

Official Journal of the South African Metal Finishing Association

S A Metal Finisher

Issue 26

Featuring New Buyer's Guide

April 2017

**Useful Wear Resistant
Coatings for Industry**

**Trends & Developments
in Metal Finishing**

 **SAMFA**

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Background graphic on Page 15: freeimages.com laboratory-1204429.jpg Mandie LeScum

From the Editor

Tony van der Spuy



At the most recent meeting of the national management team a decision was made to abandon the idea of staging a Metal Finishing Trade Show in the foreseeable future. The hard truth is that our industry does not have the numbers or the budget to justify putting on such a show, and experience from several past attempts demonstrated that we just cannot generate the footfall to make it viable. Instead, we will encourage members that do attend shows where there is something of interest to us to send us a report that we can publish right here in our journal.

However, in our field we have some rock steady companies that have continued to service the market successfully for years. But as you will have noticed this is a dynamic environment with mergers, product lines being dropped and new product lines being added. Companies fold, and new companies rise up. The idea of a trade show is to keep the metal finishing trade up to date with all these dynamic movements. In the absence of a show our next sure bet is to use our industry journal as a vibrant platform to showcase products and companies. So this issue, our 26th, is unashamedly a trade journal, packed with as many adverts as we could fit, and including a Classified Buyer's Guide appendix like the one that featured in our 2011 Handbook. It is, if you like, a trade show in a book!

In addition we have inputs from Anthony Poeton and John Kleyn about the direction that some new technologies are taking, and most of our advertisers are showcasing state of the art equipment.

So, please do look at at our advertisers' offerings carefully. We want to be certain that this has been a very worthwhile effort! Thanks for reading S A Metal Finisher!

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Advertorial

Dynamic colours and finishes are an exciting development in major appliances. Refrigerators, freezers, dishwashers, ovens, ranges, microwaves and laundry appliances require coatings which combine superior performance and stylish colour options.

PPG invests in improving the aesthetic qualities of major appliance coatings to help customers set their products apart. No other company integrates technologies to ensure colour harmony on appliances like PPG. Working with designers and engineers, PPG offers coatings solutions which provide a unique finish with superior performance.

PPG's full industrial coatings product line delivers a full range of protective and decorative coatings which meet the aesthetics and performance requirements for major appliances.

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PPG colour styling experts harmonize spray and coil applied liquid coatings with next generation powder coatings, enabling appliance manufacturers to provide products with superior aesthetics and performance. PPG's Spectracron® line of coatings for appliances includes primers and topcoats in a variety of formulas, such as alkyds, urethanes, epoxies and acrylics. Truform® coil-applied liquid coatings enable appliance manufacturers to bend and form finished metal. Additionally, in order to meet specialized product development requirements, PPG also offers Raycron®, a family of UV cured coatings.

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PPG is the only global coatings supplier offering a complete line of pretreatment products such as iron, zinc, zirconium and ambient temperature phosphates and cleaners. PPG's pretreatment capabilities include versatile products to meet the demands for various application methods and substrate types for major appliances.



NEWS ROUNDUP

Report by Tony van der Spuy

In this article we review the period since Issue 25 of our journal was distributed in June last year. S A Metal Finisher was founded as a newsletter to keep our members informed of association activities, so this report is the core of our publication.

Every now and again SAMFA gets called on to justify why a particular company should remain a member, usually around the time that the invoice for renewal goes out. Generally it's the finance department that sparks this request. Recently I have had to update the text of a fairly standard response that we provide. I think that it would not be amiss to repeat that for the benefit of those who may also have lost sight of the original reasons that SAMFA was established. The text of our latest response reads as follows:

SAMFA's commitment is to industry upliftment through training programs, cultivating best international practice in terms of the way we work and the technology we use, creating environmental awareness and so on. I think you will agree that we are fulfilling that brief precisely through the training of hundreds of people throughout South Africa, through informative meetings, through our publications and audio visual materials, through our website, through operating our helpline, and through visiting with members who have problems.

When it comes to Provincial and Local Government's interaction with our industry, SAMFA is always there to ensure that we understand what is going on and to help mitigate if one of our members falls short of the requirements.

We represent the industry at various important institutions that have an impact on what happens in our sector. You may be aware that we are working with the Department of Higher Education, the National Artisan Moderation Body, the South African Qualifications Authority, MERSETA and so on to get our first qualification finalised for use by new apprentices. SAMFA representatives will be

We represent the industry at various important institutions that have an impact on our sector

Quasar switch-mode rectifiers are designed to meet all galvanic surface treatment requirements. Based on high speed IGBT technology, they provide high efficiency, precision and performance. Compact dimensions and reduced weight versus conventional rectifiers without compromising reliability.

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- Up to 500A output



- Air cooled - IP21
- Up to 1800A output
- Available in IP52 (NEMA 12)



- Air cooled - IP32
- Water cooled - IP42
- Up to 8000A output in one tower
- Available in IP54 or IP65



**SAMFA
representatives
will attend a Trade
Test Development
meeting for
Electroplaters on
May 16 & 17 in JHB**

attending the Trade Test Development meeting for Electroplaters on May 16 and 17 in Johannesburg and will continue to attend these meetings every second month thereafter for the rest of the year.

You may also recall that we worked with the Water Research Commission and spent a lot of time assisting with the compilation of NATSURV 2: Water and Wastewater

Management in the Metal Finishing Industry (Edition 2). This important study is available on the WRC website at www.wrc.org.za,

We have been asked in the past what the SAMFA membership fee is used for, and the answer is simple: It enables us to run a national administration that takes care of all the issues discussed above. No association can expect to run on pure volunteerism by members. Our industry is demanding and our members, whether selling products to metal finishers or providing those finishing services are all stretched to the limits. The modern economy does not allow for passengers in the work environment so there aren't people with lots of time on their hands.

**The modern
economy does
not allow for
passengers in the
work
environment**

When overseas associations and companies want to make contact with the metal finishing industry in South Africa they look for the people representing the technical expertise, such as there is, in South Africa. That is why we have reciprocal arrangements with the British Institute of Materials Finishing and The Surface Engineering Association of the UK.

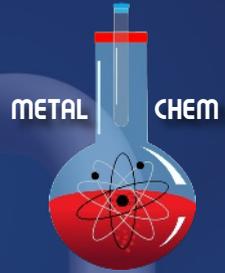
**Being a member
of SAMFA is a
matter of pride.
Working for the
greater good of
the industry**

Being a member of SAMFA is a matter of pride. It is totally voluntary and the SAMFA logo serves to advise others in the industry that you are a committed company working for the greater good of the industry, its people and the environment.

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- FULL RANGE OF PHOSPHATING CHEMICALS
- THE OMEGA RANGE OF EFFLUENT TREATMENT CHEMICALS
- CLARIANT DYES AND PRINTING INKS FOR ALUMINIUM
- OUR FULLY EQUIPPED LABORATORY IS AT YOUR SERVICE FOR ANALYSIS OF YOUR PLATING SOLUTIONS
- OFFICIAL AGENTS FOR COLUMBIA CHEMICAL



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In fact, my own efforts over the years on behalf of SAMFA to reach out to our British counterparts resulted in a pleasant surprise when the IMF unexpectedly took the decision to present me with the Connie Sieff Memorial Award for meritorious service to the surface finishing industry internationally. This is the only award I have ever received since starting out in the plating industry in 1966!

Much as I would have loved to, it was not practicable for me to be at the Cobden Hotel in Birmingham on December 29, 2016, for the IMF AGM which was to be followed by the “Christmas Lunch” and award ceremony. I had no option but to explain that we would have to explore a different avenue to arrange a handing over ceremony here in South Africa! Of course they understood, and then an excellent solution presented itself!

Anthony Poeton, the chairman of Poeton Industries, a leading surface engineering company in the UK, had planned his first visit to South Africa and the Cape in particular, during early 2017. Barry Gay, the Secretary General of the IMF at the time (and now the President) had suggested to Anthony that he contact SAMFA to arrange meetings and plant visits with some of our members. While discussing the arrangements that we



Anthony Poeton presents the Connie Sieff award to Tony van der Spuy

were making for him, I asked whether, as a senior member of the IMF, he could bring across my award certificate, and present it to me at the annual SAMFA national chairpersons’ meeting which we scheduled to be held in Cape Town on Friday, February 10. Of course, he was delighted to be able to oblige,

and so, at the luncheon following that executive meeting, I was very proud to receive my award from Anthony.

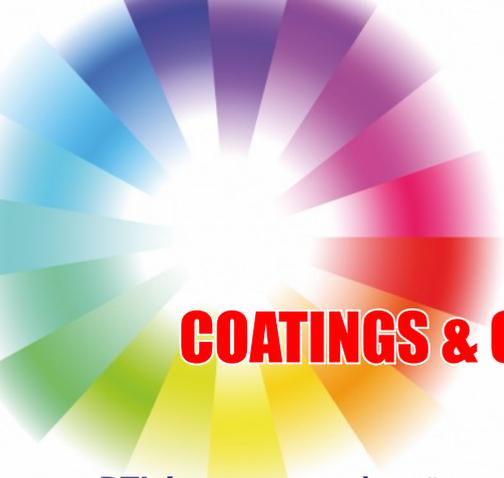


Kevin Davidson of TRW Occupant Restraints conducted Anthony around their manufacturing and plating operation

John Kleyn of Accurate Automation had kindly agreed to arrange a day of plant visits to metal finishers locally and so on the day before our SAMFA meeting, John and I took Anthony to Blue Willow Aluminium and then TRW Occupant Restraints in Atlantis fol-

The logo for PTL Products, featuring the letters 'PTL' in a stylized, hand-drawn blue font with a horizontal line underneath.

PRODUCTS

A large, colorful sunburst graphic in the top left corner, with rays in shades of blue, purple, red, orange, yellow, and green, radiating from a bright white center.

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lowed by agricultural equipment manufacturer, Theebo Tech Equalizer in Brackenfell and finally plating on plastics specialists, Domline, in Somerset West.

Knowing that this issue of S A Metal Finisher was to focus on modern coating technologies, I asked Anthony if he would be kind enough to pen a brief article on those coatings that he believes stand out. His article follows on page 18.

MEETINGS DURING 2016

Mid year AGMs - Guest Speakers

Gauteng: Presentation on advantages of using gas for energy requirements - Klaas Mofokeng of Easigas

KZN: Delayne Gray of SBS Tanks spoke on rainwater harvesting for industry.

Cape: Presentation by Klaas Mofokeng of EasiGas on energy in metal finishing sector

All executives in all regions were returned unopposed and the membership fee was fixed at R2250 for ordinary members and R5500 for Sustaining Members for the 2016/17 year.

Year End Meetings - Guest Speakers

Gauteng: Gerrie van Staden of DHET and National Artisan Moderation Body discussed latest developments on Trade Tests for Electroplaters now being developed.

KZN: Trudy Kastner reported back on SAMFA's input at a meeting with the National Artisans Moderation Forum which she had attended along with John Danks, Gary Joseph and Hazvinei Munjoma on October 26 in Gauteng.

Cape: GreenCape Presentation by Oliver Bonstein - Western Cape Industrial Symbiosis Programme Facilitator.

An electronic horse racing game was presented for entertainment in all three centres.

TRAINING SESSIONS COMPLETED

The following training courses were presented:

KZN - Between May and July 2016

5 Day Electroplating Training for 6 trainees

1 day Effluent Treatment seminar with an additional 6 trainees.



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Effluent Treatment Group - KZN 2016

Including Guest presenters Chris Fennemore, Trudy Kastner and John Danks



Electroplating Group - Cape 2016

Cape Town -

Electroplating with 4 trainees - between July and Sept 2016

Powder Coating with 10 trainees - between Oct and Nov 2016

Health, Safety and Enviro-Legal with 6 trainees between Oct and Nov 2016

(This course was a new upgrade to our original OHS course - improved and expanded to 2 days.)



Powder Coating Group - Cape 2016



Health, Safety, Enviro-Legal - Cape 2016

Including Guest presenter Steve Codd of Orion-SCO

Gauteng

Electroplating with 22 trainees between July and Sept 2016

Effluent Treatment - 1 day - 4 trainees on Aug 18, 2016 (combined with electro course)

At total of 57 trainees benefited from training during 2016. Surveys will shortly be circulated to establish demand for 2017.



Gauteng - Combined Electroplating & Effluent Group inc Guest Presenter John Kleyn

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Satin Nickel



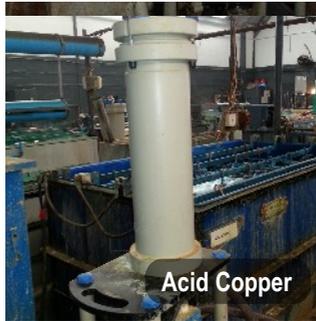
Acid Zinc



Electroless Nickel



Rod Pickling



Acid Copper



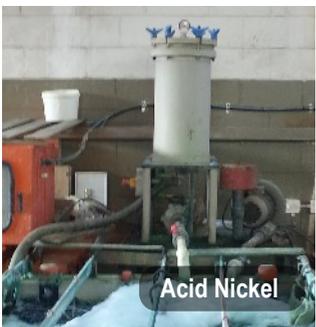
Acid Copper



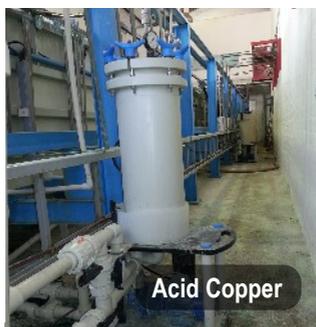
Plating on Plastics



Cyanide Copper



Acid Nickel



Acid Copper

Useful Wear Resistant Coatings for Industry

Earlier this year Anthony Poeton, Chairman of Poeton Industries UK, visited South Africa for the first time. Prior to his arrival he made contact with SAMFA and expressed an interest in visiting some metal finishing operations in the Cape. Your association was proud to arrange these visits and accompany him on the tour. This is his brief report back along with an overview of some of the processes he specialises in.

In January I made my first visit to South Africa and was fortunate to meet Tony van der Spuy and several people in the South African Metal Finishing Association.

My company which started in 1898 in Bristol, England, has been a member of the British Metal finishing Association (now Surface Engineering Association) and a sustaining member of the Institute of Materials for very many years.



Anthony Poeton

I was delighted to meet Tony and to learn that you have a healthy national metal finishing association operating in your country. On my visit, I was fortunate to meet many interesting people and gain a good feeling for some parts of industry in the Cape area.

Tony asked me to write a little about the coatings we offer from my company that particularly interest me.

At Poeton Industries Ltd we employ 220 people and specialise in four principal areas – Hard Chrome, Nickel, Anodising and Thermal Spray. Alongside those, we have a substantial number of proprietary composite coats which we sell as Apticote.

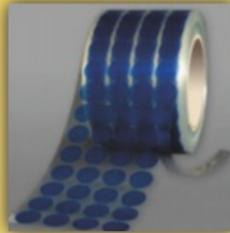
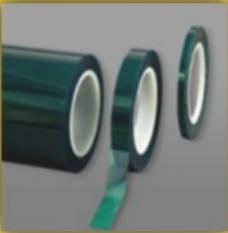
Currently, we have a considerable amount of aerospace work, holding NADCAP Approvals, and ISO 18000 for Environmental systems.

You may find it useful to know that for many years the only processes we offered were those that were commonly available. Decorative plating for many years, then engineering coatings, and always we were in aggressive competition with other metal finishers (3000 in the 70's). Some had larger capacity, some had more skilled tooling, some could turn around parts faster but always it was to the lowest price.

Gradually we developed a range of specialist coatings to offer to designers of manufactured products with the purpose of enhancing wear performance and reducing manufacturing costs for them. By improving their products, we shared in their success and usually this resulted in increasing our margin

Pro Mask products are suited for high temperature masking applications such as Powder Coating, E-Coating, Anodizing, Hard Chrome Plating and other surface treatment processes. Apart from our standard product range our custom masking service will provide unique masking solutions to your production line, cutting down on masking time, labour costs and workpiece quality failures which result in rework.

The flexibility and durability of high temperature masking tapes makes them an essential masking product for any surface finishing process. The film polyester tapes with silicone adhesives ensure strong holding forces with minimal coat build-up and no post-process residue on the workpiece. Pro Mask's Polyester PC-21 tape is an affordable product that is suitable for most coating processes. Tape widths from 3 mm to 300 mm are available and these tapes work well in temperature up to 200+°C.



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as well as reducing competition i.e. the buyer's options!

ELECTROLESS NICKEL WITH PTFE

The first coating we offered, which is still in demand today, and is one of the most effective, was Electroless Nickel with particles of PTFE. It started life as Niflor using Akzo dispersants. While the chemistry is complex, for the customer it is simple – a coating thickness range of 10-30 microns everywhere offering low friction properties and plating coverage of ENP coatings. Today there are several commercial solutions on the market and some are quite good. Ours, of course, is the best!



Anthony Poeton at agricultural implement manufacturer Equalizer AG with manager Dennis Cronje (centre) and John Kleyn, MD of Metal Finishing Plant Builder, Accurate Automation & Consulting. (right)

Today there are several commercial solutions on the market and some are quite good. Ours, of course, is the best!

NICKEL PLATING INCORPORATING SILICON CARBIDE - Next, we developed our own version of electroplated nickel incorporating silicon carbide particles for which we found many uses in motorsport at all levels. For 8-10 years Formula One, NASCAR and Indy engines had cylinders coated by our company. It was great to be associated with many race winning teams.

HARD ANODISING WITH POLYMERS - Working with an American plater we started to put polymers into hard anodising which, as a porous oxidation, is certainly suitable for such treatments. It is a great way to enhance our customers' ability to use aluminium instead of steels. This interesting coating finds its place as it has many substantial benefits – enhanced corrosion protection and low surface friction to name but two.

PLASMA OXIDATION (PLO) - More recently we've been working with PLO as a new super hard anodising coating treatment. This coating will, in my opinion, find a place in our industry as it has, as yet, many underdeveloped benefits.

DIAMOND LIKE CARBON COATING - (DLC) The coating I like the most but never could justify a production facility for is **DLC**. It's a vacuum based treatment and therefore expensive. There are many variations but there is one that outperforms all the others. Look it up - its magic!

At our company, we are fortunate to have a significant R & D capability backed up by our development plating department with metallographic labs and tribology which allows us to develop the best processes for applications. Then we put our trade name, Apticote, on them with confidence.

Good luck South Africa – you have an exciting country. We will be back!

Anthony Poeton anthonypoeton@poeton.co.uk



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- Silver
- Copper
- Electroless Nickel
- SS Electro Polishing

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Trends and Developments in the Finishing Industry

A contribution from John Kleyn of Accurate Automation cc

Green Nanotechnology

"Nanotechnology involves the manipulation of materials at the scale of the nanometer, one billionth of a meter. Some scientists believe that mastery of this subject is forthcoming that will transform the way that everything in the world is manufactured. "Green nanotechnology" is the application of green chemistry and green engineering principles to this field."

With the ever shrinking industrial market we need to stay relevant, efficient, profitable and on top of our game. World technology dictates that we need to comply with green manufacturing standards to stay in the race. These green manufacturing standards soothe our consciences but also bring lower cost of ownership, reduced effluent and water usage, major savings in energy and much better health and safety conditions whilst increasing production and quality. In our industry Green Technology revolves around four major components.

1. Chemistry - By utilizing modern green chemistry we reduce the concentration of chemicals to achieve the same result. This is done with various new formulations and often incorporates the use of nanotechnology chemistry. Many new green processes have been developed where harmful chemistry is totally eliminated such as Chrome 6, Cadmium, Cyanides and harmful acids such as Nitric and Hydrochloric Acid. The green replacement chemistry produces the same quality and production with minimal impact on our environment. Lower concentrations and lower temperature chemistry reduces overall costs and comes with a massive knock on saving in water, energy and effluent charges. Some of the highlighted processes are:

"Many new green processes have been developed where harmful chemistry is totally eliminated"

- a. **Phosphate Replacement** pre paint processes reducing sludge formation, operates at lower temperature and low concentrations. The result is a saving in heating, rinse waters, effluent treatment, discharge fees and sludge disposal. High heat



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solutions have higher evaporations which affects our working environment and air quality.

- b. **TSA - Tartaric Sulphuric Acid Anodising** being used as replacement for Chromic Acid anodizing. TSA anodizing results in a thin oxide layer with optimal adhesion properties and a good corrosion resistance. This process is widely used in the aircraft industry where high corrosive resistance with exceptional paint adhesion is required.
- c. **Multi metal cleaners** where many different metals can be cleaned and pretreated with protective coatings before paint. Multistage processes in one tank where parts can be cleaned and etched simultaneously, eliminating chemical processes resulting in increased production and much reduced running costs.

2. Energy – Heating of chemicals remains our highest user of energy. By reducing the chemical operating temperature we save on our direct input cost. The source of heat will have the biggest influence on heating costs where a direct comparison between electricity and natural gas has proven a 76% saving. The added advantages were a much reduced startup time from 8 hrs. to 2 hrs. The preferred energy sources currently are Natural Gas, Diesel, LPG and then only electric heating. For cost breakdown and more detail please see:

“The source of heat will have the biggest influence on heating costs where a direct comparison between electricity and natural gas has proven a 76% saving.”

www.samfa.org.za/Library/energy-management.pdf

3. Water - Our worst predictions came true this year where the summer rainfall areas have just recovered from major water shortages with some places rationing water. The Western Cape is in the worst position ever with level 3B restrictions. The result is industry will pay more for this very scarce resource. More than 500 Billion Rand is required to repair and upgrade our infrastructure. Our focus should be on:



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- a. Minimizing water usage through effective cascade rinsing and controlling our operating parameters. We cite an example where with only 3 hours of optimizing rinse flows we reduced water usage by 65% without any effect on quality.
- b. Water recycling via a magnitude of technologies namely Microfiltration with RO, Evaporative recycling or de-ionizing. These technologies are robust and recycling up to 80% is achievable.
- c. A waste product in all heavy metal installations will be sludge. This sludge must be discarded through a licensed waste operator as they are classed as toxic. By optimizing our plant and chemistry sludge can be minimized thereby by improving our environmental footprint.

“We cite an example where with only 3 hours of optimizing rinse flows we reduced water usage by 65% without any effect on quality.”

For more information see:

www.samfa.org.za/Library/ResponsibleWaterTreatment.pdf

4. People & Profit - The truth is without people we have no business. The better the working environment the better our staff perform. Green manufacturing will improve our working environment with less heat and fumes. This in turn will reduce water usage, effluent sludge and energy cost which in turn improves our profits.

Sustainable manufacturing is past being something that's “nice to have.” It is now a vital aspect of the manufacturing industry.

HARCO ENGINEERING SEEKS REGIONAL REPRESENTATIVES

Harco Finishing has been a leading supplier of electrostatic powder and liquid paint spray equipment since 1998. We are expanding our business and require representatives in the Western and Eastern Cape, as well as in KZN. Please contact Harald Pleuse on 082 365 8383 or E-mail us at **powder1@absamail.co.za** if you are interested in becoming our distribution partner.





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Save on powder and increase application speed with next-generation dense-phase technology.

The Encore HD Manual Powder Spray System is our fourth generation high density, low velocity (HDLV) spray technology. Designed for superior process control, you can achieve a highly dense phase spray, a more diluted mixture...or anything in between. HDLV technology delivers a high concentration of powder, but using very little air. As a result, you get greater transfer efficiency, less overspray and superior cured finish quality for every conceivable part type. The system offers:

- A more lightweight, better-balanced gun
- Powder deposition at speeds nearly double that of venturi systems
- Superior edge and corner coverage
- Higher transfer efficiency
- New, robust lance assemblies extend gun reach and allow for fast color change
- On-gun controls for fast, easy adjustments
- Nozzles that are compatible with the Encore gun family (XT, LT and HD)
- Sprays all powders



The system is available in either single or dual configurations, including gun, controls and pump

The Encore HD Powder Spray Gun represents the latest in powder coating technology, offering powder coaters a single gun that can meet any application need. With on-gun controls, it allows easy adjustment of the powder output, concentration and spray velocity – from a highly dense phase spray to a more diluted (powder and air) mixture, and everywhere in between.

Using Nordson HDLV technology allows the Encore HD gun to spray all powder materials, even those that are the most challenging. In addition, the low velocity spray also provides superior corner and edge coverage.

The Encore HD gun is also well balanced and one of the lightest manual guns available today, reducing operator fatigue and making the painter's job easier.



Encore HD Manual Gun spraying dry-blended metallic powder.






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engineering services

established 30 years

Specialists in plant and equipment, our team of engineers and draughtsmen is ready to deliver a complete solution for you – from design to commissioning. Our disciplines embrace the comprehensive range of equipment required in the finishing industry including:

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- Powder plants
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- Powder Curing Ovens
- Electro-Coat Curing Ovens
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Bendet Engineering Services has a reputation of providing customized conveyor solutions to our clients. The range includes:

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- Overhead and Inverted Power and Free Conveyors with Drop Sections and Banking Stations
- “Triplex” Overhead Systems which facilitates handling of products longer than 4 meters without the problem of wide turning circles. The system also accommodates Bias Banking similar to Power and Free Systems but proves to be more cost effective

Bendet Engineering Services specialises in the Relocation of Existing Plant, including any modifications which may be required.

Bendet Engineering Services provide servicing and maintenance services for the following:

- Spray Booths and Powder Booths
- Oven cleaning and refurbishing
- Pre-Treatment line cleaning and refurbishment
- E-Coat line cleaning and refurbishment
- Boiler cleaning and refurbishment
- Gas Burner servicing
- Conveyor servicing

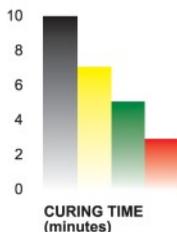
Bendet Engineering Services provides excellent 3D design capabilities including simulation programmes to ensure the most efficient solutions for our clients.



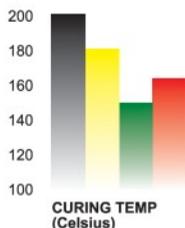
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Our Research & Development department has made significant improvements in the field of energy-efficient powder paints. Our products now feature faster curing times and lower temperature requirements, reducing your energy bill and increasing your production output.



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IMPROVE PRODUCTION OUTPUT AND LOWER COSTS WITH LOW TEMPERATURE CURE TECHNOLOGY

Ongoing technological developments from Powder-Lak (Pty) Ltd.

The old adage proclaiming “If it ain’t broke, don’t fix it” should be retired to the scrap heap of history, for without the tinkerers and experimenters the human race would not have come this far in the world.

And the same can be said about powder coating paint technology.

Standard powder coating paints, that are widely available in the market, follow the old standard cure schedule of 15 minutes at 180°C - or even 10 minutes at 200°C object temperature.

This is no longer good enough in an economy where resources must be saved and factories streamlined to squeeze the best performance out of the production line.

Enter our low-temperature cure technology, which requires less time and less energy to cure. What does this mean in real production terms?

Let’s assume that your standard batch oven takes 60 minutes from starting until the end of its cycle when it’s following the old or common cure recommendation.

Now you introduce low-temperature cure technology. Suddenly your oven only needs 40 minutes. The items coming out of the oven are also at a lower temperature, cooling faster, which allows your workers to handle them sooner and re-load the oven at a faster pace. That means that you are effectively able to load more items in the same production shift. Less energy is used to bring the oven to temperature, less time is required, more production is done per shift = production output and profits increase.

There are real world examples where production output was boosted by 32%, all the while reducing the energy consumption by 18%. The great thing about this technology is that the client can choose if he wants to save energy, time or a mixture of both. Production lines are easily configured and downtimes are minimised during the changeover, often requiring only a new setting to be applied via the respective control panel.

There are real world examples where production output was boosted by 32%, all the while reducing the energy consumption by 18%.

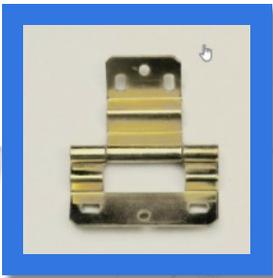
So are you ready to consider the benefits of low temperature cure technology or would you rather pay good money for old rope?



Hinges & Hardware Fittings

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Lindumn Tool Works (Pty) Ltd was established in 1948 in Cape Town. The company was originally founded as a tool manufacturing company and diversified into volume production of metal pressings and assemblies in 1968. In 2008, a management buy-out by the current partners took place, resulting in a young multi-disciplined management team under the name Lindumn (Pty) Ltd. We manufacture our own range of over 4000 standard components for a wide variety of industries including construction, furniture manufacture and joinery, automotive canopy and trailer, brushware, blinds, curtains and electrical applications.



Lindumn Tool Works also designs and manufactures tooling to produce special components to meet customer requirements and includes major international brands of automotive, brush ware, curtain and blind fittings and electric goods amongst its customers. The Company sells directly to major manufacturers or through wholesalers and its customer base is spread throughout South Africa. It exports directly and indirectly to the United Kingdom, European Common Market, Zimbabwe, Namibia, Mauritius and Australia.

An essential requirement of the of the Company's objectives is the continuous improvement of our quality system and we are ISO 9001-2008 compliant as certified by the South African Bureau of Standards, and enjoy a BBEEE status of a Level Two Contributor.

At Lindumn we operate one of the larger plating workshops in South Africa turning out a wide variety of different finishes including zinc, zinc black, copper nickel brass, antique copper and brass. This gives us the advantage being able to offer complete service to our end users and total control of our logistics.

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A few examples from the range of roofing fixtures.

Most recently the Company has made strong inroads into the roofing industry manufacturing the full spread of components for securing wooden roof trusses, a very busy market right now.

The company welcomes new enquiries and enjoys meeting the challenges of making parts of high quality at competitive rates. Give them a call on 021 705 3720 or email reception@lindumn.co.za



One of the dedicated tool stores at Lindumn housing part of their more than 4000 tool sets.



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Faizal Vally Tel: 031 335 1260 | Cell: 082 940 1512 | Email: faizal@esmowat.co.za



MacDermid Enthone

Introducing MacDermid Enthone

During late 2015, MacDermid joined forces with Enthone, and the electronic chemicals, photomasks, and memory disk businesses of the OM Group. The parts of these businesses serving the electronics, metal finishing, and surface treatment industries are now known as MacDermid Enthone.

E. S. Mowat & Sons who have been pioneers in the surface finishing industry were chosen to represent the combined business in the Southern African region.

Who We Are

MacDermid Enthone is comprised of these two sales and service organizations:

- MacDermid Enthone Electronics Solutions
- MacDermid Enthone Industrial Solutions.

and is itself a part of Platform Specialty Products corporation. MacDermid Enthone brings together the world's best innovation and technical

service expertise in all the industries we serve.

MacDermid Enthone Electronics Solutions serves the printed circuit board, electronics interconnect, photovoltaics, electronics packaging, semiconductor plating, and wafer level packaging market sectors.

Compugraphics, a leading supplier of photomasks for semiconductor manufacturing, is also a part of MacDermid Enthone Electronics Solutions.

MacDermid Enthone Industrial Solutions provides solutions for the global surface finishing industry, integral to many of the surfaces we touch every day, plus high performance applications in virtually every industry.

E. S. Mowat & Sons have been entrusted with achieving the MacDermid Enthone goal of providing you, our customer, the best products, service, and business responsiveness you've ever experienced.



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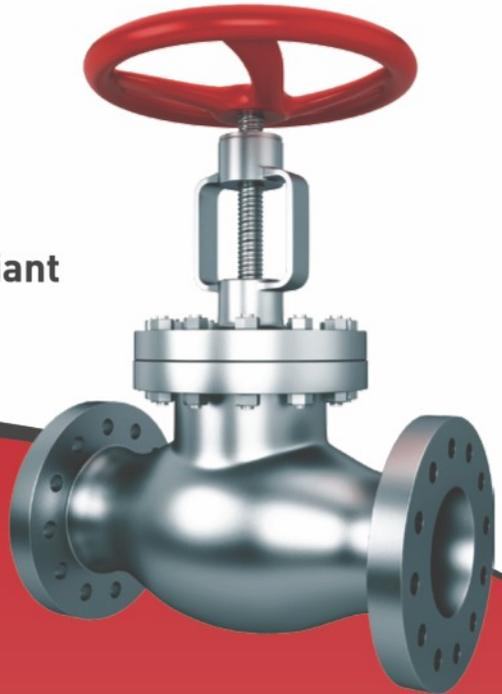
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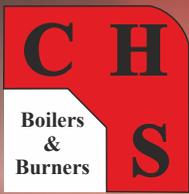
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▶ Saving time



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HI-TECH

ELEMENTS

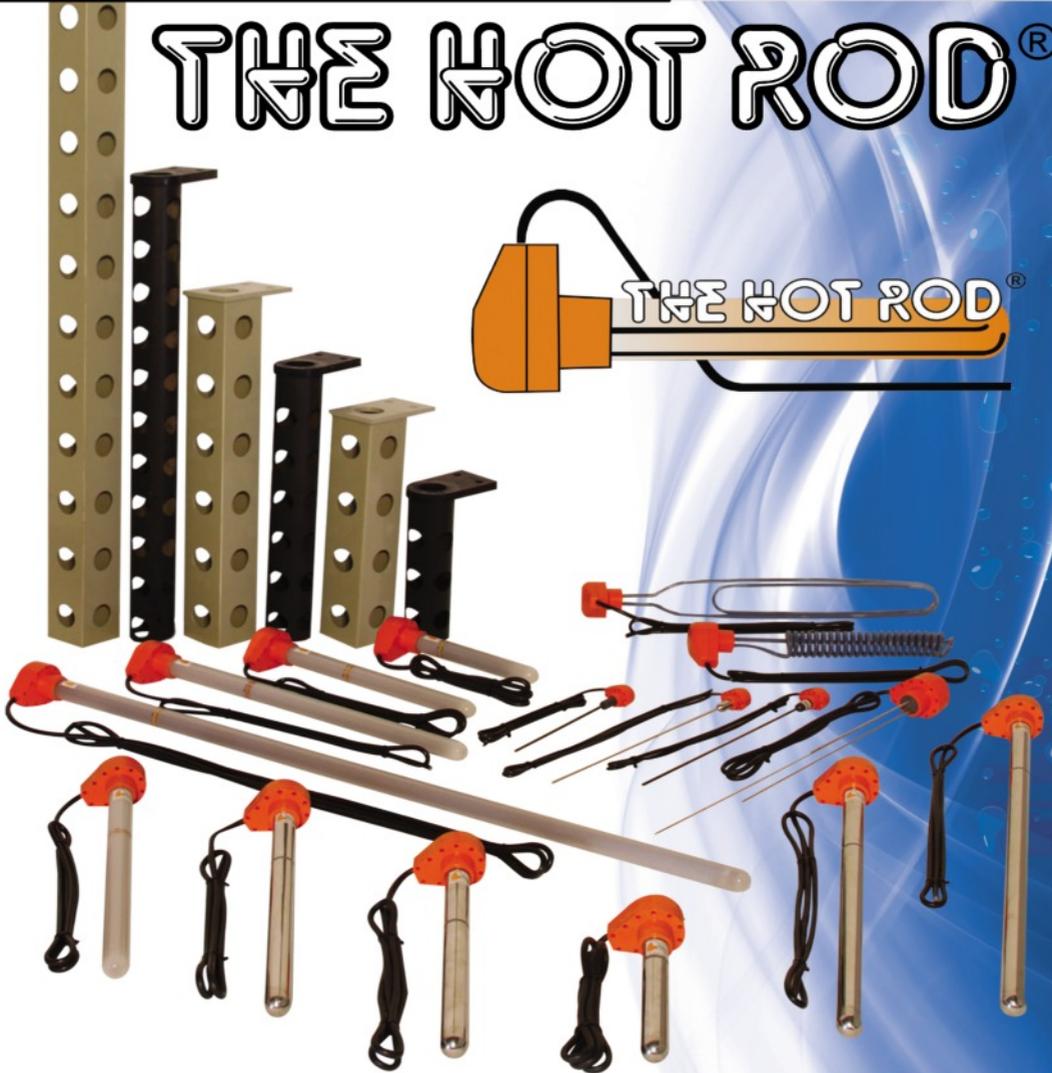
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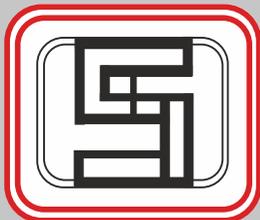
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See also entries under the General Category starting on Page 64

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*See also entries under the General
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