors Effecting Vent Design*

A formula to properly design a vent system is not very straightforward. Some factors affecting the size and number of vents that are necessary are:

- Air volume in the mold
- Powder displacement of internal air volume
- Vent tube diameter and length
- Temperature reached by the expanding air inside the mold
- Ramp up time heating the internal air (rate of the hot air expanding exiting the mold)
- Cooling rate of internal air (rate of air returning into the part)
- Material used to pack the vent tube (density and type of packing material used)
- Degree of packing or over packing in the vent tube
- Packing location in the vent tube
- Amount of volatiles in the color and additives (antistats, for example, typically carry water into the mold)
- Amount of cooling water (moisture) remaining in the mold at the start of the cycle
- Mold and powder temperature at the beginning of the oven cycle

*Continued on next page*

For more information please contact Bruce Muller at **PLASTICS CONSULTING, Inc.**  
[PlasticsC@aol.com](mailto:PlasticsC@aol.com)      772-781-6699      [www.plasticsconsulting.com](http://www.plasticsconsulting.com)



## Consultants Corner continued

### Vent Tube Diameter

There **does not** seem to be an industry standard formula for vent tube diameter or length. Considering the factors listed above, the lack of an industry standard is no surprise. Two **vastly different formulas** previously used in the industry for sizing vent tube ID's are:

- The **most** generous is 1 inch diameter for each **cubic foot** of mold volume (**appears to aggressive**)
- The **least** generous is ½ inch diameter for each **cubic yard** of mold (**potential problem formula**)

If the **vent tube is packed, the formulas should be doubled** as packing may reduce the vent efficiency by 50%

**Plastics Consulting's recommendation** is two ½" ID Teflon tubes for each 5 cu ft of mold volume. I never recommend less than two vents. If the mold is smaller or larger, adjust the vent tube diameters accordingly.

### Over Venting is Better than Under Venting

#### Packing Vent Tubes

Many molds don't require vent tube packing. Vent tubes should always extend past the powder pool. If the volume of powder pool tumbling in a mold never covers the end of the vent tube, packing may not be required. If cooling water enters a non-packed vent tube, the exterior end of the tube can be shielded to deflect the water in a variety of ways.

Over packing of vent tubes is extremely common in the roto industry. Packing vent tubes is usually left up to a very busy operator that may not completely understand the problems created by over packing. A common practice is to roll the packing material tightly in the palms. Variations commonly seen in vent tube packing are:

- Using too much packing material and packing the vent tube too tight using an inappropriate packing material
- Allowing the packing to stick out of the vent tube

**Silicone Supavents\*** ½"x 2 ¾" and ¾"x 3 ¼", **Smartvents\*** ½"x1" and ¾"x1" and 1"x2" long vents and the latest offering **Intellivents\*** that are used with special designed Teflon tubes, are reusable and do not require packing.

*\* Supplied by Norstar Aluminum Molds*

### Tube Packing Materials

The most common packing material I see in production is steel wool. I'm not enthused about steel wool as it quickly absorbs heat melting the polyethylene which may block the air movement. When the polyethylene, melted on the steel wool, cools it often blocks the vent tube creating a vacuum inside the part. This of course increases the chance of premature mold release (warpage) and vacuum holes at the parting line prior to the stiffening of the polymer melt. Steel wool should not be used when molding XLHDPE.

Pink fiberglass insulation and other fibrous products don't heat up like steel wool packing. It is difficult to over pack vent tubes with die cut Scotch Brite. Scotch Brite has a tendency to shrink and fall out of the vent tube. Roughing the inside of larger Teflon tubes and cutting the Scotch Brite over sized, reduces the chance of the packing falling out.

An old and recently revived method, an alternative to packing, is covering the end of the vent tube on the inside of the mold with PE film using thin wire or a rubber band to hold it on the tube. The PE film usually softens and blows thru after all the powder is stuck to the mold. The wire may remain inside the part after removal of the vent tube.

### Mold Venting Tips

Maintain mold parting lines to prevent them from becoming the **path of least resistance**.

Keep mold parting lines clean each cycle.

Two or more vents are better than one.

Generous over venting seldom causes problems.

Clean vent tubes each cycle and repack them.

Vent tubes are usually cleaned better and easier when removed each cycle.

Prevent vent tubes from falling out by maintaining molds. Teflon tubes also shrink over time.

Poking the vent tube with a properly sized threaded bolt will clean it effectively after each cycle.

Don't pack vent tubes when unnecessary by extending the vent tubes into the mold beyond the powder pool.

For consistency have one person pack all vent tubes and supply them to the operators.

Use coarse steel wool as it is more difficult to over pack than a fine grade of steel wool.

Don't try to standardize on one size vent tube for convenience. Higher volume molds require larger vents.

Maintain a vent tube formula based on your products, equipment, cycles and experience. Include it on all P.O.'s when ordering new molds.

Request vent tube size and placement recommendations from your designer on each new mold.

**Proper venting costs the same as improper venting.**



SOCIETY OF  
PLASTICS ENGINEERS

Founded in 1942

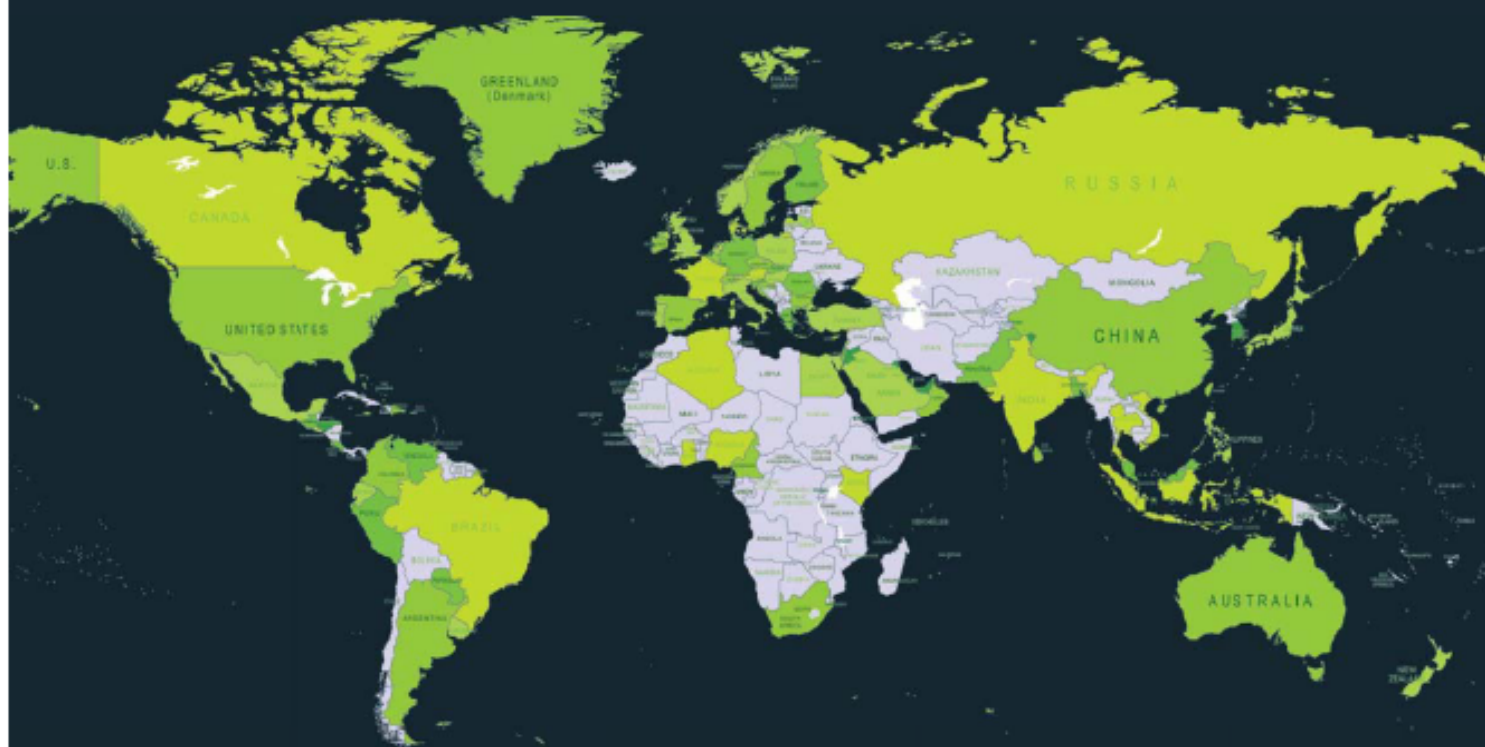
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2013-2014

**Rotational Molding  
Product Design Competition**

**Professional Division—1st Place Winner**  
**Jamie Wirkler, Product Manager**  
**The Kitchen Community Garden Bed**

— THE KITCHEN —  
**community**  
— COMMUNITY THROUGH FOOD —



THE KITCHEN COMMUNITY, 501C3  
1980 8TH STREET, BOULDER, CO. 80302



## RMD Design Competition - Professional Division, 1st Place (continued)

### OUR STORY

The Kitchen Community, a 501c3 nonprofit organization, was founded in 2011 as the philanthropic arm of The Kitchen family of restaurants to create community through food by planting Learning Gardens in schools and community organizations across America. Learning Gardens are hands-on outdoor classrooms and experiential play-spaces with vegetables that help reverse trends in childhood obesity, improve academic performance, and strengthen community.

In 2012, The Kitchen Community connected approximately 30,000 children to nutritious food by creating 50 Learning Gardens in schools across the U.S. In 2013, an additional 110 schools were granted Learning Gardens to bring the total children impacted to 100,000 and growing.

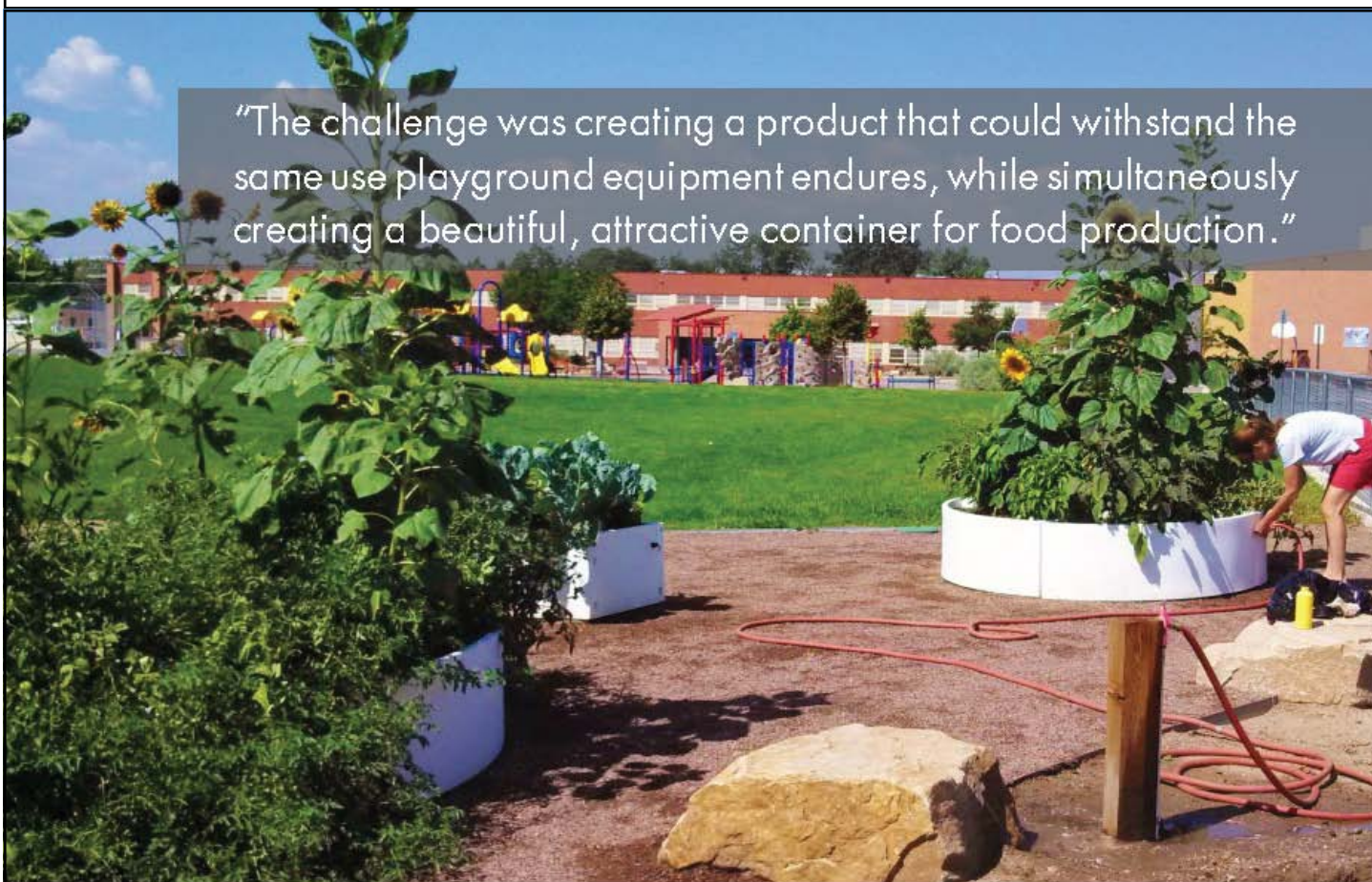
An outdoor classroom and experiential playspace enables children to learn the value of growing their own food, discovering where it comes from and how it should taste. Science, Technology, Education, Arts, and Mathematics are interwoven into our education program to provide teachers with a head start to using the Learning Garden.

It is our hope to reverse trends in childhood obesity, while simultaneously enriching each student's educational experience.





## RMD Design Competition - Professional Division, 1st Place (continued)



"The challenge was creating a product that could withstand the same use playground equipment endures, while simultaneously creating a beautiful, attractive container for food production."

### ROTATIONAL MOLDING

The Kitchen Community worked closely with award winning artist and designer, Jen Lewin Studios, to create the Learning Garden concept. The very first raised bed system was fabricated using sheet steel powdercoated in a pearlescent white finish.

Due to their large size and nation-wide distribution needs, we looked to the rotational molding industry for help in creating a light-weight, durable product. Our designers quickly went to work to identify three main shapes that we could use for production. The challenge was creating a product that could withstand the same use playground equipment endures, while simultaneously creating a beautiful, attractive container for food production. Stemming from segments of the golden ratio, we finalized three curvilinear mold patterns for production and distribution in early 2012.

Today, The Kitchen Community has distributed over 2,500 Garden Beds nationally among 166 schools and community centers. It's our hope to have programming in every U.S. school district by 2025. The U.S. Department of Education's most recent count of U.S. primary schools totaled 132,183. Using this number as a driver for market size, we've barely captured 1/10 of one percent of the market.

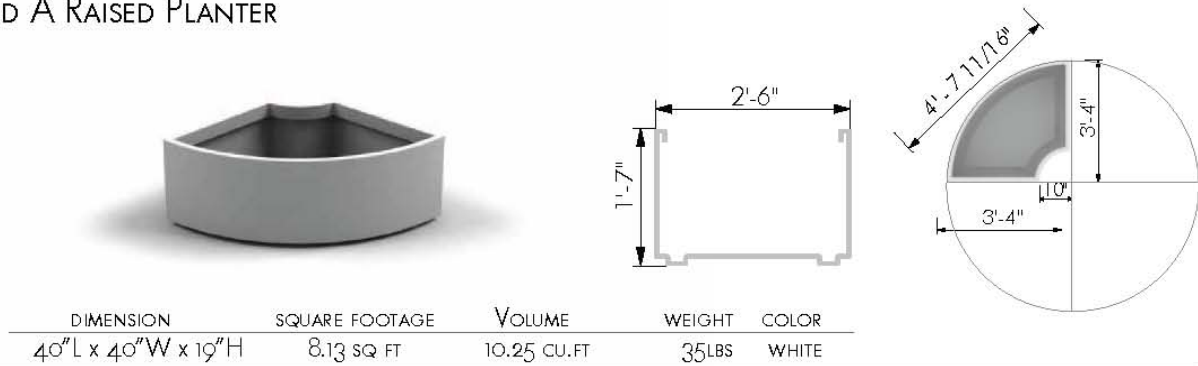
## RMD Design Competition - Professional Division, 1st Place (continued)

### GARDEN BED SPECIFICATIONS

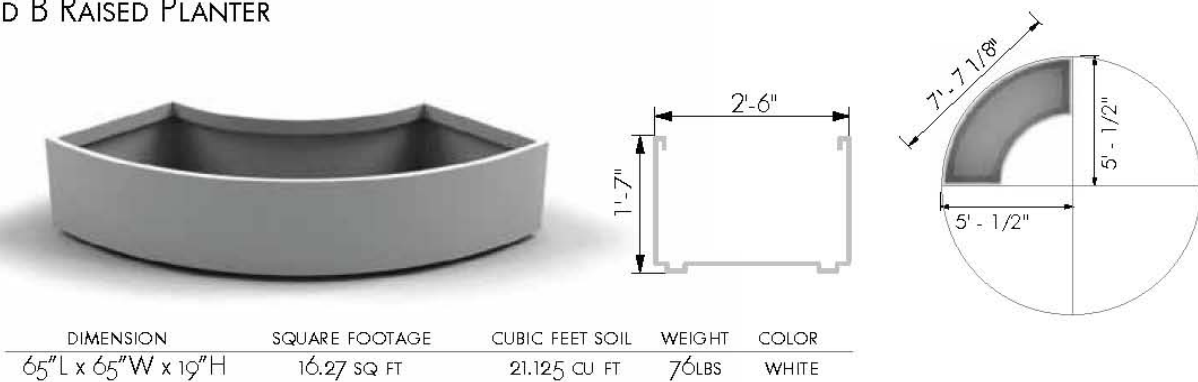
Our modular planters are designed to fit into a variety of spaces. Connect planters together in minutes to form experiential outdoor learning environments. Made from food grade, FDA approved, polyethylene plastic, enhanced with UV stabilizers for added sun protection. Learning Garden planters are designed to be a sustainable, long-term investment. This product is available exclusively from The Kitchen Community. Made in the USA.

FEATURES: AVAILABLE IN WHITE | EASY ASSEMBLY | LIGHT WEIGHT | CONNECT MULTIPLE PLANTERS TOGETHER | 5 YEAR WARRANTY

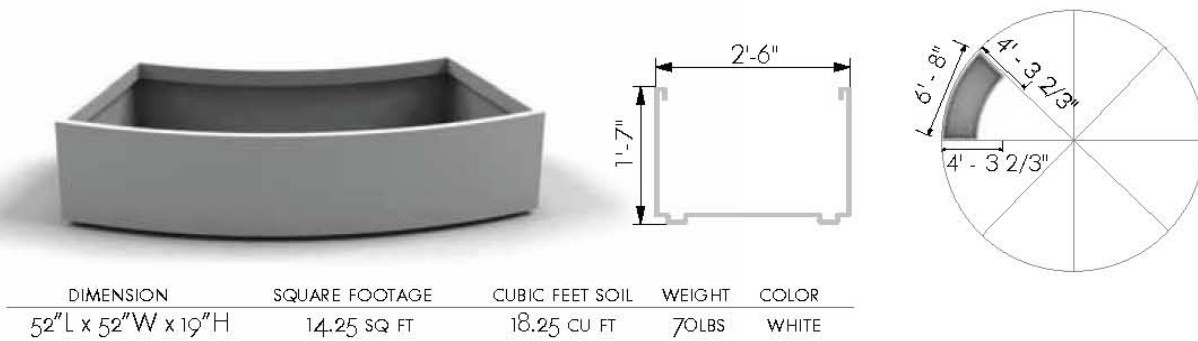
#### BED A RAISED PLANTER



#### BED B RAISED PLANTER



#### BED C RAISED PLANTER



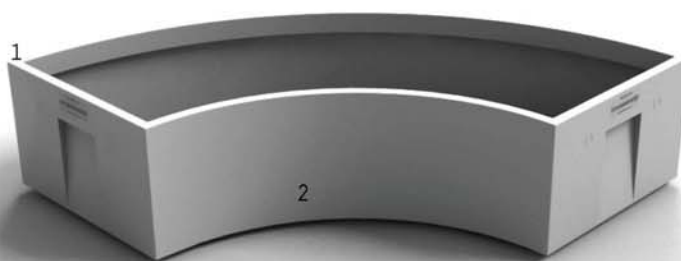
## RMD Design Competition - Professional Division, 1st Place (continued)

### GARDEN BED DETAILS

#### 2014 Enhancements

The 2014 edition of our raised planters feature an enhanced drainage basin to improve root zone aeration and encourage an aerobic growing environment. In addition, each planter now has dual-branded ends with carrying handles and irrigation inlet markers.

This year, we anticipate distribution of over 1,200 containers among 100 locations.



- 1 - Upper Mold Stacking Feature: Structural support for mold stacking.
- 2 - Curvilinear Walls: Provide structural support to resist internal soil loads.



- 3 - Drainage Basin: Promotes root zone aeration and proper drainage of salts.
- 4 - In-Mold Logo: Brand Identification
- 5 - Irrigation Inlet: Customizable per individual site requirements.
- 6 - Carrying Handle: Structural ribbing to resist internal soil loads.



## RMD Design Competition - Professional Division, 1st Place (continued)

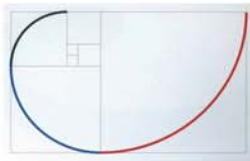
### DESIGN PROCESS

#### Design Criteria

Experiential playspace, no fences, outdoors year round, safe for kids, food production container.

#### The Golden Ratio

Using the golden ratio as a starting point, we divided a section of the curve into three distinct forms that eventually became the containers.



#### Feasibility Study



Too large to manufacture + ship efficiently

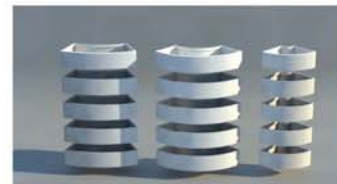


Smaller, single membrane containers are easier to manufacture, transport and install.

#### Freight



Stacks (5 high): 6A, 7B, 7C  
Beds: 30A, 35B, 35C  
Total Beds: 100  
Total Weight: 6,830lbs.  
Sq. Footage: 426.7 sq. ft.



Nest for Shipping

#### Materials

Demands: UV resistant, durable in hot and cold temperatures, food safe.

LLDPE Details:  
Polyethylene copolymer  
FDA Food Grade  
UV8 Package  
Arctic White Colorant  
Melt - 6.74g/10min. | 0.9352 g/cc | 31.6 dryflow

#### Experiential Playspace



Learning Gardens have the same demands as a playground, so we focused our attention on materials that playground manufacturers use.

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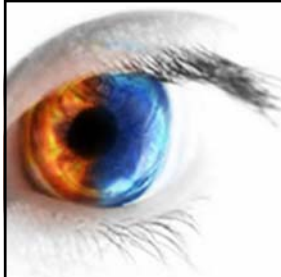


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2013-2014



## Rotational Molding Product Design Competition

### Student Division - 1st Place Winner Kyle Anderson, Milwaukee Institute of Art and Design iCoustics

#### *iCoustics* Rotomold Project

The iCoustic is based off of sound amplification. Like a bullhorn it increases the volume of your iPhone speakers and requires no batteries or cords. There are other iPhone speaker amplifiers on the market but none of them are rotomolded.



#### Ideation/Sketches



#### Sketches

SPE Competition // Kyle Anderson // MIAD // 2014

**Plastics Research & Education Center**

**Ball State University**

Dept. of Industry & Technology

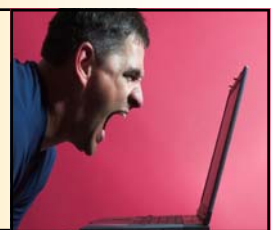
[www.bsu.edu/cast/itech](http://www.bsu.edu/cast/itech)



**Got a comment?**

**[rmd@rotomolding.net](mailto:rmd@rotomolding.net)**

**847-549-9970**





## RMD Design Competition - Student Division, 1st Place (continued)

### iCoustics Rotomold Project



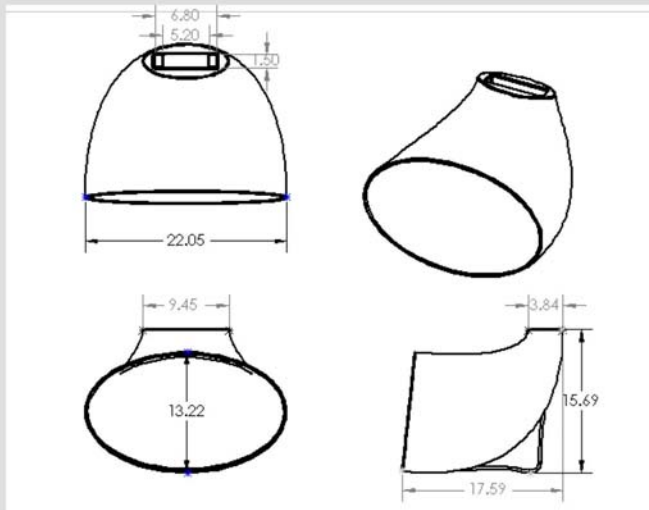
### Final Direction

I went with this form for my final direction. It is simple elegant and would look beautiful in any home. This form would only require a two-part mold and would be fairly easy to machine out of aluminum to make the mold. The other great thing about the iCoustic is the fact you can bring it anywhere and turn your iPhone into a stereo system. Camping, a picnic, the beach; you will be able to enjoy your favorite music anywhere.

SPE Competition // Kyle Anderson // MIAD // 2014

### iCoustics Rotomold Project

### Orthographics/Section View



Orthographics

The iCoustic is designed to hold any version of the iPhone and is also capable to be used with most cases on the market today. It will be manufactured using Polyethylene.



Section View

SPE Competition // Kyle Anderson // MIAD // 2014

**RMD Design Competition - Student Division, 1st Place (continued)**

## *iCoustics* Rotomold Project

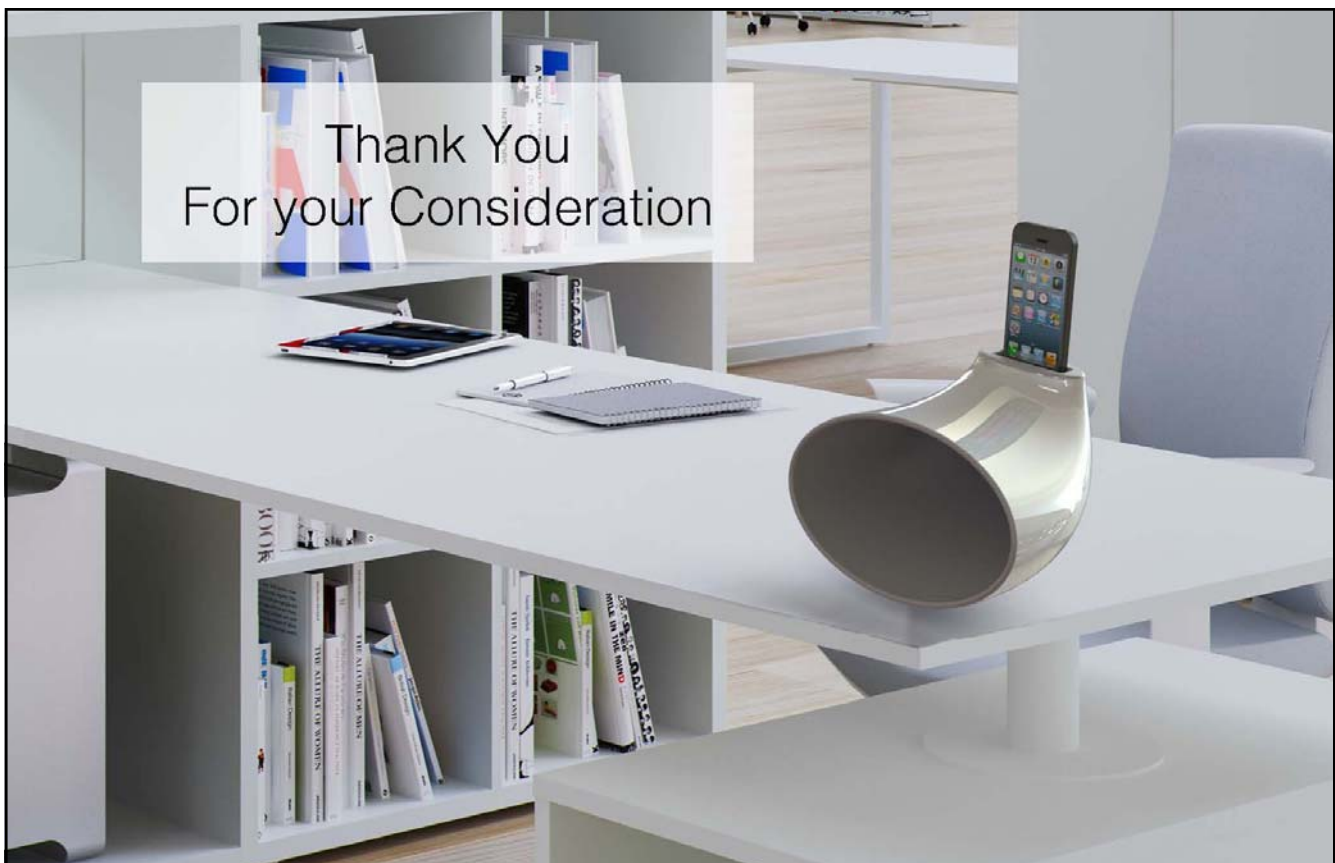
The possibilities are endless, with an unlimited choice of colors the iCoustic can be personalized to anyone's style and personality.

Endless Possibilities



SPE Competition // Kyle Anderson // MIAD // 2014

Thank You  
For your Consideration



## Material Thoughts... with Mike Gehrig



### How Conductive Are You?

As material developers, we often receive inquiries into designing an ESD resin for a specific application. There are some general guidelines to follow with these formulations but they all depend upon what level of conductivity is required. And all too often, our clients do not know exactly what is required. Their customer has asked for an ESD resin but not specified exactly what they are looking for.

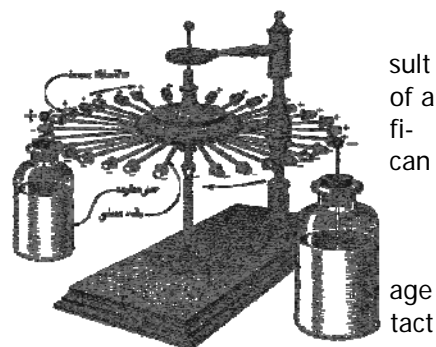
To gain a better perspective on the varying levels of ESD resins we'd like to offer a layman's guide to what they are, how they are measured, and what categories they fall into.

## Understanding ESD

### What is Static Electricity?

It's what the name implies -- electricity at rest. This electrical charge is the result of a transfer of electrons that occurs due to the sliding, rubbing, or separating material, which is a prime generator of electrostatic voltages -- e.g.: plastics, fiber glass, rubber, textiles, etc. Under the right conditions, this induced charge build to 30,000 or 40,000 volts.

When this happens to an insulating material, such as a plastic, the built-up charge tends to remain in the localized area of contact. This electrostatic voltage then can discharge via an arc or spark when the plastic material comes in contact with a body at a sufficiently different potential, such as a person or micro-circuit.



*Benjamin Franklin's electrostatic motor*



If electrostatic discharge (ESD) occurs to a person, the result can range anywhere from a mild to a painful shock. In extreme cases, ESD could even result in loss of life. Sparks are dangerous in an environment containing flammable liquids, solids or gases, such as in a hospital operating room or during the assembly of explosive devices.

Some micro-electronic parts can be destroyed or damaged by ESD as low as 20 volts.

Since people are prime causes of ESD, they often cause damage to sensitive electronic parts, especially during manufacturing and assembly. The consequences of discharge

through an electrical component sensitive to ESD can range from erroneous readings to permanent damage resulting in excessive equipment downtime and costly repair or total part replacement.

## Resistivity Test Methods:

### Surface Resistivity

For thermoplastic materials intended to dissipate electrostatic charges, surface resistivity is the most common measurement of a material's ability to do so.

A widely accepted surface resistivity test method is ASTM D257. It consists of measuring the resistance (via an ohm meter) between two electrodes applied under load to the surface being tested. Electrodes are used rather than point probes because of the heterogeneous makeup of compounded thermoplastics. Simply touching the surface with a point contact may not give readings consistent with the overall part (readings of this type are often insulative even when the part is actually conductive).

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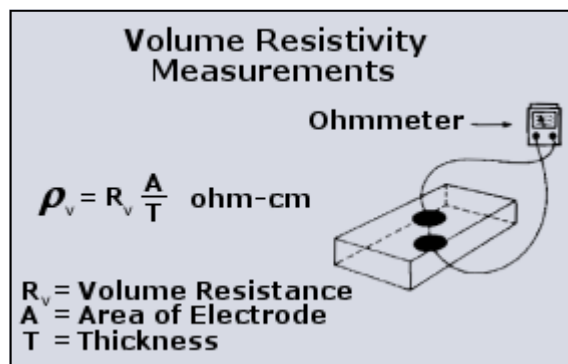
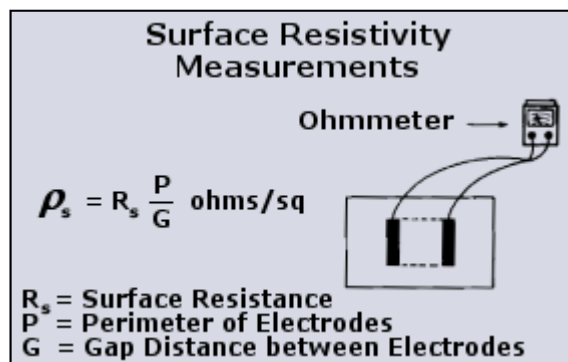
## Material Thoughts... with Mike Gehrig (continued)

It is also important to maintain good contact between the sample and electrodes, which can require considerable pressure. The resistance reading is then converted to resistivity to account for the dimensions of the electrodes which can vary depending on the size and shape of the test samples. Surface resistivity is equal to resistance times the perimeter of the electrodes divided by the gap distance, yielding ohms/square.

### Volume Resistivity

Volume resistivity is useful for evaluating the relative dispersion of a conductive additive throughout the polymer matrix. It can roughly be related to EMI/RFI shielding effectiveness in certain conductive fillers.

Volume resistivity is tested in a similar fashion to surface resistivity, however electrodes are placed on opposite faces of a test sample. ASTM D257 also refers to volume resistivity, and a conversion factor again based on electrode dimensions and part thickness is used to obtain the resistivity value from a resistance reading. [Volume resistivity is equal to resistance times the surface area (cm<sup>2</sup>) divided by the thickness of the part (cm) yielding ohm-cm.]



## ESD Materials Categories

Materials for protection and prevention of Electro-Static Discharge (ESD) can be categorized into three distinct groups separated by their ranges of conductivity to electrical charges.

### Anti-Static:

Resistivity generally between  $10^9$  and  $10^{12}$  ohms per square. Initial electrostatic charges are suppressed. May be surface resistive, surface-coated or filled throughout.

### Static Dissipative (SD) :

Resistivity generally between  $10^6$  and  $10^9$  ohms per square. Low or no initial charges -- prevents discharge to from human contact. May be either surface-coated or filled throughout.

### Conductive (CN) :

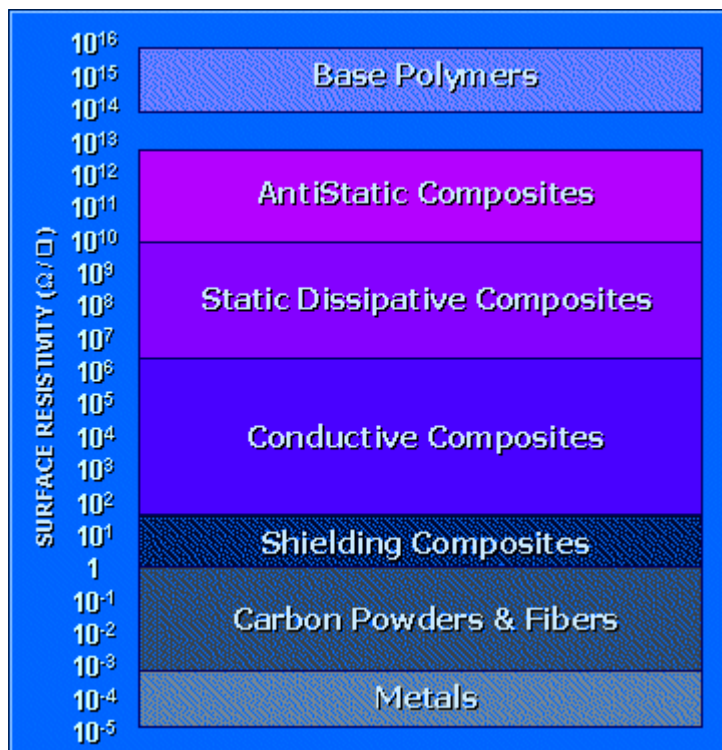
Resistivity generally between  $10^3$  and  $10^6$  ohms per square. No initial charges, provides path for charge to bleed off. Usually carbon-particle or carbon-fiber filled throughout.

### Q: What is "ohms per square"?

see the following links:

<http://www.esdjournal.com/techpapr/ohmmtr/ohm.htm>

<http://www.esdjournal.com/techpapr/ohms.htm>





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Rotational Molding Division

# TopCon 2014



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# REGISTRATION FORM

## Rotational Molding TopCon 2014 *Learn, Strategize and Take Action Today*

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**Registration:** *includes Sunday and Monday receptions, two full days of technical presentations, mini-rotational molding trade show, and meals*

	By May 12th	After May 13th	Amount
SPE Members	\$495.00	\$550.00	_____
Nonmembers*	\$595.00	\$650.00	_____
*1 Year SPE membership included with registration. Regular membership \$144.00/yr.			
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Or register online at: [www.rotomolding.net](http://www.rotomolding.net)

*Conference registrations are non-refundable after May 12, 2014.*



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ROTATIONAL MOLDING

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The 2014 TopCon of the Rotational Molding Division (RMD) of SPE will be held on June 1st-4th at the Holiday Inn Conference Center in Independence, Ohio.

The theme for the program will be:

***Creating Your Future In Rotational Molding***

The RMD is now accepting proposals for papers to be presented at the conference.

Subjects of interest to rotational molders and their suppliers include:

***Product Design***

***Business and Marketing***

***Material Developments***

***Processing Technologies***

***Pulverizing***

***Quality Control***

Dues dates for submission are:

Abstracts: April 21st

Papers: May 12th

Presentations: June 1st

To submit a paper please contact our Technical Program Director, Tom Steele via email at [thomas.steele@cytec.com](mailto:thomas.steele@cytec.com) or by phone at 203-321-2261

For more information about the RMD 2014 TopCon please visit our website

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events worldwide for the plastics industry at:  
<http://www.4spe.org/training/eventcalendar.php>



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technical article to the  
RMD Newsletter!  
*The submission deadline for the  
next edition is May 1st.*



# ANTEC 2014 Las Vegas is for Young Professionals!



We've listened to the feedback our younger SPE members have provided from previous ANTEC conferences. So we just wanted you to know we're offering some new, fun and engaging activities at ANTEC 2014 (April 28-30), specifically for young plastics professionals:

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- **Panel Discussion** - Participate in a lively discussion, ask your industry questions, and gain the knowledge you've been looking for including career tips and tricks relevant to you, not that generic advice you find online.
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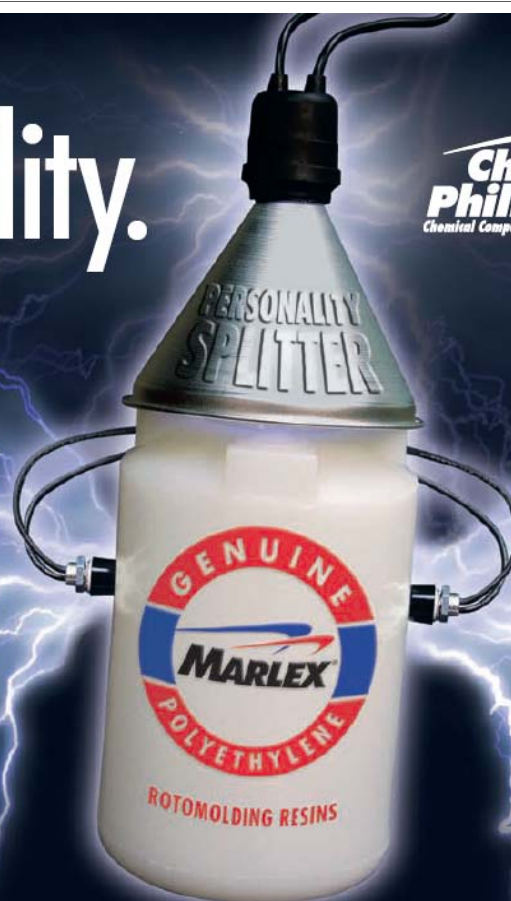
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Division of Rotational Molding  
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# RMD News

Your Award Winning Newsletter - 2005, 2006 & 2007



## Classified Advertising Opportunities



The **RMD Newsletter** is an award winning publication available to thousands of SPE members on the RMD website.

This quarterly publication is well read and received by international organizations and individuals involved in the rotational molding industry.

The RMD is now offering the opportunity for you to reach the global rotational molding markets by placing classified advertising in upcoming editions.

**RMD Classified Ads provide an excellent opportunity for you to:**

- *Sell new and used rotational molding equipment and accessories.*
- *Promote goods and services to the rotational molding industry.*
- *Advertise for help wanted and positions wanted within the rotational molding industry.*

***View the current and previous editions of the RMD Newsletter online at [www.rotomolding.net](http://www.rotomolding.net)***

### **Nominal rates:**

*Business card ads only \$100.00/issue, \$350/year.*

*Classified ads for only \$100.00 per column inch.*

*Positions Wanted, up to 75 words, free of charge to all SPE members!*

### **Bonus web posting!**

***Business cards and classified ads will be posted on the RMD website at no charge through the publication period of the RMD Newsletter.***

Positions Wanted ads may be sent to:  
[mjg@gapolymers](mailto:mjg@gapolymers)

For paid advertising contact:  
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# Society of Plastics Engineers

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<b>Company Name and Business Address (or College)</b> Company / College _____ Job Title: _____ Address: _____ Address: _____ City _____ State: _____ Zip: _____ Country: _____		<b>Birth Date:</b> (mm/dd/yyyy) _____	
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<input type="checkbox"/> Preferred Mailing Address <input type="radio"/> Home <input type="radio"/> Business		<b>Process:</b> (choose all that apply) <input type="radio"/> Blow Molding <input type="radio"/> Injection Molding <input type="radio"/> Compression <input type="radio"/> Mold Making <input type="radio"/> Compounding <input type="radio"/> Product Design <input type="radio"/> Engineering Properties <input type="radio"/> Rotational Molding <input type="radio"/> Extrusion <input type="radio"/> Thermoforming <input type="radio"/> Fabrication <input type="radio"/> General Interest <input type="radio"/> Foam <input type="radio"/> No Interest	
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## RMD Interim Financial Report

SPE's Rotational Molding Division  
Interim Financial Report 2013-2014  
July 1, 2013 to December 22, 2013

	<u>Actual</u>	<u>Budget</u>
<b>Cash Balance: Beginning of Period</b>	\$61,391.45	
<b>Cash Receipts in Period:</b>		
SPE Rebate	\$0.00	\$0.00
Interest	\$16.55	\$0.00
Newsletter Ads/Sponsorships	\$0.00	\$0.00
Scholarships/Grants Fund	\$10.00	\$0.00
TopCon	\$2,885.82	\$0.00
 Total Income in Period	 \$2,912.37	 \$0.00
Total Cash to be accounted for	\$64,303.82	
<b>Cash Disbursements in Period:</b>		
Board Meetings (teleconference)	\$0.00	\$0.00
TopCon/Rotoplas	\$0.00	\$0.00
e-Newsletter Printing/Mailing	\$0.00	\$0.00
Awards (Student Papers)	\$0.00	\$0.00
Scholarships/Grants	\$0.00	\$0.00
ANTEC Expenses	\$0.00	\$0.00
BOD & ANTEC Speakers Awards	\$0.00	\$0.00
President and Past Presidents Awards	\$0.00	\$0.00
Membership Outreach	\$0.00	\$0.00
Website Hosting	\$0.00	\$0.00
Election, Ballot, Postage	\$0.00	\$0.00
SPE Product Design Comp.	\$0.00	\$0.00
Website Domain name (2013-2022)	\$440.80	\$0.00
Webinar	\$0.00	\$0.00
MISC (Bank Statement Paper Fees.)	\$6.00	\$0.00
Plastics News Advertisement	\$3,600.00	\$0.00
 Total Disbursements in Period	 \$4,046.80	 \$0.00
Cash Balance End of Period	\$60,257.02	

The Cash Balance is made up as follows:

Scholarships/Grants (savings acc.)	\$2,032.43
Checking Account	\$317.70
Savings Account	\$57,906.89
<b>Total Cash Balance</b>	<b>\$60,257.02</b>

Respectfully submitted  
By  
Rex Kanu  
Treasurer RMD

SPE's Digitized Presentations are multimedia recordings of past e-Live™ Presentations.



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