

OHMITE MANUFACTURING

BROADCAST

The Monthly On-Line Voice for Resistor News

Issue #101 February 2013

NEWS

Ohmite Introduces TP810 High Energy Resistors

Ohmite TP Series, thick film, high energy resistors offer users the benefits of non-inductive performance and high power density. As an added feature, they provide the impulse energy capability normally associated with wirewound or composition resistors. Double-sided screen printing of pulse-tolerant thick film ink, coupled with a sophisticated scan-cut laser trimming process, maximize the energy withstanding capabilities of the TP Series. Occupying very little PCB real estate, the TP810 (10 watt) is the first of a platform of high energy thick film resistors which Ohmite will be introducing in the coming months in radial leaded and SMD packaging. TP810 resistors are offered in 8 off-the-shelf resistance values ranging from 10-10K ohms at 5% tolerance. Product details can be viewed at www.ohmite.com/cat/res_tp.pdf

Why are resistors like this so important? Because power surges can cause damage to sensitive and expensive electronic components and some protection is needed to guard against them. Power surges may come from nature (lightning) which can boost electrical pressure by millions of volts. They more often come from the operation of high power electrical devices, such as elevators, air conditioners, and refrigerators. Such products require a lot of energy to switch on and turn off components like compressors and motors. This switching creates sudden, brief demands for power, which upset the steady state voltage flow in the electronic system. While not nearly the intensity of a lightning strike, they are severe enough to cause damage, immediately or gradually, over time. Other sources of power surges include faulty wiring or problems with the utility such as downed power lines. **Continued on P2**



CONTENTS

News P1 & 2

Applications Chronicles P3 & 4

Ohmite News P 5

Tech Talk P6 & 7

Girls' Talk P 8 & 9

Greg's Desk P10, 11, 12 & 13

Kirk's Corner P14 & 15

**MORE A CASE OF CAN
YOU GUESS WHAT IT
WAS? AND NO, THEY'RE
NOT TEETH MARKS!
FIND OUT ON P5**



www.wakefield.com



www.ohmite.com

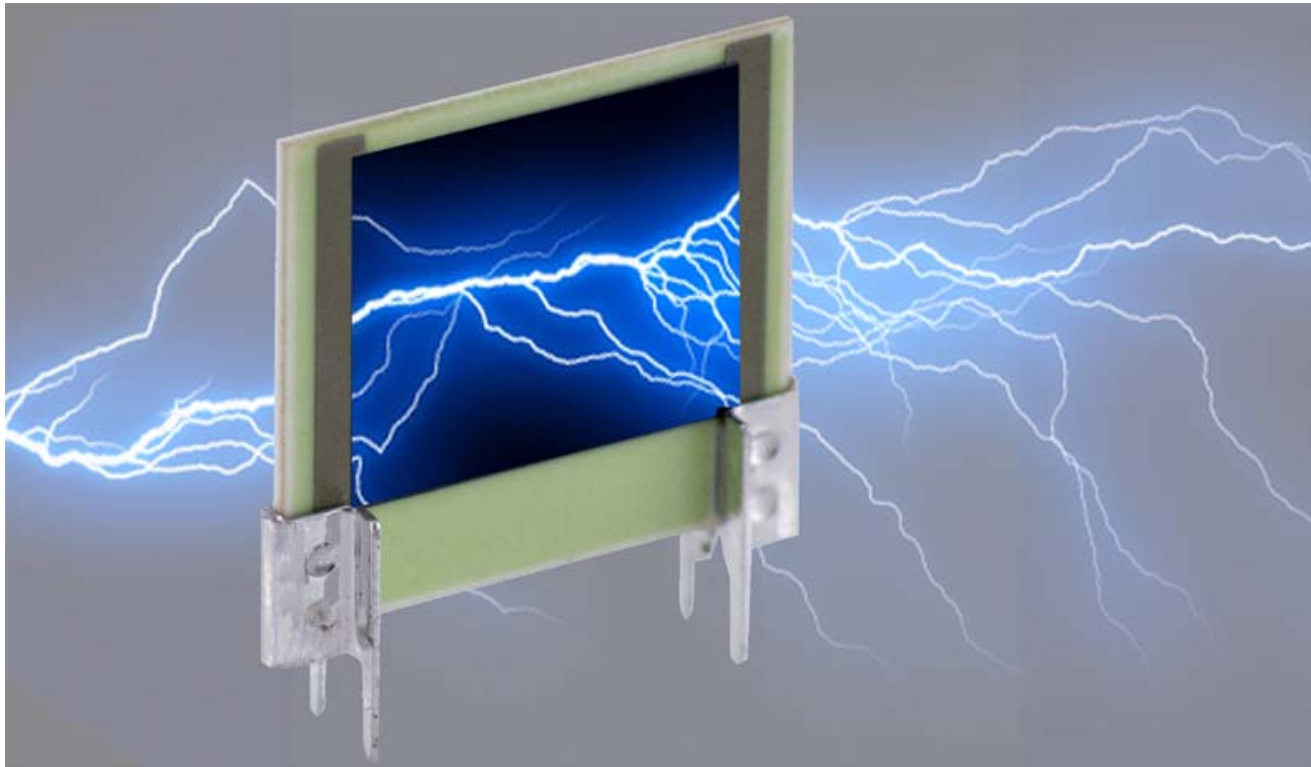
Continued from P1.

The system of transformers and power lines which deliver electricity have dozens of possible points of failure, and many potential errors which can cause inconsistent power flow. As a result, power surges are inevitable in any utility system, and even more so in countries where infrastructure is not up-to-date.

The TP810 resistor has been successfully tested at 100 Joules (watt/seconds) over a 100 millisecond pulse. Traditionally, customers have used either wirewound resistors (with low resistance values) or composition resistors to act as surge withstanding resistors in their applications. Both technologies have drawbacks, as this chart explains.

	High Energy	Stability - Low TCR	High Power Density (watt/cu mm)	Non-Inductive	Lightweight
TP810	YES	YES	YES	YES	YES
WIREWOUND	At low resistance only	Yes	Yes	No, NI versions are low energy	Average
COMPOSITION	Yes	No	No	Yes	No

The technique for making the TP810 can be applied to other sizes, both radial leaded and SMD, so it is the first of what will become a family of high energy thick film products supplied by Ohmite



APPLICATIONS CHRONICLES

This application is one we take a lot of pride in. Getting it took the efforts of the entire team, from Peter Craik in the UK, to Engineering for the custom design, to Quality and Operations for doing all the work necessary to pass the Renault/Nissan requirements, to upper Management for authorizing and funding the work involved.

Renault had tried, unsuccessfully, to find a Pre-Charge Resistor for the battery pack in its new Zoe Electric Car. Ohmite stepped in and delivered a product design, performed validation testing and raised our internal quality systems to Nissan-Renault Electric Vehicle standards within 14 months.

Product was continuously pulse tested 160,000 cycles without breakdown (represents a "lifetime+ 60 %") of key-on/key-off sequences.

The product we recommended was our heatsinkable, wirewound Metalohm Series, but some modifications were needed for Renault. Based on where the resistor is situated, the product had to be turned on its side. This required us to design and tool a new aluminium shell. The environmental extremes in automotive systems also required a change to the potting material we use to encase the resistor. A suitable material was located and tested successfully.

Why are Pre-Charge Resistors needed in this kind of application?

When initially connecting a battery to a load with capacitive input, there is an inrush of current as the load capacitance is charged up to the battery voltage. With large batteries (with a low source resistance) and powerful loads (with large capacitors across the input), the inrush current can easily peak 1000 A.

A precharge circuit limits that inrush current, without limiting the operating current.

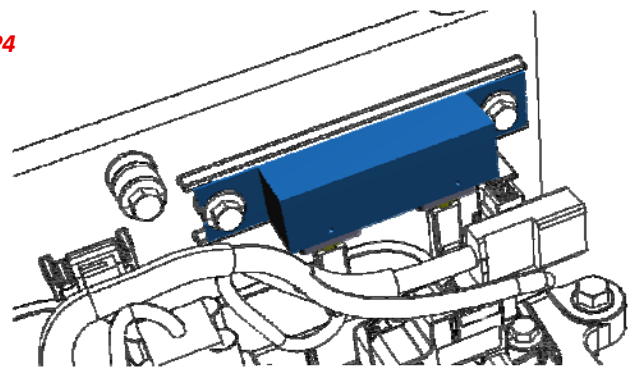
A precharge circuit between a battery and its load is required if any of the following are issues:

The load has input capacitors will be damaged by the inrush current

The main fuse will blow if asked to carry the inrush current

The contactors, if present, will be damaged by the inrush current

The battery cells are not rated for the inrush current *Continued on P4*



HOW IT WORKS:

The precharge circuit consists at the minimum of:

A precharge resistor, to limit the inrush current (R1)

A contactor (high power relay) across the precharge resistor (K2) to bypass the resistor during normal operation

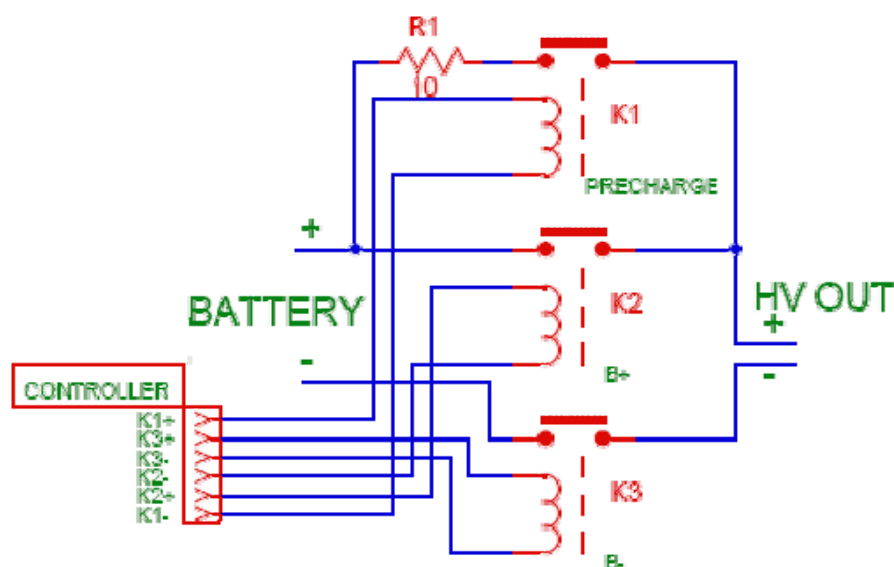
Additionally, the precharge circuit may have:

A precharge relay (K1), to keep the load from being powered through the precharge resistor when the system is off

A contactor in line with the other end of the battery (K3) to isolate the load when the system is off



Peter Craik



In the typical precharge circuit, the precharge resistor is on the positive terminal of the battery, though it could just as easily be on the negative terminal.

ABOUT THE CAR

Renault Zoe is a five-door supermini electric car manufactured by Renault. The Zoe has a 22 kWh lithium-ion battery pack that delivers a range of 210 km (130 mi) under the NEDC cycle. Renault had previously unveiled under the Zoe name a number of different concept cars. Initially in 2005 as the Zoe City Car and later as the Zoe Z.E. electric concept was shown in two different versions in 2009 and 2010 under the Renault Z.E. name. A production ready version of the Zoe was shown at the 2012 Geneva Motor Show. Retail customer deliveries began in limited number in France in December 2012, and availability is scheduled to increase during the first quarter of 2013.

AMAZINGLY In May 2010, a Parisian woman called Zoe Renault commenced legal action to try and force Renault to re-think their choice of name amid claims it would lead to mocking jibes. In November 2010, a French judge ruled that Renault could use the name.

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COMPANY NEWS

VICTOREEN CELEBRATES 25TH ANNIVERSARY



Alma Arroyo sent us these photographs which were taken at the celebrations for the 25th Anniversary of Victoreen at our Matamoros plant earlier this month. As you can see there was a celebration and all of employees were photographed outside the building before tucking into a special birthday cake made of cupcakes. Everyone really got into the spirit of the occasion and a sign had been put up above the entrance commemorating this wonderful achievement. All of these pictures as well as Mike West's speech have been uploaded to the Ohmite Facebook page. As you can see, Alma got the first bite and everyone else followed, but they still didn't quite finish the job. Sure was some cake!



TECH TALK

For this month's look at technology applied to it's most amazing achievements, Kirk has really mixed it up. It all started over 500 years ago, but even more history was made a few weeks ago, as Kirk explains.

Archaeology, Science, and Perseverance Combine to Reveal the Discovery of Richard III's Remains

We history nuts will not let this month's Newsletter pass by without an article on the most exciting archaeological discovery in recent memory. On February 4th researchers attached to the University of Leicester confirmed that the corpse unearthed beneath a parking lot of a government services building were indeed, the remains of King Richard III. Killed at The Battle of Bosworth Field on 22 August 1485 (and the last English monarch to be killed in battle) the location of Richard's remains were a mystery for 528 years. Thanks to the efforts of The Richard III Society (<http://www.richardiii.net/>), and its leader, Philippa Langley, funds were raised to search for his body. Writers in the 17th Century passed along a story that his corpse was thrown in a nearby river, but other accounts described an unceremonious burial at Greyfriars Abbey in Leicester, the location of which, according to early maps, lie underneath the parking lot and government services building. After raising the necessary funds from fellow Ricardians (members of the Richard III Society) around the world, work commenced last autumn and as the documentary shows (viewable on You Tube - search "The King in the Car Park") the very first artefact the archaeologists found was a skeleton, which turned out to be the last of the Angevin (Plantagenet) Kings of England.



Positively identifying Richard took several steps.

Forensic analysis of the cause of death was shown to be a fatal blow to the skull by a bladed instrument.

An examination of the full skeleton revealed that the victim suffered from Scoliosis (curvature of the spine). Shakespeare, among others, wrote that Richard III was a hunchback, which was proven to be untrue; however the Scoliosis would have given him an abnormal posture, though it did not prevent him from being a formidable fighter. Writers in the Tudor/Elizabethan Period also describe him as having a withered arm, which was also proven to be untrue. In those times, physical deformities were thought to be proof of some evil, or lack of God's good favor, so exaggerating Richard's defects served to justify the Tudor's taking the crown by force. Art experts have even discovered that portraits of Richard were altered, under instructions from the Tudors to show deformities which Richard did not have.

Carbon Dating of the bones initially showed them to be from the early 1400's, not 1485. But factoring in the high protein diet, including lots of fish, that a royal like Richard would have consumed, adjusted the approximate age of the bones to the 1485 time frame.

DNA evidence. The final piece of the puzzle was to find a descendant of Richard's or a close relative and do a DNA analysis. A direct descendant of his sister was identified living in Canada and he offered his DNA for the research.

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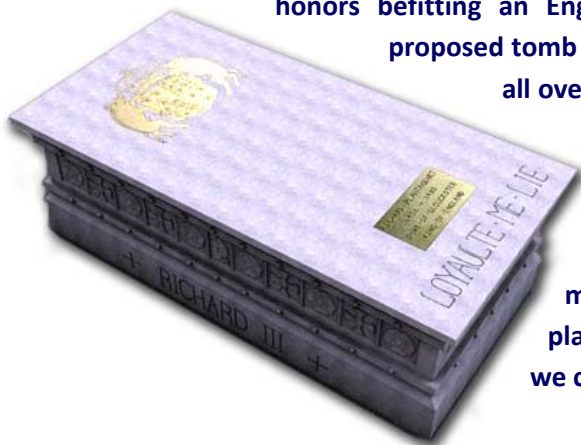
TECH TALK Cont'd

With the DNA analysis completed, the University of Leicester and the Richard III Society were prepared to make the official announcement on February 4, which they did, to the delight of many. While in possession of Richard's skull, the team made a 3D model of it using rapid prototyping software. From this, Caroline Wilkinson, professor of craniofacial identification at Dundee University, was able to reconstruct the face of the King so we can look him in the eye 528 years after his death. Although the essential features of Richard are quite similar to those shown in various depictions of the king, of whom no contemporary portraits exist, the model reveals a more pleasant and younger face. Indeed, many of the later portraits of Richard showed him with a rather mean face — quite appropriate for the bloodthirsty usurper depicted by Shakespeare.



Now that he has been discovered, historians are taking a second look at his legacy, which has been dragged through the mud by those who defeated him, the Tudors, and the writers of that period. Peter Craik instructs that Richard introduced the concepts of both bail for accused criminals and the notion of "innocent before proven guilty" to English jurisprudence. Richard governed the north of England and especially the north-east and the city of York itself, who looked for and successfully obtained the 'good lordship' of the powerful duke of Gloucester. The citizens of York were consistently supported by him in their plans for economic development and this benefited the whole region; details of his welcome intervention survive. He was also concerned to improve the administration of local justice and, whatever his ulterior motives, he displayed a clear desire to have justice done impartially. Most famous is his establishment, when he was king, of the Council of the North, which created a precedent of 'impersonal' control not dependent on an over-mighty local magnate - such as he himself had been - that later kings were to follow.

Richard will be re-interred at Leicester Cathedral (right) in early 2014 with full honors befitting an English Monarch. Donations for his proposed tomb (left) are rolling in from Ricardians



all over the world. He never got the horse he needed to win his final battle, but, thanks to the total determination of his admirers 528 years later, and the use of modern technology, his final resting place will be one of prestige, where we can pay our respects.





Ohm-Made Treats

In our continuing monthly feature, our Customer Service Team of Laurie Hunter, Norma Redmond, and Judy Heyse will be delivering delicious recipes of their own, and those submitted by you, the readers, for everyone to enjoy. This column is theirs to use as they please, but you can count on something new to try in your kitchen each month. This month we've got two for you to try. The first is from Heather Slobaugh (below right) from Pinnacle Marketing who says: "I just returned to Pinnacle after 18 months away. I must admit I was really looking forward to reading this publication again!! Very glad I was back just in time for the 100th issue! Glad to have you back Heather.

Now that the Super Bowl is over with, North Carolina sports fans can focus on what is really important, namely, college basketball and the upcoming NCAA March Madness Championship Tournament. As with most years, Heather's favorite team, Duke University, will be among the favorites to reach the Final Four. In state rivals like the University of North Carolina, and North Carolina State have their own ambitions to win the title. With so many games, there are lots of parties to get together and watch the drama unfold. Heather likes to serve up her Spicy Buffalo Chicken Dip to keep her guests well-fed.



SPICY BUFFALO CHICKEN DIP

INGREDIENTS

- 2- 10 oz cans, chunk chicken – drained
- 2- 8 oz cream cheese – softened
- 1 cup ranch dressing
- ¾ cup hot sauce
- 1 ½ cup shredded cheddar cheese
- 1 cup pepper jack cheese
- 1 tablespoon crushed red pepper
- 1 box, chicken flavored crackers



METHOD

Combine chicken and hot sauce in a skillet over medium heat until heated through. Stir in cream cheese and ranch dressing. Cook, stirring until well blended and warm. Mix in half of cheese, transfer to slow cooker. Sprinkle remaining cheese & red pepper over top and cover. Cook on low setting until hot & bubbly and serve tortilla chips of your choice!

That's a great snack/starter, but when the excitement's over, you'll be wanting a meal, so for this issue, we've got another mouthwaterer for you on the next page.

GIRLS' TALK Cont'd

Of course, up in the Northeast they also have a number of basketball teams with a track record of success in the tournament, especially the University of Connecticut and Syracuse University. Sandy Diorio of CTG Technical Sales (E. PA, S. NJ) has kindly provided us with a dinner recipe for after we have pigged-out on the Dip.

PIEROGI CASSEROLE**INGREDIENTS**

- 1 1/2 (12oz) packages of whole wheat egg noodles or regular (extra wide)
- 1 large onion sliced
- 1 1/2 sticks of butter
- 1 box (7.6 oz) of Betty Crocker 4-Cheese instant mashed potatoes
- 1 (14oz) package of smoked sausage (Hillshire Farms)
- 3-4 slices of Swiss and provolone cheese

**METHOD**

In a large frying pan melt butter and sauté' onions until tender

Cook egg noodles according to package directions / drain

Cook entire box of instant mashed potatoes according to box directions

Cook smoked sausage according to directions

Combine egg noodles with melted butter and onions in a large bowl. Salt & Pepper to taste.

Cut smoked sausage into slices

In a 9X13 casserole dish:

Layer 1/2 of the egg noodle mixture on bottom, add a layer of mashed potatoes, and then add a layer of smoked sausage. Cover with alternating slices of cheese and top with rest of egg noodles. (If you have extra mashed potatoes add a 2nd layer on top of cheese slices)

Bake at 350 degrees for about 20 minutes or until heated through.

And, at risk of becoming a cookery book, we're not quite finished yet. Take a look at our President's contribution on P13 and you'll see what we mean. Keep 'em coming.



**From the desk of Greg Pace
President of Ohmite**

Thanks for your friendship Lee!!!!

We at Ohmite would like to acknowledge the career of one of our best friends and industry advocates, Lee Davidson (right) of Allied Electronics. Lee joined Allied in 2002 as vice president of product management and was named president in 2005. During his tenure, Allied grew from a \$180 million to a \$440 million business. Lee will assume a new role, Vice President of strategic projects, for Electro-components, which will include assisting and developing global strategies for the business. Always a supporter of Ohmite's over the years, our fondest recollections among many will always be the time Lee had himself "picked, packed and shipped" during their semi-annual product managers and vendor meetings. Lee, we at Ohmite want to thank you for all of your support and wish you all of the best in your new role at Allied. We look forward to still seeing you in the halls in Fort Worth, in the market globally and at EDS!!!



And you can see from this pic, exactly what his staff think...



Myself and Western Regional Manager Jeff Douglas flank Dr. Edmond Schweitzer at the recent Schweitzer Engineering Laboratories vendor summit in late January. As a leader in the power protection industry, SEL creates products and complete solutions that minimize blackouts and electrical system damage. Their digital protective relays respond within milliseconds to system faults, such as downed power lines caused by accidents or harsh weather. The list of their solutions goes on and on and we are delighted to be involved with this key partner.



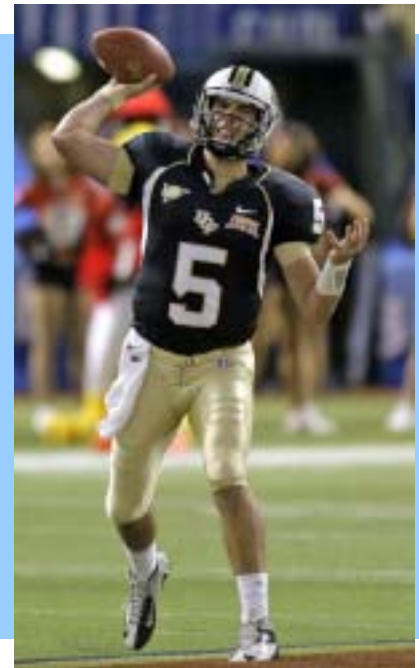
**From the desk of Greg Pace
President of Ohmite**



PETER JUST CAN'T STOP!

Despite his success with Renault , EuroRep Peter Craik just can't stop. In addition to preparing for his impending Grandfatherhood, his visits to St. James' Park to watch his beloved Newcastle United, running the Ohmite Fantasy League and visits to the supermarket with his long-suffering wife Sue (NOT!), Peter is seen here, still selling, at the recent Southern Manufacturing and Electronics Show in the UK. He tells me that he had a fair number of interesting enquiries over the two days, and had time to meet up with UK reps TTI and Charcroft. I've no idea how he's going to get time to practice his golf for when he comes out to EDS!

Rob Bortles, TTI's GM in Orlando is a very proud Papa. His quarterback son Rob recently led his team the Central Florida Knights to a bowl game victory. I was fortunate to be on a plane back from our plant in Mexico with a TV! There in living color was Blake playing football. I watched the game with interest and just as we landed saw that the young man had earned MVP honors. I went to the website of the Knights and saw that Blake and his team mates had a great week visiting a local hospital and making a lot of kids happy. He was also quoted as saying, "Our main goal was to get a 10-win season and send the seniors out on a good note. But it also gives us a big boost going into the offseason. The offensive line did a great job. There was zero penetration going on, and I had time to sit back there and the wide receivers made some great plays. We executed our game plan like we wanted to." Congratulations to the Bortles family, they have two more years to cheer for their son and then who knows, maybe a tour in the NFL? Perhaps we can get the young man to be our spokesman!





From the desk of Greg Pace
President of Ohmite

PI Day is coming up in March for all of you Tech Geeks”, and a great reason to have “Pie”

My son John Henry, the Ford Motor Company engineer, had the date “March 14” highlighted on his outlook calendar indefinitely, I of course asked why and he, looking incredulous of course, promptly responded, “you should know, its Pi day!. Every engineer knows that’s the day you go out to lunch and eat pie!” “Huh????” responded Dad..So after a refresher course in Pi and its wonders in day to day life, from JH (glassy stare by Dad), I had more than enough details regarding Pi the perfect number, to spread the word for Pi Day!

Pi Day is an unofficial holiday commemorating the mathematical constant π (Greek letter “ π ” spelled “pi”) and observed on March 14 (or 3/14 in month/day date format), since 3, 1 and 4 are the three most significant digits of π in the decimal form. In 2009, the United States House of Representatives supported the designation of Pi Day. Pi Approximation Day is observed on July 22 (or 22/7 in day/month date format), since the fraction 22/7 is a common approximation of π , meaning our friends in Europe can have another Pi day later this year.

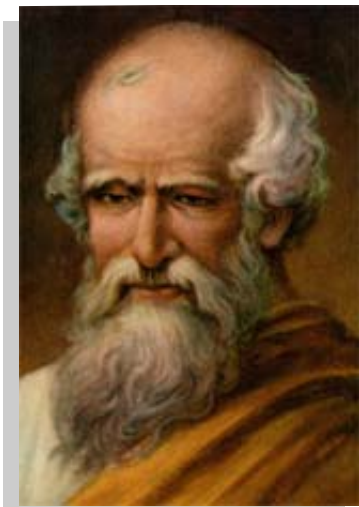
Celebrated on March 14th (3/14) around the world, it is the symbol used in mathematics to represent a constant, the ratio of the circumference of a circle to its diameter which is approximately 3.14159. There are many ways of observing Pi Day. These include eating pie and discussing the significance of the number π . The Massachusetts Institute of Technology has often mailed its application decision letters to prospective students for delivery on Pi Day Starting in 2012, MIT has announced it will post those decisions (privately) online on Pi Day at exactly 6:28pm, which they have called “Tau Time”, to honor the rival numbers Pi and Tau equally.

The town of Princeton, New Jersey hosts numerous events in a combined celebration of Pi Day and Albert Einstein's birthday, which is also March 14. Einstein lived in Princeton for more than twenty years while working at the Institute for Advanced Study. In addition to pie eating and recitation contests, there is an annual Einstein look-alike contest.

By measuring circular objects, it has always turned out that a circle is a little more than 3 times its width around.

In the Old Testament of the Bible, a circular pool is referred to as being 30 cubits around, and 10 cubits across.

The mathematician Archimedes (top right) used polygons with many sides to approximate circles and determined that Pi was approximately 22/7. The symbol (Greek letter “ π ”) was first used in 1706 by William Jones. A ‘p’ was chosen for ‘perimeter’ of circles, and the use of π became popular after it was adopted by the Swiss mathematician Leonhard Euler in 1737. In recent years, Pi has been calculated to over one trillion digits passed its decimal. Only 39 digits past the decimal are needed to accurately calculate the spherical volume of our entire universe, but because of Pi’s infinite & patternless nature, it’s a fun challenge to memorize, and to computationally calculate more and more digits. Pi has been calculated to over one trillion digits beyond its decimal point. *Learn more and try my recipe on the next page.*





From the desk of Greg Pace
President of Ohmite

Continued from P12

Pi has been calculated to over one trillion digits beyond its decimal point. As an irrational and transcendental number, it will continue infinitely without repetition or pattern. While only a handful of digits are needed for typical calculations, Pi's infinite nature makes it a fun challenge to memorize, and to computationally calculate more and more digits.

Oh and one last thing...."Mmmm ... pie," made famous by Homer Simpson makes me think of our recipe section so we have a nice one here for you all to bake and bring in on this hallowed engineering day! Happy Pi Day!

You've had the starters and the main course earlier, so this should round it off quite nicely.

INGREDIENTS FOR A 9 INCH PI PIE SERVING EIGHT

Apples
Nutmeg
Cinnamon
½ cup sugar
Lemon Juice
Crust (either store bought cheating or home made pastry)

METHOD

- 1) Preheat oven to 350°F.
- 2) Line pie pan with bottom crust.
- 3.14) Peel and slice apples.
- 4) Put 1/2 of the apple slices in prepared pie pan.
- 5) Sprinkle apple slices with 1/2 cup sugar, a little nutmeg and cinnamon.
- 6) Add rest of apples and top with rest of sugar (1/2 cup), a little nutmeg cinnamon, flour and butter or margarine cut into small pieces.
- 7.22) Sprinkle with lemon juice.
- 8) Cover with top crust.
- 9) Crimp edges together with fork.
- 10) Sprinkle top with sugar and cut steam vents in top crust.
- 11) Put pie on baking sheet in case of spill-overs.
- 12) Bake for 1 hour at 350°F.





Kirk's Corner

Kirk Schwiebert
Director of Strategic Planning and
New Product Development

OUR LATEST ADDITION

Our very busy head of Materials Management, Amado Rivas, is even busier these days, thanks to the birth of a new daughter. Amanda Rivas was born on January 16th, weighing in at 7 pounds and 19.5 inches long, she became the newest member of the Ohmite family.

Little Amanda shares her birthday with Edmund Crouchback, 1st Earl of Leicester and Lancaster (16 January 1245 – 5 June 1296) the second surviving son of King Henry III of England and Eleanor of Provence. His nickname "Crouchback" (meaning "Crossback") refers to his participation in the Ninth Crusade indicating that he was entitled to wear a cross stitched into the back of his garments. Also born on this date was Aaliyah Dana Haughton (1979-2001), the famous singer who was tragically killed in a plane crash, and another famous singer, Sade (1959), along with Baltimore Ravens QB and Super Bowl MVP, Joe Flacco (1985). Among the important historical events which occurred on January 16th are these:

27 BCE – Gaius Julius Caesar Octavianus is granted the title Augustus by the Roman Senate, marking the beginning of the Roman Empire.

1547 - Ivan the Terrible was crowned Czar of Russia.

1909-British explorer Ernest Shackleton finds magnetic South Pole

1919-The United States ratifies the Eighteenth Amendment to the United States Constitution, authorizing Prohibition in the United States one year after ratification.



WHILE MATAMOROS CELEBRATES, WE'VE GOT ANOTHER 25 YEAR SUPERSTAR

February 22, 2013 marked the 25th Anniversary of Judy Heyse's employment at Ohmite. A celebratory lunch, plaque, card, and gift were all part of the festivities with her on this special occasion. While 25 years is an eternity in our industry to be employed at one company, Judy is actually 3rd in terms of seniority here at Ohmite headquarters. This makes her something of a Spring Chicken in Ohmite years, and her energy and enthusiasm have not diminished one bit as she enters year 26. Please congratulate her on this amazing milestone. And just to prove that she hasn't changed a bit, here's Judy Nugent - as she was then - when she joined us in 1988!



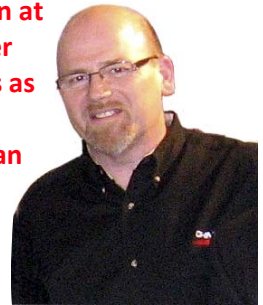


Kirk's Corner

Kirk Schwiebert
 Director of Strategic Planning and
 New Product Development



Now it's starting to get a bit squeaky! Felix Corbett looks as though he may have done the double, even at this stage of the season, but for those chasing him it would only need an 83 pointer like Andrew Hunter had at the weekend and things could change dramatically. Likewise, in the Wakefield Division, it looks as though it's going to be a race to that final whistle. Goals on the last day could be crucial. At the other ends of the tables, the relegation battles have started. Even at this end, a 60 point weekend like Chintan Poudel just had can make a huge difference, but I feel for Greg and Amrut, they really need to start scoring big numbers. This weekend we've got Arsenal v Tottenham. There was a time when this was a 0-0 certainty, but times have changed and Gareth Bale and Theo Walcott have got a hatful of points between them lately while Van Persie and Mata have stopped scoring. There's a battle at the bottom this weekend as Southampton play QPR. Lambert or Taraabt for big points ??? Good luck. **PETER CRAIK**



#	TEAM	MANAGER	POINTS	#	TEAM	MANAGER	POINTS
1	DIAMOND LIGHTS	Felix Corbett (TT)	1476	1	STUMPIES PROSTHETICS	Mark Nordstrom (S)	1415
2	BUBBLE & SQUEAK	Daniel Evans (R)	1381	2	GALLIER'S GALACTICOS	Mark Gallier (T)	1403
3	ACCRINGTON FC	Andrew Hunter (K)	1372	3	SYDNEY LEROUX FC	Andrew Schwiebert (K)	1347
4	ALEX MORGAN FC	Kirk Schwiebert (O)	1341	4	HARDLY ATHLETIC	Peter Larcombe (T)	1302
5	POMPEY4EVER	Graham Maggs (MO)	1339	5	THERE'S NO 'F' IN WAY	Dominic Melville (TT)	1261
6	STOPMESSING	Ray Evans (R)	1330	6	LIVERFUSE	Jamie Furness (TT)	1259
7	TIGA TIGA	Keith Gallier (T)	1271	7	TAIT'S TIGERS	Steven Tait (C)	1227
8	INTER EVERYTHING	Peter Craik (S)	1268	8	THE NEW MRS THOMPSON	Jill Thompson (S)	1171
9	SHAFTSBURY UNITED	Matthew Evans (R)	1263	9	FC PASSIVES (CEL)	Lewis Charlton (C)	1108
10	CHINTAN'S	Chintan Poudel (R)	1260	10	WENGER XI	Amrut Annigeri (RM)	1038
11	COILER'S FC	Peter Schwiebert (O)	1200	11	AMRUT XI	Amrut Annigeri (RM)	995
12	WE'LL DO ALRIGHT XI	Geoff Breed (TT)	1194	12	ALWAYS BE CLOSING	Greg Pace (O)	890
13	GOD'S GIFT TO WOMEN	James Craik (S)	1175				
14	RICHARDSON ROVERS	Martin Evans (R)	1079				

***KEY:**

C =	K =	MO =	O =	R =
RM =	S =	T =	TT =	