

APRIL 2021, ISSUE 19

Industry Insights

The Australasian Institute of Surface Finishing

Secretariat's message



To All AISF Members and Industry Stakeholders,

Recently I had the pleasure of visiting the Oxytech site in Smithfield, Sydney as we were looking at their facilities for our NSW Powder Coating training. While there Scott Barter and Chris Sweetnam decided to put me through the powder coating training and "have a go" at coating some mag wheels which Scott had in his premises.

I was a little apprehensive, as I have never held a coating gun before and have been researching the Safe Work Australia reviews on working safely with chemicals, however once Scott hooked me up to CleanAir UniMask and AerGo (I have included a product sheet in this newsletter), I felt protected from the risks from exposure to the airborne contaminants. I think protecting yourself and staff from potential exposure risks is a very important subject. During COVID, people accepted the need to wear masks to reduce exposure risks, however we often forget that our PPE also needs to be checked, cleaned, filters replaced, etc. to ensure we are gaining the maximum protection and performance from our equipment.

Before the end of the financial year is a great time to ensure you have adequate supply of PPE and maintenance equipment. If it is in your budget, stock up otherwise it is a great opportunity to review your budget allocations for the following financial year and allocate further funds accordingly.

While our advocacy work is continuing with Safe Work Australia currently reviewing Sulphuric Acid and Titanium Dioxide which our industry regularly uses, the need for individuals and companies to ensure they have the maximum protection available remains prevalent.

We are always welcoming of members enquiries and their input to how we can make our institute work for and with you, so please feel free to reach out to me if you have any questions.

Kind regards

N.Miles

AS1231 - ALUMINIUM AND ALUMINIUM ALLOYS— ANODIC OXIDATION COATINGS

We are putting a call out for members of the Anodising community to assist us with reviewing and re-writing the Australian Standard which guides the Anodising practices.

To be eligible to join this technical working group you must have relevant practical experiencing with Anodic Oxidation Coatings on Aluminium and Aluminium Alloys and also be a member of the AISF.

Contact our Secretariat today to register your interest.



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safe work australia

Cr(VI) Hexavalent Chromium Emissions Update

Last year we notified our members and the broader Electroplating industry that Safe Work Australia reviewed the recommended maximum exposure limits for working safely with Hexavalent Chromium. On behalf of the affected members of the AISF, we sent a submission against the proposed amendments as the proposed changes would heavily impact the Chromium Plating industry.

Following an adjournment due to Covid-19 the Review process of emission standards of all workplace airborne contaminants has been restarted.

All submissions to the proposed hexavalent chrome changes have now closed with all correspondence currently being reviewed.

We have been advised that the Safe Work committee met early as all of the submissions were received and we have been notified that our submission was accepted, and final consultation is underway with a likely positive outcome for our members.

The recommended changes to the Workplace Exposure Standards (WES) will be published on Safe Work Australia's website after a decision has been made by Work Health and Safety Ministers.

Changes to the WES only become mandatory once adopted in the WHS laws in the Commonwealth, states and territories. There will be a standard three year transitional period for duty holders to comply with any amendments.

As Safe Work Australia is not a regulator for WHS, please contact your local WHS regulator for further advice on WES implementation timelines in your jurisdiction. Contact details for all WHS regulators can be found on the Safework Australia website.

H₂SO₄ Sulfuric Acid Emissions

Safe Work Australia have now released their draft evaluation reviewing the workplace exposure limits for Sulfuric Acid.

Sulfuric Acid is commonly used across all sectors of surface finishing including anodising, electroplating and powder coating. The reviewed exposure limits, which are a 10 time reduction in existing limits, will predominantly effect our Anodising members. The AISF have reviewed these proposed reduced limits and we will be preparing a submission to represent our industry members as the current proposed limits are below the current measured limits and could have a major impact on the manufacturing of anodised products in Australia. If you are not currently a member of the AISF and would like to get behind our submission to represent your business, please contact our Secretariat today on admin@aisf.org.au.



**Anodising
Urgent Industry Discussion**

The AISF is pleased to invite our Anodising community to an urgent Industry Discussion regarding the proposed changes to our industry. Topics include Safe Work Australia's proposed new maximum exposure limits to Sulphuric Acid & an update on the AS1231 revision plans.

Book online today to avoid missing out.



ATA
AISF TRAINING ACADEMY

UPCOMING TRAINING

Introduction to Powder Coating

Wednesday 12th & Thursday 13th May 2021 - New South Wales

Wednesday 14th & Thursday 15th July 2021 - Victoria

Wednesday 15th & Thursday 16th September 2021 - New South Wales

October 2021 - Dates to be confirmed - Queensland

Electroplating basics & Cyanide training

We are now able to offer individual training at your business for an hourly rate. Contact us today.

Contact us today

to register for training: www.aisf.org.au

NSW GOLF DAY



The AISF held our annual golf day was held on Friday 12th of March at Georges River Golf Club in NSW, with 30 players participating in this years Ambrose event. The invitation was opened to members and non-members of the AISF to participate in this fantastic opportunity to take a break from work and get to know their fellow surface finishers.

Despite early morning rain and threatening showers all afternoon we escaped the wet and teams were able play some good golf and register competitive scores.

The eventual winners were John Cantrill's defending champions who narrowly defeated the Craig Blair led team from Astor Metal Finishers. We had a lot of prize donations available on the day, and our appreciation goes out to those in attendance and the companies for their sponsorship during the day. Our thanks go out to all those companies and individuals who supported this years successful event.

Tim Elley.

MEDIA RELEASE

DuBois Chemicals Australia acquires Elite Surface Technologies

31st March, 2021

Earlier this year DuBois Chemicals Australia (DCA), a division of USA company DuBois Chemicals, acquired national metal finishing supplier Elite Surface Technologies. "This acquisition fits into the DuBois Chemicals strategy of becoming a leading global supplier of speciality products into the manufacturing industries" said DCA CEO Scott Bristow. "We have maintained local distribution rights for MacDermidEnthone processes into the metal finishing sector, Cee-Bee® Aviation products, Magni Dip-Spin coatings and Whitford PTFE products. These will be valuable additions to DuBois Chemicals own brand of products for auto-care, mining applications, food and beverage, and our CIMCOOL® range of industrial and metal working lubricants."

With the majority of the Elite Surface Technologies staff transferring across to DCA, customers will still retain the same level of supply and technical support previously offered. Product manufacturing will continue at Elite's ISO:9001:2015 accredited Victorian site in Dandenong, with solution analysis and product testing, including NATA Certified corrosion testing, still being performed at state branches.

"These are exciting times for our company, staff and customers; DCA have confidence of an expanding Australian manufacturing sector and want to be part of that growth" added Mr. Bristow. "We look forward to having an increasing involvement with the metal finishing industry and working with businesses to assist with all of us achieving our goals".

Welcome
The AISF would like to welcome
DuBois Chemicals to the Australian
Surface Finishing market.



Scott Bristow

TECH TALK

Effect of good quality rinse water on Metal Pre-treatment

To ensure optimum powder quality and durability metal parts must go through a pre-treatment system prior to powder coating. The first step in this process is a cleaner which removes organic and inorganic soils, oil, grease, polymers, soaps, oxides, and particulates from metal parts which would otherwise prevent powder coatings from mechanically bonding to the surface. Following this step there are a variety of conversion coatings designed to improve adhesion and corrosion resistance of the painted surface.

With a large focus on the chemicals going in other important factors in the process which can greatly improve the efficiency and effectiveness are often overlooked. Other important factors include the mechanical setup of spray nozzles, the temperature and time of the process, and perhaps most overlooked and what this article will focus on, the quality of the rinse water.

Poor quality water with a high number of dissolved solids limits the effectiveness of chemical stages, leading to a greater chemical usage. Poor rinse water quality will also negatively affect the adhesion and corrosion resistance of coated surfaces. When water evaporates chlorides, sulphates and calcium salts are left behind. Salts remaining on the surface can serve as an initiator for the corrosion process.

A powder coated surface acts as a semi-permeable membrane allowing some moisture to pass through the polymer film. On areas where there is poor adhesion of the powder to the surface, moisture readily permeates the coating film causing it to swell causing it to lift lifting the coating film, creating blisters.

Salts left on the surface will absorb moisture until the salts dissolve back into the water, this breaks the weak bonds that may have existed between those left-over salts and the powder. With the adhesion lost the water enters under the film causing it to swell and lift the coating.

Because of these negative effects rinse water quality must be carefully monitored and controlled and the most simple way of monitoring it is by analysing the conductivity.

Conductivity:

Electrical Conductivity often just called Conductivity, is a measure of how easily electricity can pass through a material. The standard unit most commonly used is microSiemens ($\mu\text{S}/\text{cm}$) and readings in drinking water are usually between 30 and 2000 $\mu\text{S}/\text{cm}$. Salts release charged particles into solution that are capable of carrying an electric current, therefore a greater amount of salt in solution will increase electrical conductivity. Seawater for example has a conductivity around 50000 $\mu\text{S}/\text{cm}$. A conductivity probe works by sending a charge between two prongs, the resistance to this charge passing through the solution is how the conductivity is measured.

Total Dissolved Solids (TDS) and conductivity are often used interchangeably however they are not the same. TDS refers to the number of substances which have been dissolved in the liquid. TDS is most commonly estimated from measuring electrical conductivity and then multiplying by a conversion factor, this factor can range from 0.4 to 1.0 depending on the sample however 0.67 is the most frequently used.

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Depending on where you are in Australia your tap water may have a vastly different quality and this should be a consideration when sourcing your rinse water. The Australian drinking water guidelines are listed below:

TDS (PPM)	Palatability
0 - 600	Good
600 - 900	Fair
900 - 1200	Poor
➤ 1200	Unacceptable

Rinse Water quality:

The final rinse water quality is crucial and should be carefully controlled by measuring the conductivity levels. Battery operated meters are widely available to test conductivity. The recommended limits for final rinse conductivity vary from ranges of 30 $\mu\text{S}/\text{cm}$ up to 100 $\mu\text{S}/\text{cm}$. The Australian Standard for powder coating architectural aluminium (AS3715) recommends a maximum final rinse of 80 $\mu\text{S}/\text{cm}$. The recommended maximum final rinse conductivity by the widely followed international architectural standard for Powder Coated Aluminium, Qualicoat, is set at a maximum of 30 $\mu\text{S}/\text{cm}$.

Controlling Conductivity:

Mechanical Solution:

If local source water is of high purity overflowing of rinse stages can be an effective and cost saving means of controlling rinse water conductivity. Source water of high purity is pumped into the final rinse at a rate fast enough to maintain a conductivity within the desired limits. Water is conserved by overflowing or backflowing the final rinse water into earlier rinse stages. The potential for source water quality to vary and chemical carry over means that is process must be constantly monitored to ensure conductivity remains within acceptable limits.

Reverse Osmosis (RO):

A Reverse Osmosis (RO) system purifies the water by forcing it through semi-permeable membranes to separate ions and larger particles. RO systems can reduce the conductivity to between 70 and 400 $\mu\text{S}/\text{cm}$. RO units are moderately expensive and require some chemical to regenerate membranes, however, are cheaper to run than the full ion exchange setup.

RO units are most useful when the conductivity of local source water is far higher than RO output to generate water for chemical bath makeup. RO units are not recommended for final rinse where the best coating performance is achieved on with de-ionised water.

Ion Exchange Process:

An Ion Exchange process creates De-ionized water which can be fed into a final rinse. It achieves this by pumping water through columns which contain resin. The first stage called the carbon column removes organics and particulates. The next stage metal ions are replaced with hydrogen ions by a cation exchange resin. The last stage the acid is removed through an anion exchange.

A well-maintained DI final rinse with an Ion Exchange system is the best way to remove salts, chlorides, and other matter. Ion Exchange is the most expensive solution as columns must be periodically regenerated with chemical. There is also the setup cost as pure water is corrosive and requires stainless steel construction and corrosion resistant components.

For more information on this and other topics, join us at one of our Powder Coating courses in Melbourne or Sydney.

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RFU837

The highest level of breathing protection with enhanced inner airflow regulation and a visor with excellent optical and mechanical features make this universal light face shield a true leader of its class.

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- The highest class of breathing protection TH3
- Enhanced inner airflow regulation
- Light weight – only 380g
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- Safety helmet compatible
- Neoprene or textile face seal option
- Easy to use and adjust
- Fast and simple maintenance

Applications

- Building Industry
- Automotive industry
- Shipbuilding
- Heavy Industry
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Low Weight

NEW



Wide Vision Range

Antifog / Antiscratch Coating

Easy to adjust and comfortable



Neoprene or textile face seal

Product Code	Description	Pack Qty	Boxes per Carton
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RPA530	CleanAIR AerGo PAPER Belt Unit	1	5
RCA544	CleanAIR Basic EVO PAPER Belt Unit	1	5
RCF549	CleanAIR Flow Master with belt and flow indicator	1	5
RFH529	Light Flexi Hose	1	5
RUV842	Spare Protective Visor for UniMask - Clear	1	5
RUV843	Spare Protective Visor for UniMask - Amber	1	5
RUV844	Spare Protective Visor for UniMask - Shade 3	1	5
RUV845	Spare Protective Visor for UniMask - Shade 5	1	5

Approved Combinations

CleanAIR® AerGo®
RPA530



CleanAIR® Basic
RCA544



CleanAIR®
Pressure Flow Master
RCF549



CleanAIR®

UniMask Protective Face Shield Features

Easy and Quick Changing of the Visor

In case the visor has to be replaced or separately cleaned, it can be easily removed and attached back to the hood using two simple locking knobs.



Quickly Exchangeable Face Seal with Easy Maintenance

The face seal ensures secure and comfortable fit for the wearer. Thanks to a fast clickin system the face seal can be easily and quickly removed and attached back. The face seals can be washed in a washing machine and even dried in the dryer.



Inner Airflow Regulation



Safety Helmet Compatible

The UniMASK can be used with a wide range of standard safety helmets to provide a handy solution of head protection combined with protection of the face and respiratory!



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- > Slim profile.
- > Universal usage.
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- > Constant airflow.
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- > Comfortable exchangeable belt.
- > Unique filter sealing, provides perfect unit seal after every filter change.
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Applications

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Shipbuilding Industry	Building Industry
Welding	Agriculture

Code:
RPA530



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