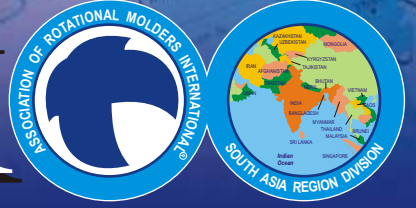


# ROTOTALK



July - Aug. 07 VOL.3 No.4

Bimonthly Newsletter of ARM Int'l SAR Division

**Ambition is often fuelled by achievement. SARD successes in helping the rotomoulding industry of the region to get its act together and arrive on the world stage has encouraged the SARD Committee for IV Annual ARMI-SARD Conference to adopt a theme for the conference which is bold and ambitious- *REVOLUTION THROUGH ROTATION* is sure to generate new steam to propel the wheels of progress faster....**

Dear Reader,

There could not have been a better time for SARD to introspect than at the completion of 3 years of existence as the first full fledged division of ARM International USA. Although an over 3-decades old experience of serving members-needs and the rotomoulding industry on a global scale has given ARM Int'l plenty of insights, the need also to adapt to the typical mores and requirements of a particular region cannot be stressed more. While SARD has spared no effort to remain alive to members needs and industry requirements of the region, it continuously keeps looking at any and every room for improvement. So a feedback survey questionnaire has been sent out to all ARMI-SARD members to elicit views on two important areas of activity - 'Rototalk' and 'Membership Benefits'- so that the invaluable feedback can help SARD to deliver even better. We take this opportunity to request all members to devote some time to answer and return the Questionnaires

While the IV Annual ARMI SARD Conference announcement in this Rototalk issue gives you necessary information about both wonderful Goa and the beautiful hotel venue, we want to address an aspect of the Conference which makes it so different this time. Unlike in the past when we had a large number of non residential attendees, most of the attendees of this conference will be staying in either the conference hotel or other hotels close to it. We are working hard to ensure that the best deals at the most affordable room rates become available to all such attendees. So please let us know at the absolute earliest about your plans to attend the conference Please write to: [arnacz@satyam.net.in](mailto:arnacz@satyam.net.in) or [szaman@rotomolding.org](mailto:szaman@rotomolding.org).

**Ashish Baheti**  
Chairman  
South Asia Region Division  
Operating Committee  
ARM International

**S.B.Zaman**  
Manager  
South Asia Region Division  
ARM International

## SARD Website's Enquiry Corner

We are happy to inform all ARMI -SARD members that the Enquiry Corner page on the SARD website > [www.rotomolding.org/SARD](http://www.rotomolding.org/SARD) is back in operation. Do look for the latest inquiry for Indian rotomoulders on that page.

We regret that the page was not in operation for a brief while because of the management transition in ARM Int'l USA.



## ANNOUNCING!!

### IV ANNUAL ARM INTL SARD CONFERENCE

on Jan 31, Feb 1 & 2, 2008; at Radisson White Sands Resort, Goa, India

**Go Goa ! to Catch up with the Global rotomoulding industry**

With the Theme of the Conference being **REVOLUTION THROUGH ROTATION** and the venue being **Radisson's** beachside **White Sands Resort** in the prime Indian tourist destination of **Goa**, it is going to be a heady mix this time for all the conference participants. The time of the year could not have been chosen better, for end - January and beginning - February is a time that finds Goa at its idyllic best. For regular updates on the conference please visit > [www.rotomolding.org/SARD](http://www.rotomolding.org/SARD)

Business beckons as never before from the Indian rotomoulding industry. A sustained state of qualitative change in the industry, and high economic growth that has been unprecedented for the country, has provided the added lustre to the industry that makes compelling reason for the global industry to register a strong presence at the conference.

For the Indian and the rest of the SARD industry it will be a great opportunity for exposure to, and networking with, some of the very best in the industry from all over the world.

Work is on in right earnest to create a Programme that lives up to the theme. Reputed international Speakers on an array of Topics will fathom whatever is revolutionary in all that is relevant to our industry today.

The format of the Conference Programme has been kept very interesting:

#### Day 1 (Jan 31) :

- Full day Seminar/s
- Being planned is evening Cultural Programme in BITS campus



Spectacular Goa Beaches

#### Day2 (Feb 1) :

- Morning-Technical Conference
- Afternoon-'Rotomart' Trade Show
- Exotic evening beachfront Gala Dinner with entertainment programme

#### Day 3 (Feb 2) :

- Morning-Technical Conference
- Followed by 4 parallel Workshops of 1hr each



Radisson White Sands

Every effort has been made to keep the conference package attractive and economical.

**The special conference room rate that has been negotiated is \$ 160 / Rs 7000 (single) against the hotel rate which as of today is well over \$ 300 for the given days of the conference.**

**The number of rooms blocked for the conference has kept a provision for individual attendees to find a room partner to share the room cost to make it more affordable. The online room booking system will soon be in operation. For your own convenience ACT EARLY. The SARD office will always be there to help and facilitate.**

Rooms are also being blocked in more economical hotels in the vicinity of the conference hotel to encourage SARD attendees to bring their spouses/families along to take full advantage of interesting spouse programmes and sightseeing tours that are being put together for the conference. Goa is too good a holiday destination for the family, to be missed at such affordable rates.

It is however most important to keep in mind that availability will not last for long for the busy tourist season of Goa. So all bookings have to be made at the earliest to avoid any disappointment.

#### What makes Goa such a great tourist destination.

Goa is a tropical paradise located in the Western Ghats. It is bathed by the warm waters of the Arabian Sea. Goan culture is a blend of Indian and Iberian : European style central squares and Indian bazaars, Portuguese churches sharing their walls with Indian temples. Goa is best known for its spectacular beaches, luxurious hotels, and above all its joy for life as seen in its vivacious dance and music. Its air and rail connectivity has a high rating which is commensurate with its status as a prime international tourist destination. For more information Please visit > [www.goatourism.com](http://www.goatourism.com)

#### The Hotel Venue

The Radisson White Sands Resort is on a prime location on one of the world's longest beaches. It offers warm hospitality in an inviting resort ambience. All modern five star facilities and comforts have been laid out by the hotel in a very tasteful and exclusive way. For more details you can visit > [www.radissonhotels.com](http://www.radissonhotels.com)

**RAVI MEHRA, Conference & Programme Chairman  
& S.B. ZAMAN, SARD Manager**

**COOL TIPS FOR QUALITY**

I feel very privileged to be invited to write a short column for Rototalk. I met a few of you towards the end of July at the Delhi meet. I look forward to having the opportunity to meet the rest of you in the future. I have been involved in the rotational moulding industry for only a short time in comparison to some of the people in your industry. However, I have been fortunate enough to be instructed by a few of the masterminds of rotational moulding.

In the last few years I have been focusing a lot of my energies into trying to understand the cooling cycle of the rotational moulding cycle. This has led to the development of a number of products to assist rotomoulders with cooling their products better. Let me assure you that the primary purpose of this article is to try and open the eyes of Indian rotational moulders to the importance of cooling in producing quality rotationally moulded product.

I love to see things done well. It is not uncommon for me to enter a rotational moulding factory and see the state of the art rotational moulding machines with touch sensitive this and computer controlled that, moulds that are beautiful and which produce fantastic looking components. There have even been massive improvements in the heating cycle with ever greater gas velocities in the oven. However, when we look at the cooling cycle we see that nothing much has changed over the years. Operators still randomly roll up little balls of cotton wool, steel wool or indeed what ever they can find around the factory and stuff this into vent tubes that may or may not be already partially blocked with plastic. Most moulders are also often resigned to the fact that cooling takes a long time and the cooling cycle is often viewed as frustrating period of 'time out' for the mould between the 'important' heating and extraction aspects of rotational moulding.

There is an increasing body of evidence to show that cooling is one of the most critical aspects of the process. In fact, the way a part is cooled will have a greater impact on ensuring a part comes out as it is designed to than just about anything else that you do. In order to really understand cooling, the moulder needs to think beyond temperatures and cooling rates to pressures and vacuums. The majority of space inside a mould is normally filled with air and other gases. As the mould heats and cools these gasses expand and contract. Depending on how the mould is vented this expanding and contracting of the gas in the mould can cause either very positive or very negative outcomes in terms of part quality and repeatability.

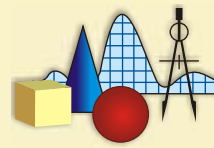
Vacuums within moulds towards the end of the moulding cycle are responsible for causing a number of quality issues including blowholes at partlines, excessive warpage, vent tube packing being sucked into parts and large variation in part sizes. These are also some of the most common quality concerns found across the industry. In order to ensure that vacuums are kept to an absolute minimum it is important to ensure that air from outside the mould can easily enter the mould. The easiest way to ensure that air can enter the mould easily is to mould with an open vent tube of sufficient size. This will allow any vacuum formed within the mould to easily suck air into the mould. Unfortunately, for a number of reasons an open vent tube is not always ideal. Often powder can accumulate on the inside of an open vent tube slowly blocking it. Therefore, unless operators are very observant you may eventually find that your 'open' vent tubes are no longer open. The second issue is that often an open vent tube will allow powder inside the mould to escape as the mould rotates in the oven. This is expensive in powder, makes a mess in the oven and creates a significant safety issue. The solution normally employed by moulders to stop powder falling out of their vent tubes is to stuff them with a porous medium such as cotton or fibre glass wool. Packing vent tubes merely increases the variability in the process and seriously compromises the effectiveness of the vent. These packing materials often get covered with plastic which further decreases their efficiency.

Uncontrolled pressures, or more specifically vacuums, can create significant quality issues in a rotationally moulded product. But can pressures be used to advance the process? Research has shown that applying small positive pressures at critical times in the cycle can in fact significantly reduce the required cycle time or oven temperature of the cycle. The La Plastecnica range of vents has been designed to consistently make use of this pressurisation technique while also helping to reduce the vacuum experienced in the mould. They also prove a very effective means of attaching compressed air lines to pressurise the mould further if people require.

We have seen that often cooling is regarded as an after thought in the rotational moulding industry. As described, understanding pressures in moulds can provide significant improvements to the quality levels and repeatability in rotational moulding. A vent tube that can reliably remain open is possibly the best means of improving the repeatability of the process. However, if it is difficult to guarantee the vent tube will remain open or moulders are interested in achieving additional cycle time reductions, then products are available to assist them. Which ever direction moulders take with regard to their cooling process it is encouraged that they think about pressures and DO IT PROPERLY!

**RORY JONES**

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**DESIGN CORNER****Rotational Molding Part Design-  
CAD File Part Details and Tooling Part 2**

In my last Design Corner editorial I discussed the evolution of the design process from drafting tables to CAD. I also mentioned the added responsibility designers have undertaken as technology has progressed and development cycles have decreased. In this issue of Rototalk, I would like to limit my discussion to tooling selection and its affects on part design.

Most designers develop their ideas with 3D CAD solid modeling software which is typically emailed or transferred to a mold maker for machining the molds. Most tool makers construct the molds directly from the part geometry as defined in the CAD files. It should be noted that the hand-off of files from the designer to the mold maker always requires some verbal communication, especially for rotational molding. This is due to the many possible interpretations of the design by a tool maker as well as the various tooling methods.

An essential early decision for a designing a rotationally molded part is selecting the type of mold which can be either machined aluminum, cast aluminum or fabricated sheet metal. The type of mold will have a major impact on the design. As an example, a machined mold will yield parts with the tightest tolerances and parting line match. Machined molds are also the most expensive. However, machine molds are very cost competitive with cast molds if parts are relatively shallow, such as a pallet or auto panel. Complex surfaces can be accurately reproduced directly from CAD files by CNC machining into an aluminum block. Machined molds become less cost effective as part geometries become complex, very large and deep. Improved tolerances are realized because of the elimination of the cumulative tolerance buildup of patterns, casting aluminum and secondary hand work associated with cast aluminum tools. Therefore designers can design parts with tighter clearances, better parting lines and improved surface matches when designs are based on a cast aluminum tool. Cast tools are the most commonly specified molds for rotational molding. They provide the best balance of cost, design freedom and range of part size. However, unlike machined molds, cast tools vary significantly in quality from one mold maker to the next. Quality cast molds can be as much as four times the cost of a poor quality mold. These wide variations in quality and cost are based on the manually intensive complexities associated with cast molds. An identical part design could be successfully molded in a quality tool and be a dismal failure in a poor quality mold. Mold quality will have an affect on draft angles, surface finish, tolerances, wall thickness variation, kiss offs and numerous other design parameters.

If a part is designed with planar or cylindrical surfaces, it would be well suited to a sheet metal mold. Most water tanks, simple pallets and other functional products are molded in sheet metal molds. As a general rule, whatever shape can be achieved with a piece of paper can be achieved with a sheet metal mold. Compound curves and complex shapes are not well suited to sheet metal molds. In addition, parts molded in sheet metal molds typically exhibit the widest tolerance range due to the inherent construction process. Some tool makers will use 3D CAD files to construct the sheet metal molds. However, in most cases the CAD are used as a guide to cut the sheet metal and weld it into the final desired shape. It should be noted that complex parts can be attained with sheet metal molds, but geometries must be limited to basic geometric forms of rectangular, cylindrical, trapezoidal and conical forms.

Hopefully these highlights have provided you with the basic differences in tooling options and their general effects on part design. In our next issue of Rototalk, I will go into a bit more detail about specific considerations in 3D CAD modeling for each of the tooling options. Examples will include inserts, engraved logos, threads and textures. Until then, keep in touch and email me with any of your comments or questions at [paloian@idsys.com](mailto:paloian@idsys.com).

**MICHAEL PALOIAN**

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## WAYS TO INCREASE PROFITS IN ROTOMOULDING

In the recent years, the Indian Rotational moulding Industry is undergoing a change and the people involved in the industry are getting a better understanding of the capabilities of the Rotomoulding Process.

Understanding the changing market with narrowing margins and increasing competition, it is of paramount importance to reduce cost of production. Most of the rotomoulders have understood this and are exploring possibilities to reduce cost of production.

The two major factors that contribute to the costing of the Rotomoulded products is the Polymer raw material cost and the fuel cost.

Cost of fuel is one of the major variable cost that can be controlled by the processor by taken few precautionary steps in their existing processing set up.

Following would be some of the effective approaches one could take to reduce fuel consumption on their existing Rotomoulding machines.

- Periodic Servicing of Gas burners
- Design of insulation for Ovens
- Production planning
- Design of product and tools
- Use of Cycle time reduction additives

**Gas burner:** With the class gas burners fitted to the new Rotomoulding machines we get a fair amount of energy saving with facilities of online fuel filters and auto on-off.

**Ovens:** Is the heart of the process Equipment and unfortunately most of the energy wastage happens through the Oven walls or the gaps or opening that are formed in these ovens. Proper designed lagging on the oven walls and proper gaskets would help in saving energy up to 20 %.

**Machine Arms:** Another major component of the machine that would consume energy is the heavy metal arms that carry the moulds into the Oven. More the metal used in these arms, more would be the energy required to attain the oven temperature. Try to use minimum amount of metal in these arms.

**Production planning :** On a multiple arm machine it is very important to try and run similar products at a given time.

- Planning to adjust the cooling and demoulding time with the Oven residence time of the next cycle could help in saving energy.
- Avoid shutting the heating between cycles, as you would tend to use more energy to increase the temperature.

**Design of product and tools:** As we all are aware Rotomoulding is a designer's paradise, with great opportunity to incorporate various features like undercuts, ribs, cut outs etc and very complex shapes. These additional design features may need special precaution or extra time during processing. Care should be taken to see that incorporation of these features is done in such a manner as to avoid any type of discomfort during the Rotomoulding process.

As for designers in India, Rotomoulding is still a new concept and it would take some time before we could be doing some serious Rotomoulding designing.

**A good design should meet the functional requirements of the product and suit the Rotomoulding process.**

**Design of tools:** various factors like the material of construction, the number of parting line, method of clamping would decide the time for each cycle and also the fuel requirement for each product. Avoid shielding as far as possible, try to use fins to get differential heating in hard to reach area on the tool.

**Use of Special Additives:** All the type of Polyethylene used in the process needs proper Antioxidant stabilization to sustain the very torturous processing conditions in the Rotomoulding process. Special type of Antioxidants is available in the market to give very good stabilization system suitable for the Rotomoulding process, which gives an additional advantage of **reduction oven residence time** and better colour.

The use of this type of additive system would give the basic stabilization for the resin to withstand the Rotomoulding process, achieving a product with better colour, mechanical properties and on top of this give you reduction of cycle time by 15% which would convert into 15% saving in cost of the fuel.

Cycle time reduction would also result in better productivity.

**I agree that all the above mentioned practices would need extra efforts and investment, but would surely profits with every moulding you do.**

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Welcoming attendees **SARD Chair A. Baheti** was quick to note the difference this time - the turnout was double of what was seen at the Delhi Meet of the previous year.

**For his exceptional services as SARD-OC member, and deep involvement in the creation of the Division as member of the India Advisory Group J. Kamat of RIL who retired from SARD-OC earlier this year was presented an Appreciation award by SARD Chairman, A. Baheti .It was then the turn of A. Baheti himself to collect on behalf of A. Ladha of Waterwell Industries the Appreciation award presented by L.K. Singh, Past Chairman of SARD for outstanding services rendered to the Division as member for consecutive years of the first SARD-OC.**

**Mihir Banerji, RIL** was the first Speaker to take the podium on the topic **Linear Polyethylene for Rotomoulding**. In a well integrated presentation that covered resins, resin selection, stabilization and the transforming of concepts into reality, there were particular aspects that were looked into in-depth. These aspects ranged from the way different grades worked inside moulds, to nuances of stabilization which depended on UV and IR. The presentation discussed a range of products and



J.Kamat receives Appreciation Award



Attendees at the Delhi Meet

applications which necessitated a pragmatic approach to transform concepts to reality. Local conditions and needs had to be addressed like in the case of bus seats for local and public transport.

**L.K.Singh, Fixopan Group** presented next on **Warpage of Rotomoulded Parts and Solutions**. The premise of the presentation was that while the problem was old, changes are inevitable and the mind is forever improving, developing, upgrading technology due to experience, and in rotomoulding specially due to recent trends and the changing demands. Optimum blower and burner conditions ensures higher performance

The Next presentation **How to Play the Rotomoulding Game** by **Rory Jones, Plastecnica New Zealand** postulated that winning in rotomoulding is dependent on 3 factors : (1) the skill to design (2) fire(heating process) and (3) cool (cooling process) The Presentation used three product case studies to illustrate the importance of Design. Coming to fire, the heating process was responsible for two aspects of quality : the distribution of power in the mould, and the level of cure of the polymer. Cool, or the cooling process is a critical step in the rotation cycle; some of the quality issues dependent on this process being : blow holes, warpage, and under cure.

With attendees refreshed by a teabreak, **Yuvraj Ahuja, Frontier Polymers** resumed proceedings of the Meet with his presentation **Rotational moulding and Road Safety as well Other interesting Industrial Applications**. The presentation illustrated the scope for rotomoulding in road safety through pictures of traffic light systems, road dividers, bull noses and bollards. A range of Road Safety Products were listed out as ripe for rotomoulding These are : Traffic lights , Road dividers /barriers /cones/drums, Tool junctions, Bollards, Signs and Street furniture.

Industrial/Agricultural containers scope for rotomoulding that were depicted pictorially were : Chemical storage tanks, Diesel storage tanks, Cattle feeders, Silos, Cattle shelters, Material handling bins, Pesticide containers, Bulk handling containers (IBC's) and Milk cans.

**Ratna Chatterjee, Design Consultant** presented next on **Rotomoulding and the Automotive Industry - a Design perspective**. Addressing the moulders the presentation stated that while there was lots of scope in the auto industry, it is important to know what is expected in terms of engineering capabilities from moulders. What drew a lot of interest was the scope for rotational moulding which included various categories of automobiles. It was stated that the automotive engineer's obsession with cost reduction was pushing a technology like rotational moulding to the forefront.

**Vinod Lall, SCJ Plastics** presented next on **The importance of Masterbatches**. Citing the use of colour in cable for identification purpose colour pigmentation was given its due emphasis. It was however pointed out that just colour is not enough it is the application that is more important and the kinds of masterbatches are specific to applications. The methods of production of masterbatches were explained for a better understanding of the importance of masterbatches.

**Moulds for Rotomoulding** was the topic of the next presentation by **R.P.Shukla, MPlast**. The technical finesse of cast aluminium mouldmaking stood out as the bedrock for hitherto unforeseen levels of sophistry in rotomoulding applications that would now be possible in our industry. The structure of the presentation which covered the various types of moulds along with their advantages and disadvantages for making different parts threw light on the right kind of mould use. This also brought out the vast

## ARM INTL SARD DELHI MEET

Venue	: Mehfil 1, Hotel Grand Sartaj, Green Park, New Delhi
Date/Time	: June 30, 2007, 3 P.M
No.of Participants	: 32
Sole Sponsor	: NA ROTO, Ahmedabad



Speaker Rory Jones

superiority of cast aluminium moulds when it came to excellence in thermal conductivity, high quality moulded parts, design freedom, very uniform heating and cooling, economic replication of moulds, and the ease of modification/repair.

**SARD Manager, S.B.Zaman** while making the **ARMI-SARD presentation** marked out a calendar which will take the member friendliness of SARD to a new high.

**Cocktails & Dinner** followed, but not before a special round of thanks by A.Baheti to the **Sponsor, NAROTO** of Ahmedabad

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**WATCHING EFFICIENCY & PRODUCTIVITY**

We appreciate the efforts made by the Polyolefins Committee for creating standards, which are relevant to rotomoulders. As I learned from the article by Dr. Nick Henwood in the ROTOTALK Issue May June 2007. The Standards for the Dry Flowability of Powders are being attended to remove the differences in the method of testing and the testing equipments. In other words we are striving to have a standard through which all the rotomoulders speak the same results. This is a fact which was needed to be addressed long ago.

When all the rotomoulders speak the same language of the processing parameters, it will be the Golden Era of the Industry. The development will be faster, and there would be better communication about the processing parameters adopted for processing. This is a thing taken for granted in other plastic moulding processes like Injection, Blow etc. I think by having defined standards for processing parameters; it must have given a big boost for the growth of these industries.

Dry flowability of powders looks too simple but it speaks a lot. It is very simple to conduct; the test equipments may not be costly at all.

I will enumerate an experience of mine which I feel will be interesting for any rotomoulder.

We normally monitor the consumptions of utilities like Fuel and Electrical power in our processing, as these are the main parameters where we can save and our efficiency is always rewarded. All strive to get the best results and optimum consumption of these utilities. I have observed that the average fuel consumption and electrical consumption varies in the same factory over the months. Some time for no apparent reason the fuel consumption is good, and other times it is above average. It is never consistent. I have tried to do a lot of analysis for these abnormalities. I studied and tried to correlate it with the production schedules, products produced, tonnage produced, etc. etc. every time something is made a culprit for the excess consumption. We try to correct the things in coming months to achieve better efficiencies. Sometimes we are successful and at times we beat around the bush.

Rotomoulders have another consumable problem in India, the life of the grinding discs; it costs and has a direct bearing in production cost. This may be due to poor quality of metallurgy or wrong design, but no one can forgo the cost of this. I have tried to talk with a few moulders how they decide the life of these discs. All see the efficiency of this through the output per hour. A new disc will give high output and slowly as per the age and use of the discs the productivity drops. I have observed the normal norm for this with most of the rotomoulders is that to use the disc set till the productivity drops to almost half. Discs which are giving a production of 120 Kg/Hr drop to 60 Kg/hr before being replaced, I tried to reason this norm for its logic. The reasons were the cost of the disc, the lead time for procurement, non availability of spare discs etc. There was one moulder who proved the logic by considering the cost of the discs; so much life is a must to make it economical in costing. This has always bothered me, whether the logic is correct. I did a detailed analysis with the productivity of the discs and its effects on various parameters of cost.

Following is my conclusion: With the drop in productivity of the blades, the drop in the electrical consumption of the machine is very marginal i.e. the cost of electric power will increase per unit of production. So it is very costly to run the disc when producing 50% of the new disc's output.

When the production drops in the grinding mill following are the net results or trends:

1. The flowability of the powder becomes poor.
2. The Bulk density of the powder decreases.
3. The powder becomes fluffy, with a lot of fibrous tentacles when observed through a magnifying glass.
4. The electrical consumption per unit output increase.
5. Productivity of the machine goes down.

Above are the observations on the machine and the powder's physical properties.

The other results are that when we try to use the above powder for moulding:

- There is an increase in cycle time for molding; this is because our parameter for correct cook is inside finish of the product. Fluffy powders tends to give rough inside finish at correct cook, and going as per the defined processing parameter of smooth inside finish of the product we overcook and in the deal weaken the product. This can be one of the reasons for the failure of big size water tanks.
- Increase in fuel consumption
- Poor inside finish of the product

All the above factors are adding to the cost of production, and affecting productivity and quality of the plant's performance. I think that this may be one of the reasons for the non-consistent consumption of utilities also. We need to monitor these in totality, and maybe it will be more advisable and cheaper to change the grinding disc often or even go in for still costlier discs with correct engineering and metallurgy.

**CEED CALLING**

Greetings from the Central and Eastern European Division!

As your sister division, we would like to officially invite all SARD members to the Central and Eastern European Division Annual Conference in Prague, the Czech Republic. This is the premier ARM International event in Europe and is set to be the best conference yet for us.

We have specially planned the conference to take place just before the "K-Show" in Germany, so that international visitors can attend both events. From the 22nd-24th of October, we will be meeting in Prague for design seminars, technical seminars and commercial networking opportunities. The focus of the conference is rotomolding design and meeting the needs of OEMs. We have a number of excellent designers scheduled to present on the challenges and opportunities that come with designing for rotational molding. Also, there will be OEM company representatives at the conference as presenters and participants.

As a further attraction, we are organizing a "Rototour" for 3 days before the conference to allow international visitors to see some of the beautiful Czech countryside and learn a bit about the rotomolding industry in this part of the world.

Full details on the conference—and Rototour—can be found on the CEED webpage: [www.rotomolding-europe.org](http://www.rotomolding-europe.org). Or, please feel free to contact us at the CEED office at: [armi-ceed@caps.com.pl](mailto:armi-ceed@caps.com.pl) or +48-61-853-0864. We will be happy to assist. Hope to see you in Prague!

**AUSTIN CAMPBELL**  
CEED Manager  
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**NEW MEMBERS**

SARD welcomes applications of following joining members.

Company	Category	Primary Contact
Piyush Rotomac, Mumbai,	Supplier	V. Panchal
SCJ Plastics, New Delhi,	Supplier	V.B. Lall
Durowell Polymers, Bhiwadi,	Moulder	A. Gupta
Newgen Specialty, Noida,	Moulder	V.K. Singh

**UPCOMING EVENTS**

DATE	VENUE	EVENT
AUG 25	Kolkata	ARM Int'l SARD Kolkata Meet
Nov'07	Chennai	ARM Int'l SARD Chennai meet
Jan 31, Feb 1 & 2'08	Radisson White Sands Resort, Goa	IV Annual ARM Int'l SARD Conference

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