

Official Journal of the South African Metal Finishing Association

# S A Metal Finisher

Issue 28

October 2018

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the future of our Industry?**



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# Contents

---

**From the Editor** 4

---

 **SAMFA NEWS ROUNDUP** 8

---

**Building Industrial Drought Resilience**  
**Perspectives from the Western Cape** 20

by Jane Reddick of GreenCape’s Water Sector Desk

---

**Achieve production confidence with Dense-Phase Technology** Advertorial 30

---

**Nanotechnology** Advertorial 35

Alternative to existing phosphate or chromate technologies

---

**How well are we caring for the future of our Industry?** 38

Considering the future of the Association and the Industry

---

**Determining a Price for Plated Work** 44

In this article John Danks shares some thoughts on costing methodologies. With additional context by Tony van der Spuy.

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Cover Picture Credit: Pixabay.com by TheDigitalArtist - grid-871475\_1920.jpg

# From the Editor

**Tony van der Spuy**



In the previous edition of this journal (Issue 27) the focus had been on the very real threat to the metal finishing industry (and many others) in the Cape posed by the serious drought that had afflicted this region.

As at September 17 this year our combined storage was at 70% compared with 37.5% at the same time last year. So at the beginning of Spring our position in the Cape is virtually twice as good as it was in 2017.

It is unlikely that our citizens and our various levels of government will allow such a dire situation to develop again. As usual, in a crisis everyone pulled together finding ways to cope using less water. Our businesses have been innovative. Some city hotels banded together to fund a RO plant to supply their own water.

We are not out of the woods yet. As recently as 2014 our storage was at 100%. So we are starting with a 30% depletion of our reserves and greater numbers of people who need access to water. In this issue we feature a contribution from the organisation GreenCape titled "Building Industrial Drought Resilience" which discusses measures that were implemented to significantly reduce water consumption. It is definitely worth reading!

We have had requests for an article on working out a price for plated goods and we have started this tricky discussion on page 44. On page 38 we open the debate on how our association will continue to meet the challenges ahead, and how we intend to find qualified persons to keep this industry competitive and competent.

Thank you to all our loyal members and advertisers for your support through good times and bad.

Finally, we note with appreciation the latest company to upgrade to our Sustaining Member category, Coating Techniques, S A! Thank you for your commitment!

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## NEWS ROUNDUP

Report by Tony van der Spuy

*This report covers the period from the beginning of 2018 to date. As this is the official SAMFA newsletter, it is the core of our publication. It is important to keep our readership informed of the role that SAMFA continues to play in the industry. As many activities happen in the background this is our opportunity to communicate the scope of our efforts to everyone who has an interest in metal finishing.*

### EXECUTIVE MEETINGS

The national executive meeting took place in Cape Town on Friday, February 23. This is the event attended by the regional chairpersons representing the Cape, Gauteng and KZN, and it is at this forum that progress over the past financial year is evaluated and activities for the year ahead are planned. Importantly, the financial status of the association is examined in depth, and the budget for the financial year, commencing on March 1, is considered and ratified.

Shortly before this, regional executive meetings were held in our three provinces, to decide on the specific inputs to be placed on the table at the national meeting.

### THE SAMFA YEAR VERSUS THE FINANCIAL YEAR

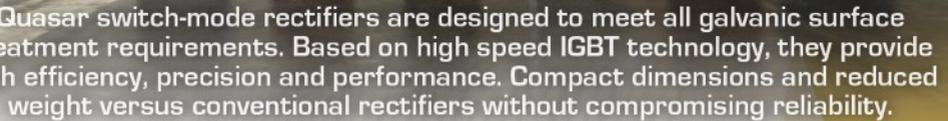
Some of our members have asked why we appear to have two “years”. The SAMFA year, which runs from July 1 to June 30, and the financial year which runs from March 1 to February 28.

#### The Financial Year

The financial year is the standard accounting period for SARS. When SAMFA was registered in March 2005 that was the beginning of our first financial year. Prior to that, there were regional associations that all had their own independent accounting systems and they all ran with the standard tax year. On March 1, 2005 these associations handed their admin and accounting to the new umbrella body, SAMFA.

#### The SAMFA Year

The SAMFA year was set from July 1 to June 30 because that was when the DANIDA efforts to corral industry representatives into regional associations finally came together, back in 2000. At that time the first annual subscriptions were paid by the original members, most of whom are still members to this



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day. KZN was the only province running a “Waste Minimisation Club” for metal finishers prior to this date - the first regional association, if you will. They became the KZN MFA which technically still exists, but now under the SAMFA banner.

The official launch of these associations was recognised as being on July 1 and members were invoiced for their subscriptions on the anniversary of that date. So if a new member signed on, let’s say in September, then that member would be invoiced for eight months up till the end of June. They would fall into sync with the SAMFA year and be invoiced for the next full year from July to June.

**As the majority of members are on the original SAMFA year AGMs are held mid year**

This was an awkward system and it was far easier to simply invoice the membership subscription on the anniversary of the original take-on date. Nowadays if you sign on during March, then your year is from March to February. So the SAMFA year as far as subscriptions go does not actually exist. But seeing as the majority of our members are on the original SAMFA year, that is when adjustments to the subscription are made, and that is when the Annual

General Meetings are held, as they have been since the association was established.

### **ANNUAL GENERAL MEETINGS**

One of these meetings is held in each region. During 2018 AGMs were held in the Cape on June 26, in Gauteng on July 3 and in KZN on July 5. Prior to any main member meeting regional meetings are held to consider the Agenda. In 2018 these regional meetings were held in the third week of June.

### **MEMBERSHIP SUBSCRIPTION ADJUSTMENT**

**It is critical that we don’t allow subscriptions to “fall behind the curve”**

As always, the most important topic is the adjustment of the membership fee. SAMFA is totally self-funded from membership subscriptions and so it is critical that we don’t allow subscriptions to “fall behind the curve” resulting in ever-decreasing revenue in real terms. At the same time we look at what other associations are charging to ensure that our subscription never becomes unrealistic.

Ensuing from these regional deliberations the consensus was to recommend the following revised subscription rates to be implemented from July 1.

**Standard Membership - R 2 550 per year (ex VAT)**



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In this regard we are pleased to be able to report that the SAMFA standard subscription is **still considerably lower than related comparable entities.**

**Sustaining Membership** - R 5 950 per year (ex VAT)

The Sustaining Category is an optional premium class membership introduced in the recognition that some companies want to offer stronger assistance to SAMFA and are in a position to pay substantially more than the standard subscription. These members gain some extra privileges. See the Membership tab on the SAMFA website for full details.

**The above rates were accepted unanimously by the members in all three regions and implemented from July 1 as proposed.**

## REGIONAL MANAGEMENT TEAMS

The other important business of the day is to select the regional executive teams who manage the local associations and their chairpersons who comprise the National Executive Committee which meets once a year. The following incumbents made themselves available and were unanimously returned:

**Your regional  
SAMFA committee  
members for  
2018 -19**

### CAPE REGION

Steve Codd - Orion SCO - Chairperson

Gillian Jangle - Krome Metal Chemicals - Vice Chair

Lizette Eksteen - PlateRite

Jeanre Taljaard - Pro-Galv

### KZN

Mark Wright - SD Electroplating - Chairperson

Trudy Kastner - Nexor 100 - Vice Chair

Dean Schafer - Shelving and Racking Systems

As one member had resigned during the year a fourth member was required in terms of the constitution.

Mark Wright proposed that Shane Pixeito of Static Powder Coating join the team. Shane accepted his nomination and was also voted onto the committee unanimously by a show of hands.

### GAUTENG

The incumbent committee members all agreed to stand for re-election and were voted back en bloc to their original positions as follows:

Mark Coetzee - Astro Holdings - Chairperson

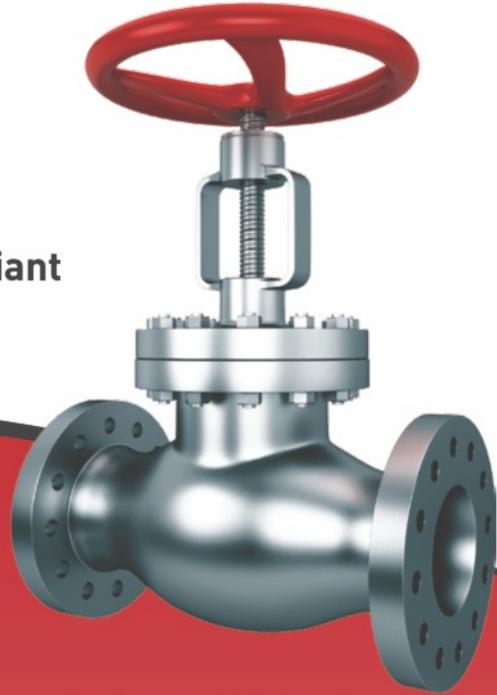
Darren Fox - Anderbolt Electroplaters - Vice Chair



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Greg Tearnan - Synergy Chemicals

Gary Joseph - Team Plating Works

## **PRESENTATIONS AT THE MID YEAR MEETINGS**

### **Cape Region - Presentation by GreenCape**

With the Cape Region having had one of the biggest scares of all time when the prolonged drought caused our water storage to fall to such dangerously low levels that a “Day Zero” was seriously contemplated, the topic uppermost in everyone’s minds was managing this scarce resource.

In the Cape we are fortunate to have a non-profit organisation known as GreenCape working hard to help industry to have an economically viable green



economy. The organisation works in many sectors and has a dedicated Drought Business Support division specifically set up to help businesses to learn how to substantially reduce the volumes of potable water they use in their manufacturing processes. We were fortunate to have Jane Reddick of GreenCape’s Water Sector Desk address us at this AGM. She provided some more detailed input on the areas where she believes that GreenCape can be of assistance. In addition, Jane has written a short article on this subject for us. It appears on Page 20.

### **KZN Region - Presentation by Interwaste**



The KZN committee invited Tanya Naidoo of Interwaste to give a presentation on the services related to waste removal and effluent management that they provide to the metal finishing sector in KZN. This is a very topical issue in the province right now as they have experienced some problems with landfill sites. Attendees at this meeting were impressed by an excellent presentation.

### **Gauteng Region**

In this region we were not able to secure a sector specialist to address our members at the regional AGM. This allowed a bit more time for me to provide a more detailed report on the associations work across the country, and to share feed back from the regional committees.

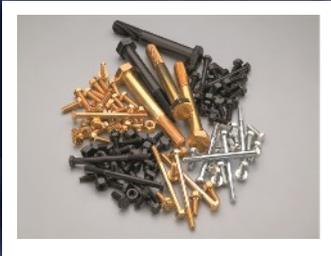
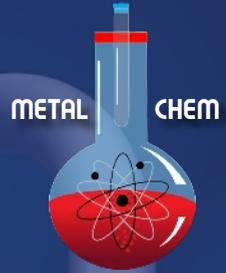
### **SAMFA TRAINING PROGRAMMES**

It is impossible to pretend that the flagging economy has not had negative consequences for many businesses. It is to be understood that SAMFA’s fortunes ebb and flow in sync with those of the businesses we serve. This will

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not be a good year in terms of the number candidates enrolled for our various offerings. In fact it will be the worst on record.

### **Electroplating Theory and Practice - 5 Day Course**

**Gauteng Region** - July 18 to September 11 - 5 Trainees. This is the only course completed at the time of going to press.



**Left to Right:** Mmasello Mosaka - S A Mint; Henry Barnard - Cubed Coatings; Charl Gyzen - Cubed Coatings; Luyolo Mabhali - S A Mint; Laveena Pillay - Euro Metal Finishes

**KZN Region** - September 19 to November 14 - 6 Trainees. The KZN offering will be underway at the time of going to press. This remains by far our most popular and well subscribed course and the number of trainees has risen to 469 since it started in 2003.

### **Powder Coating Training - 3 Day Entry Level Course**

We were not able to attract enough support in any of our regions to enable us to go ahead with this course.

### **HEALTH, SAFETY AND ENVIRO-LEGAL COMPLIANCE**

This course has not been promoted during 2018, as we have received very few enquiries relating to this course from the SAMFA website.

### **YEAR END MEETINGS**

The SAMFA year end meetings are currently being planned to take place in November, and as soon as these are finalised we will communicate the dates and times to everyone. 🔄



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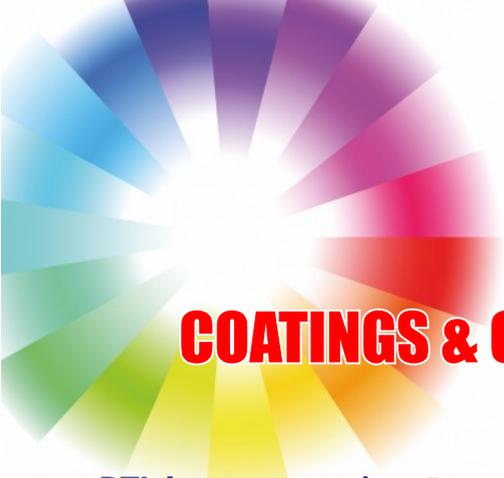
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# Building Industrial Drought Resilience

## Perspectives from the Western Cape

by Jane Reddick of GreenCape's Water Sector Desk

As is widely known, the Western Cape and several other provinces have been impacted by a severe drought. Most municipalities in the province have implemented water restrictions, with several currently on restriction levels 5 or 6, such as the City of Cape Town, Drakenstein, Saldanha, Stellenbosch and Swartland municipalities. While the dams supplying the City of Cape Town have returned to just above 2016 levels (around 66% on 5 September 2018) the municipal water supply in many areas remains critically low. For example, Beaufort West implemented water shedding in early September.

**Many areas  
in S A are at risk  
of future water  
shortages**

Many areas in South Africa are at risk of water shortages in the future, and municipal water supply in the country is currently generally vulnerable to climate shocks. In addition, rising water tariffs are impacting on company profits.

In light of this, it is in the interest of industrial companies throughout South Africa to become more resilient to future water constraints. There are impressive examples of companies in the Western Cape that have implemented measures to significantly reduce their water consumption. The interventions have enabled their businesses to thrive despite the drought and to achieve greater financial savings and positive publicity. These examples and positive spin-offs will be discussed in this article following a brief overview of the drought situation.

To augment and diversify their water supplies, municipalities are tapping into alternative water sources, groundwater in particular. The City of Cape Town's current plans include increasing groundwater and spring water supplies, temporary desalination, potable water reuse and alien vegetation clearing. For more information on the City of Cape Town's response to the drought please see the 2018 Water Outlook, available at: [www.greencape.co.za/content/city-water-outlook-2018-summary/](http://www.greencape.co.za/content/city-water-outlook-2018-summary/).

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The City of Cape Town, and several other municipalities have been forced to increase their water tariffs to enable them to recover the costs of the augmentation projects and to cover their fixed water and sanitation costs, in light of reduced revenue as a result of water saving efforts. The City of Cape Town's industrial water and sanitation tariffs effectively doubled when Level 6 tariffs came into effect on 1 February 2018.

The drought has therefore been a serious challenge for industrial businesses in the province. Insufficient water supply can lead to cut-backs, production losses, retrenchments and even closure. A survey conducted by the Cape Chamber of Commerce and Industry on its members in January 2018, indicated that 79% of the respondents saw the water crisis as a threat to their business. In addition, 28% indicated that the crisis had caused them to halt or postpone new investments in their business.

**79% of the respondents saw the water crisis as a threat to their business**

Despite these significant challenges, there has been an impressive response from most businesses in the province. In the City of Cape Town, industrial water consumption has reduced by around 30% compared to pre-drought levels (2015). Most industrial businesses that GreenCape engages with through our drought-support programme, have implemented projects to reduce their water consumption both in their administrative areas and in their industrial processes.

As an example, smart (online) metering is increasingly being employed as a tool by businesses to better manage their water demand. The online metering allows the user to access near real-time water consumption

**smart metering is increasingly being employed as a tool by businesses**

data, which enables them to rapidly detect abnormal usage or to detect leaks during periods when water should not be used (e.g. during shutdown periods). Once leaks are detected, they can be relatively cheap and simple to fix, compared to other water augmentation projects (such as groundwater abstraction and treatment). Companies that have installed smart metering systems are reporting significant savings, and immediate or quick paybacks (under 6 months), as



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leakages often account for a significant proportion of the water 'consumed' onsite. Sub-metering is also important to understand where the water is being consumed.

**... leakages often account for a significant proportion of water 'consumed' on site**

According to a 2016 Water Research Commission report\* highlighting water saving opportunities in the Metal Finishing Industry, only 20% of metal finishing companies in SA meter their water process lines.

There are also significant opportunities for reuse in industrial organisations. In the metal finishing sector, one of the opportunities relates to cascading (and hence reusing) of rinse water in a 3-stage rinse process. Rinse water, which is one of the major water uses in the metal finishing process, can be reduced by around 90% by converting from single-stage to 3-stage rinsing. There are also opportunities to treat the wastewater to potable standards and reuse the water (such as in the nickel plating process).

Another way in which businesses are reducing their reliance on municipal water is to substitute it wherever possible with treated effluent.

Treated effluent is wastewater that has been treated in municipal wastewater treatment works and is purchased from municipalities. Treated effluent is not potable water and is therefore only suitable for

**.. current cost of treated effluent is R6.80, approximately 12% of the cost of municipal water**

uses such as toilet flushing, fire systems, and other appropriate processes. However, it can be further treated onsite to any desired quality, including potable standards. In Cape Town, the current cost of treated effluent is around R6.80, which is approximately 12% of the cost of municipal water (~R53/kl for industrial users). It is therefore a cost-effective alternative water source, suitable for many businesses.

Treated effluent is not typically used in the metals finishing industry, but it is an option that can be explored by companies for the applications

\* Link available from the SAMFA website Library Page <http://www.samfa.org.za/Library.html>

that tolerate lower water quality, such as rinsing after the degreasing or etching stages. It can also be further treated onsite to potable standards, which is becoming more financially attractive as water tariffs rise. Other industries in the province are exploring the use of treated effluent, such as the construction industry which is increasingly replacing municipal water with treated effluent.

The above are some examples of interventions that businesses in the Western Cape are implementing to save water. Many of these companies are realising that there are many benefits to these projects, including significant financial savings (especially as water tariffs rise), improved resilience to potential water constraints (which limits the risks of cut-backs, losses etc.) and positive publicity.

Other parts of the country are likely to face similar water-related challenges in the future, and it makes good businesses sense to start exploring resilience options now, while there is time to do so.

GreenCape offers a free-of charge drought support service to industrial businesses based in the Western Cape, including metal finishing companies. Over the past year they have assisted around 400 industrial and commercial businesses.

According to a recent survey, on average, these companies reduced their water consumption by 41% over the past year, and the majority (76%) of these companies found GreenCape's drought support to be very helpful. ♻️

**... it makes good business sense to start exploring resilience options now**



Jane Reddick

For any support or queries, please contact Jane Reddick at [jane@greencape.co.za](mailto:jane@greencape.co.za). GreenCape is a non-profit organisation funded by the Western Cape Government, the City of Cape Town and other funders to promote the green economy.



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- Elimination of reworks.
- Improved quality thanks to the consistency of the Encore HD application equipment.

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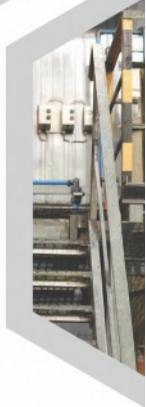
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## **Krome Nano-Protect**

Krome Nano-Protect is a phosphate-free pre-treatment, based on nano technology. It is especially formulated for use in the treatment of steel, zinc and aluminium surfaces. The pre-treatment is free of volatile organic components and increases the corrosion resistance of painted metal surfaces.

Krome Nano-Protect has been developed as an environmentally friendly alternative to existing phosphate or chromate technologies, which have undesirable waste outputs such as phosphates, heavy metals (Zinc and Nickel) or Chrome.

The corrosion resistance performance of Krome Nano-Protect will generally be equal to or better than that of a zinc phosphate with a non-chrome post rinse. The pre-treatment may be applied by spray or immersion applications under ambient conditions and is followed by a deionized water rinse.

### **Advantages of Krome Nano-Protect**

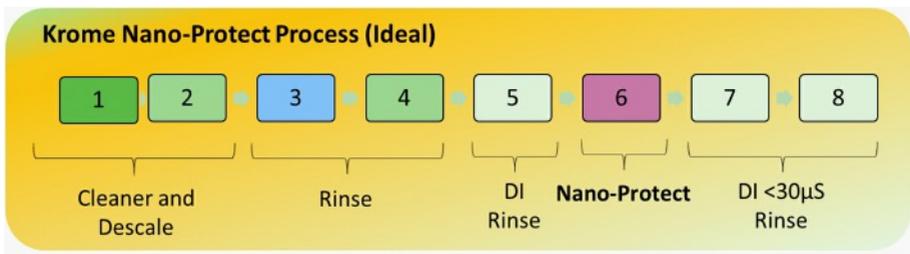
- Phosphate free
- Nickel & Zinc free
- Chrome Free
- No sludge formation
- Runs at ambient temperatures
- Minimal waste treatment

### **What is nano technology?**

Just how small is “nano?” In the International System of Units, the prefix "nano" means one-billionth, or  $10^{-9}$ ; therefore one nanometer is one-billionth of a metre.

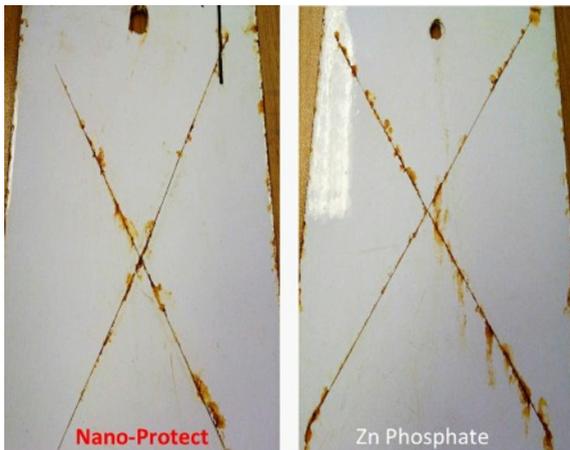
10	10 000	↑	Zinc Phosphating	2-3 g/m <sup>2</sup>
5	5 000			
1	1 000			
0.25	250		Iron Phosphating	+ - 600 mg/m <sup>2</sup>
0.1	100		Chromate Coating	
0.05	50	↓	<b>Nano-Protect</b>	50-200 mg/m <sup>2</sup>
0.005	5			
μm	nm			

### Process Layout



Krome Nano-Protect requires the use of deionised water, which is below a conductivity of 30μS, to give ideal performance. The entire process can be run at ambient temperatures.

### Krome Nano-Protect Performance



Lab Samples

CRS + Powder Paint, NSS @ 600 Hrs

## Samples of panels from an existing customer run through their plant



Corrosion after 1000 hours of Neutral Salt Spray exposure

Further, independent salt spray tests from an existing customer show that, on aluminium, Krome Nano-Protect has passed 960 hours of Neutral Salt Spray exposure.

### Summary

Krome Nano-Protect:

- Can replace conventional Zn and Iron Phosphating.
- Is truly multi-metal – works on Steel, Aluminium and galvanised surfaces.
- Imparts excellent adhesion to paint systems.
- Enhances corrosion resistance.

---

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# How well are we caring for the future of our Industry?

Tony van der Spuy considers the future of the Association and the Industry

I am often asked what the future of SAMFA as an association is. As the original focus of our activities was on electroplating, that question is predominantly tied to predictions on the future of the electroplating trade. However, SAMFA also offers services to the powder coating fraternity and to anodisers. We are also pleased to have the support of some hot dip galvanizing members. The support from all these business sectors has contributed to making the association much more viable.

Over the last year almost everybody in our industry has felt the pinch and the powder coating sector has not escaped. However, the technology is moving ahead in leaps and bounds and the future looks assured. Tougher environmental regulations targeting solvent-based coatings continue to incentivise the switch to powder. Whilst training is a requisite in every industry, the process is not as complex as electroplating and fulfilling powder coating training needs is not as challenging as electroplating.

So for this article we will focus on the electroplating trade. In the foreseeable future electroplating is likely to continue to be the coating of choice in myriads of applications. A forecast from Future Market Insights for the period 2016 -2026 predicts a global compound annual growth rate of 3.7% driven by demand from the automotive, electrical and electronics segments.\* The South African share of that growth is dependent on policies that our government implements in its efforts to grow our economy. Right now, they are making the right noises.

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**electroplating is likely to continue to be the coating of choice in a myriad of applications**

---

## KEEPING UP WITH TECHNOLOGY

Our SAMFA members who supply chemistry, plant and equipment to the metal finishing industry represent major international brands. As new products become available this information gets to South Africa very quickly through these accredited agencies. They ensure that businesses that will benefit are made aware of developments. We are certainly not being left behind.

Our magazine, S A Metal Finisher, is one of the preferred avenues that suppliers use to make end users aware of the latest products. Growing in reputation over the years, our journal has increasingly been relied upon as a Buyer's Guide. Our advertisers make full use of this medium to stay in touch with the market.

\*<https://www.futuremarketinsights.com/reports/electroplating-market>

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## THE CASE FOR MAINTAINING OUR ASSOCIATION

Some things are certain. The original factors that brought us together as an association will not go away, and the necessity for our existence will remain. The industry must have a contact point. Many individuals and organisations need to engage with the metal finishing sector. When there are significant developments locally or internationally that are of relevance to our members we are uniquely placed to be the conduit for this information. We require representation and always will, maybe even more so in the future.

Being a member is a matter of pride. Through our on line presence and publications we strive to foster a distinct group identity and a sense of belonging. The SAMFA website also plays an important role in maintaining the association's visibility 24/7.

Our meetings give us an opportunity to engage with companies, non-profits, other associations and the like, who are interested in metal finishing, and often provide valuable inputs, as for instance the GreenCape organisation in the Western Cape is currently doing.

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**The SAMFA website plays an important role in maintaining the association's visibility**

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## A MODEL FOR THE FUTURE

To continue operating in the future we will always need a national coordinator running a central office which handles the admin and accounting, answers enquiries, redirects enquirers to the most helpful contact within our ranks, produces a newsletter, maintains our website and helps to organise the few regional member meetings that are called. Anyone suitably qualified to handle these tasks could take on the job. A successful candidate will not necessarily require experience as a metal finisher. This will always be an interesting and challenging job. Provided that our membership fees remain at market related rates, funding will be available to remunerate this position.

We have all the templates and materials for our training programmes, and whilst in the future the format may change slightly, I am certain that our regional management committees will be able to draw people from their ranks to be guest presenters at electroplating, powder coating, health and safety, or other courses when a region garners enough demand to organise training on a particular subject. The person supervising the day's presentation does not have to be a subject expert, just a facilitator to keep things running smoothly like ensuring that the presenters' time slots are properly organised.

SAMFA has been established for so long that it is to be expected that the model may change to move with the times. Regional management committees may play a stronger role in the years to come, but as long as there are people practising their trade there will be volunteers who have an interest in serving the industry who will step forward.

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**Management committees may play a stronger role**

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# HI-TECH

## ELEMENTS

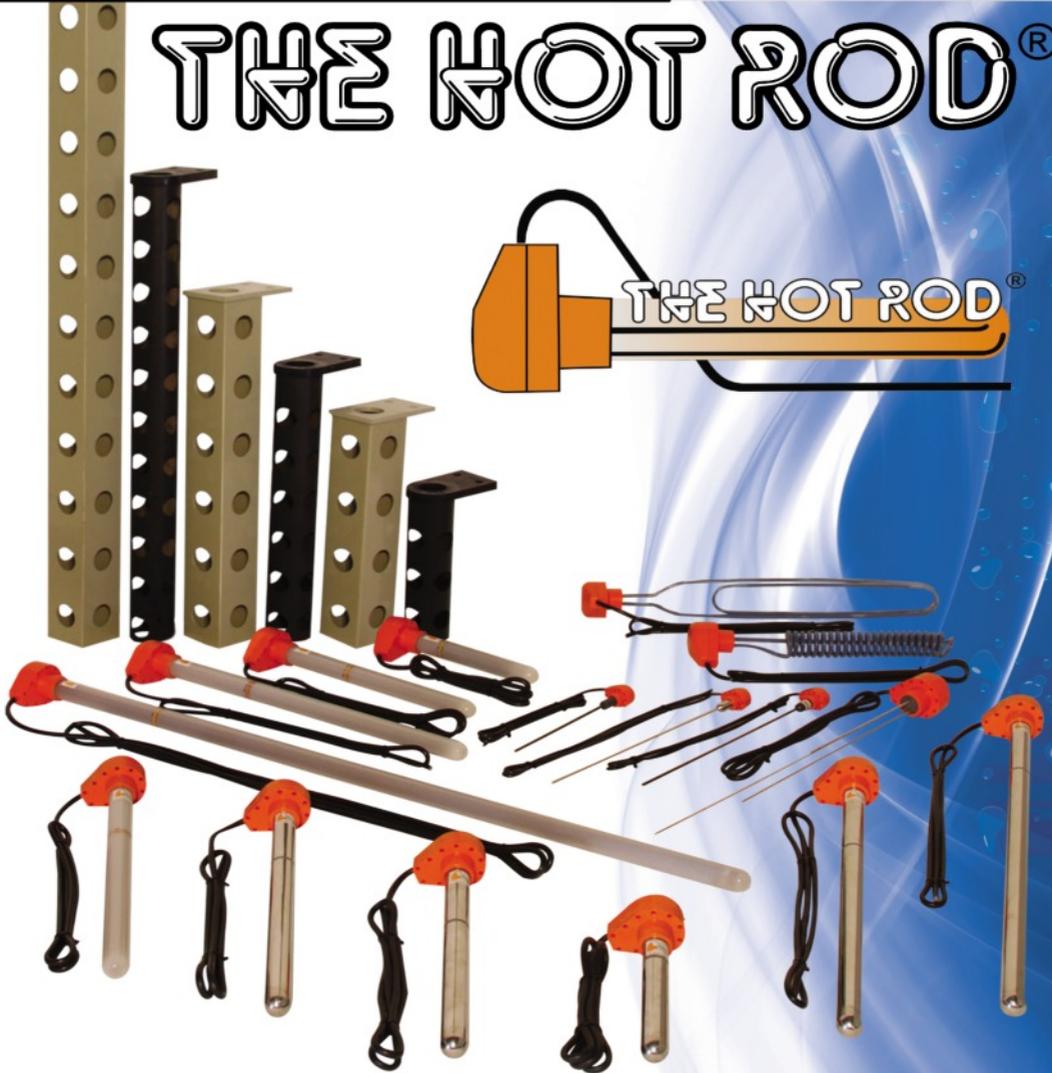
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## THE FUTURE OF APPRENTICESHIP TRAINING FOR ELECTROPLATERS

The second concern is, “Where is the next generation of platers now? After all, it is true the people to whom the industry looks today for advice and guidance are largely of the grey-haired variety. Eventually these stalwarts are going to start taking it easy and retiring. It is one of the reasons why the old guard have been putting so much effort into developing an electroplating apprenticeship.

The way that people should be entering this industry, as it was decades ago, is by starting at the bottom of the ladder, getting practical experience in the work place whilst attending a technical college part time to properly understand the theory of the job at which they are hoping to excel.

We have learned that FET colleges will be the way forward. SAMFA’s JHB based consultant, Hazvinei Munjoma, made initial contact at the **Ekurhuleni West College** in Germiston with the very enthusiastic Gugu Matthews, manager of the Business Unit.

She believes that electroplating is an important trade and the industry could offer career opportunities to their trainees. If the college implements this training, avenues for funding are available to the institution.

---

**Avenues for funding are available to the institution**

---

The Gauteng regional executive represented by Darren Fox, Gary Joseph and Ross Wilson met with Gugu Matthews and other college staff members on March 28, 2018. Hazvinei Munjoma and the writer formed part of the SAMFA delegation. At this meeting the college representatives expressed their full support for being trail blazers in re-establishing electroplating training in this country.

SAMFA was invited to assist with the procurement of quotes from plant building members to install a small fully equipped electroplating plant in new workshops under construction on their Tembisa Campus. These quotes have been provided.

To show commitment to the new cooperation with EWC, SAMFA was invited to visit these workshops at EWC Tembisa Campus on July 25. They are an expansion of the existing workshops and will house the following trades: autobody spray painting, carpentry, fabrication and welding. The workshops are expected to be commissioned before the end of this year.

EWC management is considering allocating the available space within the new facilities to electroplating. SAMFA was requested to submit the draft drawings of the proposed electroplating workshop to assist EWC in determining space requirements. Once the decision is made, the shortlisted subcontractors for the electroplating workshop will be invited to provide revised quotations based on actual floor space and other civil works required.

In summary, platers of the future may well come from FET colleges. Some may enter the industry with qualifications in analytical chemistry, and some will migrate from other sectors of the engineering trade because they find the trade fascinating. Whatever happens, it is unlikely that the trade will die out, or that there won’t be people willing to carry the industry forward in the future. 

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# Determining a Price for Plated Work

As a new owner of your own plating shop, or as a newly installed General Manager of someone else's business, you are very keen to get the pricing of your service right. Very soon you realise that the exercise is far from straightforward. In this article John Danks, retired MD of Saayman Danks Electroplating shares some thoughts on the subject. With additional context by Tony van der Spuy.

It should be said at the outset that determining a price for plated work is usually of more consequence to a jobbing-shop plater than it is to a captive shop housed in a manufacturing facility. If a company manufacturing products and plating them in-house is enjoying good profits overall they are unlikely to expend a lot of effort in doing accurate costing on the plated fraction. For the jobbing shop, costing is much more critical. You can't make up on the lines what you lose on the squares. Determining a competitive price that also generates profits is vital. Uncompetitive leads to loss of business and ultimately, the end of the road.

Determining a competitive price that also generates profits is vital.

Normally when you manufacture an item, material is a large part of the cost. Not so when you coat an article. Your material (metal) costs are relatively low unless you are talking gold, platinum etc. So working out the surface area and establishing the cost of metal is seldom going to give you the full picture. For a new business starting to offer a plating service to the engineering industry the costing exercise is fraught with pitfalls.

Doing accurate costing is far easier when you have an existing business with historical data freely available. In this case, the costs of running a particular line can be ascertained from studying your monthly bills. Costs will include labour, water, electricity, chemicals, effluent treatment, metal, maintenance, rent, overheads, managing, deliveries and collections, wear and tear, insurance, accreditations and any others that I may have left out.

Costing is easier when historical data is freely available

If you are providing only one type of plated finish, for instance zinc, it is a relatively straightforward exercise to total these costs and arrive at a figure representing the overall cost of the service. From there on you can work out how many bars\*/jigs/items you can process in a normal working day and multiply by 21 ( a normal month). You are then in a position to divide your production capacity into your monthly costs and arrive at a figure which should represent the minimum cost per cathode bar or jig. This is only a starting point!

*\* Bar cost refers to the cathode bar loaded with components for plating*



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Let us say that you calculate your bar cost to be R 200. You need to make some profit so this has to be added on top of that cost. Maybe you will be satisfied with a markup of 50% (margin of 33%) so the bar cost is now R 300. If for instance you are getting 100 items onto that bar it is a simple exercise to say that logically the price per item should be R 3.00 per unit. (R 300 divided by 100 items).

Now here lies the rub. The first assumption is that you have a full plant all month! But unless you have contractual commitments guaranteeing you a constant flow of work you will be chipping away at your profit for every hour that the plant is idle. The second assumption is that your efficiency is 100% . That should be what you are aiming for but in a real life jobbing shop environment you are very unlikely to achieve this.

You will be chipping away at your profit for every hour that the plant is idle

The above is a simple scenario - taking your monthly costs and dividing your production volume into that cost to come up with a price per piece or per kg processed. This system works best when you are providing just one finish (like zinc or nickel plating) on jigs only, or providing one finish in barrels only. With barrels you can take the monthly costs, the number of barrels you can process per day and come up with a per barrel cost based on the optimum barrel load.

If you are doing both **rack plating** and **barrel plating** even if you only providing one finish (either zinc or nickel for instance) you will have different costs for each method of plating. Generally vat plating is more expensive than barrel plating mostly due to the handling costs and lower volume throughput per hour. Now you have to try to allocate the actual cost of running each line.

It gets more complicated when you are offering two or more different finishes - both zinc and nickel, for instance. Even if it is something relatively simple like plating of only mild steel hardware items both in the barrel for smaller items and in the vat (rack plating) for larger pieces. Essentially you are now offering four products - barrel plated zinc, rack plated zinc, barrel plated nickel, rack plated nickel each with its own cost structure.

### You Need to be a Whiz with a Spreadsheet

Someone who appreciates the full picture will need to come up with a costing system based on consideration of all the factors. Percentages on each process line allocated to labour, water, electricity, chemicals, effluent treatment, metal and so on. Proper use of a spreadsheet system that you develop over time will be invaluable.

Proper use of a spreadsheet that you develop will be invaluable

### You Cannot Match the Price of all Competitors

It stands to reason that capacity has a large bearing on costing. A plater with a 3 m zinc vat cannot offer the same price as a plater who has 2 x 6 m vats. If the 3 m operator can manage 100 pieces per hour than the 2 x 6 m operator can manage 400 pieces per hour.

....to page 50



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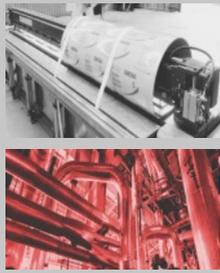
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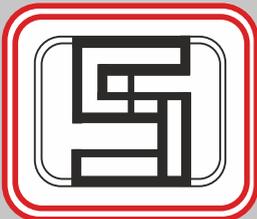
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A plater with a 6 station 50 kg barrel line will outperform a plater who has a single 10 kg barrel in operation trying to process the same work pieces. It's all about the economies of scale. Many of the big plater's costs will not differ much from that of the smaller plater. He can spread those costs over a bigger turnover. He probably still only needs one bookkeeper, one receptionist, etc, etc. He may be paying a much lower rental per m<sup>2</sup> or he may own his building. And he probably has better buying power. What this means is that you need to specialise at what you do well at a price that brings profits. Produce quality, quickly, efficiently, reliably.

You need to specialise in what you do well at a price that brings profits

### **Additional Costs to add to your Base Price**

An additional premium must be added for anything that complicates a straightforward job. Be sure to consider these before settling on your final price.

#### **Pre-Treatment**

Some base metals may need special pre-treatment. There is a big difference between plating clean mild steel brackets straight from a metal pressing operation as opposed to plating high tensile black bolts such as grade 12.9 material. Your pre-treatment costs will be considerably higher for the black bolts. Include this in your price.

#### **Jigging Considerations**

Remember hidden costs like jig making and difficulty of racking and draining the items (Drag out). If you are jigging with copper wire you have the extra cost of this plus the extra surface area for which you do not get paid. It is quite significant on more costly metals. All the more reason to use jigs that are properly made and coated that give you a consistently better finish and will save money in rejects and copper wire.

#### **Rinsing Problems**

Determine whether the item presents any entrapment problems. Blind cavities, threaded holes and folded seams that retain solution can be a nightmare to rinse. You may need extra hot and cold rinsing steps, agitation by eductors or air, or one or more of several expensive options like ultrasonic rinsing and/or vacuum drying.

#### **Stripping and Recovering**

While we are on the subject of rejects (yes you will have them) how difficult is it to recover them after a botched plating attempt? Will the customer accept a reasonable scrap rate or does he count every washer he sent you? You need to establish this before you start the job.

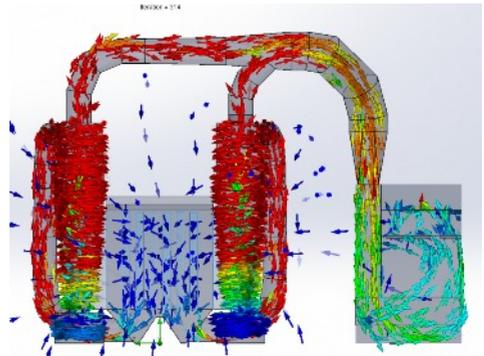
Will the customer accept a reasonable scrap rate?

- Zinc on mild steel is simple to strip off and re-plating usually presents no problems.
- Stripping off a copper-nickel-chrome coating from mild steel or brass is costly.

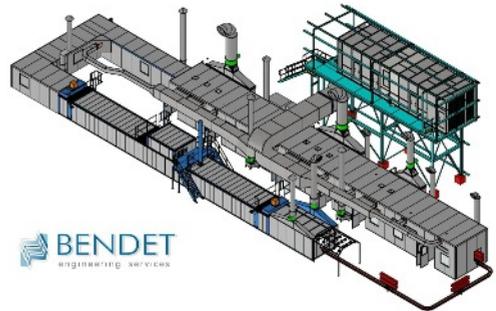


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- Stripping it from a zinc-based die casting can be very difficult, increasing the risk factor for total ruination of the work pieces. Consensus usually being that it is less expensive to re-mould the parts than to attempt recovery. (The client may attempt to sue you for destroyed parts unless you have a written agreement on this point)

### Depreciation - a Real Cost

Your plating plant is operating in an extreme environment and will not last forever. Depreciation is a real cost. Include it in your costing spreadsheet. Make sure you have made enough to replace it when the time comes.

### Specification Plating

A very important consideration in the costing would be the specification, if any, required by customer. How much documentation / paperwork and testing does he want? This can be very costly. You may have to buy specialised testing equipment to meet the requirements.

If you do decide to take on work that demands you acquire ISO certification, remember that compliance does cost money. Specifically, it is administering the system that requires manpower and you cannot selectively apply ISO standards. All your clients' work will be managed to the same system, even if some don't want or need it. The clients that are insisting on ISO certification must be prepared to pick up the tab.

The clients insisting on ISO certification must pick up the tab

### Overtime

If a client has unrealistic expectations as to how quickly you can turn his work around make sure that he understands that you will charge a premium if he insists that you work overtime. Get him to agree to this before you go ahead.

### Additional Costs to Make Components Plateable

Does the item require surface finishing before plating such as de-burring or polishing? Make sure that you examine the job carefully to determine if such extra preparatory work is required and cost accordingly. Some work requires the drilling of drainage holes. Who is going to do this, the client or you?

### Don'ts

**Do not** take your opposition's price and cut it by 10% because he may not have priced it right himself. Alternatively he has far bigger capacity and is more efficient than you are or has geared up specifically for this component.

**Do not** try to cut the plating thickness required, as your costs will not improve much and putting out sub-standard work will soon boomerang negatively on you.

**Do not** throw your waste water in the river/drain without treatment to save money (this is just criminal) and if you are caught out it could literally cost

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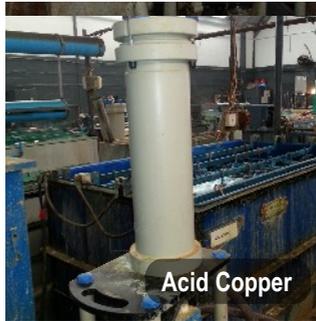
Acid Zinc



Electroless Nickel



Rod Pickling



Acid Copper



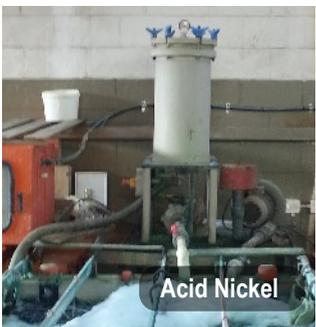
Acid Copper



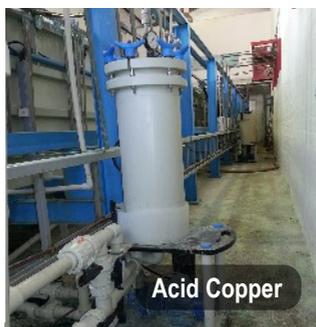
Plating on Plastics



Cyanide Copper



Acid Nickel



Acid Copper

you millions. Remember that environmental responsibility is now legislated as a “cradle to grave” obligation.

**Do not** try to get business by slandering your opposition (show him you are better)

### The Bottom Line - A Multi-Pronged Approach to Costing

The tenor of this article may seem to suggest that determining a reasonably accurate price for your coating service is impossible. But it is not. It just requires some serious effort and you need to have a multi pronged approach, using up to three different methods and comparing the results. Some points worth noting:

**It does make sense to determine a surface area for each workpiece that you process. Either surface area per 1000 or even 10,000 units for small parts, and per each or per 100 for larger parts.**

If you know the surface area, and the average thickness you are aiming for then a simple table (available from SAMFA) will give you the weight of metal you will deposit. You know how much you are paying for the metal. Now you need to consider what percentage of the final price the metal component should be. Let's say that you have determined you'd like the zinc metal to represent 2.5% of the selling price.

As an example, lets say that 1000 components has a surface area of 1000 dm<sup>2</sup>.

Let's say you are aiming at a deposit of 10 microns of zinc.

According to the table 10 microns of zinc on 1 dm<sup>2</sup> will weigh 0.7135 grams

Multiply that times the surface area of 1000 dm<sup>2</sup> and you get 713.5 g of zinc

If zinc costs R 50 per Kg then the cost price would come to R35.67

If you want that to represent 2.5% of your overall price then we have to multiply that times 40 and the price then becomes R 1426.80 for 1000 pieces.

So we get a guideline price of about **R1.43 each**.

### Compare against a Second Method of Costing - Throughput per Cathode Bar

Now we need to check that against another method of costing. This is where you consider the number of these components that can fit in your plating vat. Let's say you have a 6 metre plating vat accommodating one cathode bar of work.

Let's say the parts are 80 mm discs and you can get 60 across and 3 deep or 180 pieces per bar. **If you did determine as per the example earlier that you want to get R300 per bar per cycle** then the unit price using this method is R 300 divided by 180 or **R1.66** per component.

**The above examples are not connected to any real life situation as far as pricing goes. They are only examples of methodology that can be considered. Actual percentages and Rand values are just for illustration.**

....to page 57



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## Compare against a Third Method of Costing - Benchmark Pricing

In many markets it is easy to establish a benchmark price. For instance, if you are selling hardware items, then visiting wholesalers looking at the pricing of a range of products similar to yours will be a good guide. There will also be online information.

A plater has not got so many options. But he can:

- Speak to another SAMFA member operating in a different province and ask him to give an indication of what his price would be to do the job. Alternatively he can ask what percentage of wages versus turnover he works on. You will usually get an honest answer.
- Ask the Buyer. In many instances the Buyer you are quoting will be prepared to guide you in fixing a price.
- Ask a dissatisfied client. A client unhappy with the opposition is often prepared to disclose what he is paying. But beware! He may be honest but he may have just been confronted with a large increase from the other plater. Or the client may have had his supply frozen due to outstanding debt.

Being aware of competitor prices does not mean that you have to change your price, but it helps to know whether you are in the ball park or not.

Being aware of competitor prices helps you know if you are in the ballpark

Don't get your secretary to phone your opposition pretending to be a company looking for a price to plate thousands of units of a particular type. Most company owners will ask to phone back, or they ask you to put it in writing. Or mislead deliberately. Or they may guess who's phoning and that's embarrassing.

**Price Structuring.** Client A spends R 25 000 per month and pays his account on sight of statement. Client B spends R 2 500 and has to be continuously prodded to extract payment. Your pricing model should comprise an A list and a B list and even a C list to cater for these differences. **And keep them absolutely confidential!**

Finally, learn to price for the circumstance. **Example:** A ship in dock is undergoing maintenance. It must sail within 24 hours. You are approached to re-plate 3 Kg of small components the engineer urgently needs. There are hundreds of individual pieces and not one must be lost. You need to document each piece. Your top plater will have to shepherd it through each process station. Overtime will be necessary.

Give them a price that rewards you for your effort

So don't give them your minimum rate of R 250 or whatever it is. Give them a price that rewards you for your effort handsomely. Guarantee that they will get each piece back and that you will deliver it to the ship. And make sure you do a brilliant job! 🔄



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