International METAL DECORATOR

In This Issue

Annual Scholarship Golf Outing

Tuesday, May 23, 2017

It's the most wonderful time of the year; again. With the IMDA Conference on the horizon, we look forward to spending time with our friends, peers, and industry leaders. Given that the Conference agenda provides plenty of time for networking, it is good to insert time into our personal conference schedules for cultivating and enjoying our valuable relationships.

We are once again hosting the Annual Conference at the Hilton Oak Brook Hills Resort in Oak Brook, IL and for those who are attending, and did so last year, you will see welcoming improvements to the facility. With lobby improvements, upgraded restaurants, and meeting room enhancements, the changes will heighten your Conference experience. If you are attending, please make your room reservations now before the hotel fully books our block.

We continued to improve our Conference agenda through the efforts of the Planning Committee in the past few months and we think that you will agree. Take a look at the Event Section of the website for more detailed information on the program. Our exhibit area will be expanded this year to allow for more tabletops and to have a larger congregation area for networking. As of this writing, our exhibit registrations are tracking ahead of last year at this time as is the attendance and sponsorship. Given the stats, we should have more than 300 in attendance. The Excellence in Quality submissions arrive regularly and we are sure that the "craftsmanship" wrapped inside the boxes is second to none. Be on hand on Wednesday, May 24 as we reveal who the award winners are.

Our Golf Outing is filling up so you should not delay getting reserved for a spot to play. Not playing, you can still enjoy the day's camaraderie by attending the evening's banquet. No matter what, you will certainly have a great time! We have to thank both the Scholarship Golf Committee and the Conference Committee for volunteering to make this really a wonderful time of the year!

We hope to see you in May
IMDA Officers and Board

2017 IMDA Annual Conference

Hilton
Oak Brook Hills Resort
Oak Brook, IL

May 23- 25, 2017

New Members

We are excited to be inducting more than 35 new members into the IMDA during our May Conference. We encourage those new members to register in the new member section of our website, **www.metaldecorators.org**.

Meet Your Board

Paul Fennessy, Senior Manager, Crown Graphics

Paul has more than 25 years of experience in the areas of graphic design, printing, and customer service. Prior to Crown, he held a Director of Operations position at a pre-press firm in Ft. Washington, PA, as well as an Art Director position for a Publisher in Center City, Philadelphia, PA. Paul joined the IMDA Board of Directors in 2016 and serves on the Conference Committee.

Scholarship

Our group of 2017 IMDA Scholarship Applicants is large in number and superior in capabilities. The judges will have a formidable task of selecting the most deserving of students who will share the $7500.00 worth of scholarships being awarded during our Annual Conference in May. The announcements will be made during our luncheon on Wednesday, May 24.

Dues are Due

Thank you to those who have submitted the dues payment for 2017. We appreciate your continued support. If you have not submitted your payment yet, we urge you to do so, especially if you are going to attend the Conference registering at the Member rate. If you need another invoice, please email us at **info@metaldecorators.org**. We will also be sending out reminder notices in the near future to assist those who are need to keep their membership status in good standing and to be included in our new directory which will be produced in the next few months.

Decorators of the Year

It's not too late to nominate one of your finest for our prestigious Decorator of the Year Award. You can find the application on our website. We will honor the chosen recipients during our Awards Luncheon on May 24th.

Memorials

We are saddened to report the passing of long time member William Howard in December, 2016. Bill spent more than 50 years working for Crown Cork & Seal and was an IMDA Honorary Member.

DecoDates

April 27-28, 2017
The Beverage Forum
Chicago, IL
beverageforum.com

May 2-6, 2017
Metpack
Messe Essen, Germany
www.metpack.de

May 4-10, 2017
Interpack
Dusseldorf, Germany
Interpack.com

May 23, 2017
IMDA Scholarship Golf Outing
Hilton Oak Brook Hills Resort
Oak Brook, IL USA
Tel: 410-252-5205
E: info@metaldecorators.org

May 24-25, 2017
IMDA Annual Conference
Hilton Oak Brook Hills Resort
Oak Brook,IL USA
Tel: 410 252 5205
E: info@metaldecorators.org
metaldecorators.org

Oct 30 - Nov 1, 2017
Asia CanTech 2017
Bangkok, Thailand
www.asia-can.com

Nov 15 - 17, 2017
Chinacoat 2017
Shanghai, China
www.chinacoat.net

May 15-18, 2018
Cannex
Guangzhou, China

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See Enclosed Rate Sheet

The Strategy of Maintenance
What is "FIWIB"?

by
R.W. Stowe

reprinted from
Fusion Focus

We often don't think of maintenance in strategic terms - usually it's thought of as some kind of necessary evil that involves cleaning and repairing stuff.

But if we think of maintenance as "getting the most out of what we bought," then *maximizing use life* becomes the objective.

There are several strategies for maintenance. No one strategy is always the most effective. In fact, the most economical strategy will depend on what you are doing. Often, the best choice will depend on the cost of production *downtime* in the event of a component failure.

Here are three:

- FIWIB
- Spare Tire
- Scheduled PM

(**A**) FIWIB – "Fix It When It Breaks." In a laboratory or in low-volume production, this may be an O.K. plan. It's easy enough to stop and replace a part whenever it needs; a part will fail whenever it's ready to fail, *whether we are or not.*

(**B**) "Spare Tire:" In production, where a line can be stopped momentarily, a spare power supply and/or spare irradiator(s) can be kept available for 'swapout' when needed. Any offender can be repaired off-line and then be available. The repair can be limited to whatever part has failed (as in FIWIB), or the module completely refurbished.

(**C**) "Scheduled Maintenance:" For production with a high bill-rate (cost per minute), or production that simply ***cannot*** be interrupted by maintenance, the lamps and power supplies can be refurbished (with new consumable items) after a fixed number of running hours (for example, 2,000 or 3,000 or 5,000, depending on operating stress).

Plans **A** and **B** generally yield the lowest component cost, because they are operated to (or nearly to) end-of-life. With Plan **A** (FIWIB), the rate of interruption to the production machine is the highest, as failures eventually occur at random. Plan **B** is a good compromise, but does require the availability of spare major components.

Plan **C** can get the highest uninterrupted time from a system - it essentially starts all the "wear items" from time zero. Plan C yields the highest overall time-to-failure, as failures are not occurring at random. This can be the most economical choice for high-operating-cost production lines, even though it has a higher cost per part associated with it.

With any of the above maintenance schemes,several items must be inspected regularly: (1) air filters for irradiators and power supply intakes, and (2) bulb and reflectors. This inspection schedule depends *entirely* on the site-specific contamination- a high frequency of replacement or cleaning indicated that *conditions must be changed*. (In other words, if too much airborne *stuff* is getting onto reflectors and bulbs, then either filtration is not sufficient or the intake air is just too dirty and should be taken in from somewhere else).

Clearly, an inspection schedule is the key to a maintenance and replacement schedule for these items.

Fusion UV Systems, Inc.

910 Clopper Road
Gaithersburg, MD 20878-1357 USA
301 527 2660 • fax 301 527 2661
1-888 279 8600 (North America toll free)
http://www.fusionuv.com/

RESOURCE GUIDE TO PACKAGING, REGULATORY AND SUSTAINABILITY WEBSITES

Regulatory & Compliance:

Government:

Federal:

FDA	US Food & Drug Administration	www.fda.gov/food
NIOSH	US National Institute of Occupational Safety & Health	www.cdc.gov/NIOSH
NIH	US National Institute of Health	www.nih.gov
Health Canada	Canada Department of Food Safety: Regulations	www.hc-sc.gc.ca/fn-an/securit/index-eng.php

Canada Department of Food Safety: Food Inspection http://www.inspection.gc.ca/eng/1297964599443/1297965645317

State & Country

OEHHA	California Office of Health Hazard Assesment	www.oehha.ca.gov
Prop 65	California Office of Health Hazard Assesment	www.oehha.org/prop65

Trade Associations

State & Country

NAMPA	North American Metal Packaging Alliance	www.metal-pack.org
CMI	Can Manufacturers Institute	www.cancentral.com
SPI	the Society of Plastics Industry	www.plasticsindustry.org/
PIC	International Print & Paint Council	www.ippic.org/
ACA	American Coatings Association	www.paint.org/
WPCIA	World Paint & Coatings Industry Association	www.wpcia.org/
GMA	Grocery Manufacturers Association	www.gmaonline.org
IFC	Infant Formula Council	www.cga.ct.gov/
Cans: The Sustainable & Smart Solution		www.smartcansolutions.com
The Aluminum Association		www.aluminum.org
American Beverage Association		www.ameribev.org
Steel Recycling Institute		www.recycle-steel.org
Sustainable Packaging Coalition		www.sustainablepackaging.org
American Coatings Association		www.paint.org
World Paint & Coatings Industry Association		www.wpcia.org

This site includes other association websites from around the globe

EMPAC The European Organization for Packaging and the Environment www.europen-packaging.eu

This site has members in the metal packaging industry

European Commission	REACH	http://ec.europa.eu/enterprise/sectors/chemicals/reach/index_en.htm
European Commission	Understanding Reach	http://echa.europa.eu/regulations/reach/understanding-reach

COATINGS EXPLAINED

COATING

1. Generic term for paints, lacquers, enamels, printing inks, etc.

2. A liquid which is converted to a solid protective, decorative, or functional adherent film after application as a thin layer.

COMPONENTS OF COATINGS

I. **POLYMER:** Plastic, high molecular weight, film forming component of the coating. Comprised of repeating chemical units known as monomers. Other terms include resin or binder.

Types of polymers:

Acrylic
Epoxy
Melamine
Phenolic
Polyester
Vinyl (PVC)
Urea-formaldehyde (UF)

THERMOPLASTIC: Coating or polymer system that forms a film or organic layer by solvent evaporation only, no chemical reaction takes place.

THERMOSETTING: Coating or polymer system that chemically reacts in the drying process and is permanently changed. Other terms for this process include “Baking”, “Curing” and “Crosslinking”.

CURE: To change the properties of a polymeric system into a final, more stable, usable condition by the use of heat, radiation, or reaction with chemical additives.

CROSSLINKING: Applied to polymer molecules, the setting up of chemical links between the molecular chains to form a three dimensional or network polymer generally by covalent bonding. When extensive, as in most thermosetting resins, crosslinking makes one infusible larger molecule of all the linked chains. Crosslinking generally toughens and stiffens coatings. Thermosetting materials crosslink under the influence of heat and catalysis. it may also be induced by the use of catalysts and/or electron curing.

II. **PIGMENT:** The color forming component of coating. Usually a mineral as in Ti02 (white) but may be large insoluble organic structures. A soluble material is usually referred to as a dye. Some polymers tend to impart a gold or brown color without pigment (i.e.Phenolic polymers).

III. **SOLVENT:** The liquid carrier for the polymer and pigment portions. This material usually evaporates (volatilizes) leaving only trace residues. In some coatings the solvent can become part of the polymer, i.e. UV cured.

Other terms include “thinner” and “reducer”.

Types of solvents include:

- Aromatic: Toluene, Xylene
- Alcohols: Butanol
- Esters: Butyl acetate
- Glycol ethers: Butyl cellosolve (Dowanol EB)
- Ketones: Methyl ethyl ketone (MEK)

Solvents that evaporate quickly (low boiling, high volatility) are referred to as “fast”, and solvents that evaporate slowly (high boiling, low volatility) are referred to as “slow”.

Flash Point is the lowest temperature that a spark will ignite the vapors above the liquid. The test method is usually described along with the flash point since the result is test method dependent. Examples include Tag Open Cup, Cleveland Closed Cup, Setaflash.

LEL: Lower Explosive Limit, the lowest concentration of solvent in air that will support combustion. Typically about 1 volume%.

MISCELLANEOUS TERMS

COEFFICIENT OF FRICTION: Measure of the resistance to sliding of one surface in contact with another surface.

COHESION: Propensity of a single substance to adhere to itself; the internal attraction of molecular particles toward each other; the ability to resist partition from the mass; internal adhesion; the force holding a single substance together.

COIL COATING: Process to continuously coat and cure a strip of metal. Usually by reverse roll coating, where the application roll turns in the opposite direction to the metal strip.

DISPERSION: Systems where some components are suspended in the liquid as discrete particles.

FILM WEIGHT: The weight of dried coating on a given surface area. Related to film thickness by the density of the coating solids. Common units are milligrams per square inch in the U. S., grams per square meter elsewhere.

LATEX: General term for water-based coatings where an insoluble polymer is suspended in water or a water-solvent mixture by ionic charges.

LEVELING: The tendency of a coating liquid to flow enough to form a smooth uniform surface eliminating high and low film thickness areas resulting from the application process.

MILEAGE: Refers to the amount of product that can be coated with a given volume of paint. Since film weight is determined by a weight per area or weight per can, the mileage is determined using the weight percent solids in the paint.

NEWTONIAN FLOW: Type of flow characterized by a rate of shear that is directly proportional to the shearing force. It is to be distinguished from plastic flow which occurs only when a finite minimum force is exceeded. Oils, at sufficiently low rates of shear, exhibit Newtonian flow. Most coatings are non-Newtonian in use.

NPL: Abbreviation for non-post lube. A coating that functions without the addition of petrolatum or other lubricant on the coating line.

NRC: Abbreviation for Non-Repair Coating. Designates a product side coating for easy open beverage ends that has low metal exposure on the finished end. Easy open ends originally were used on 3-piece cans and were spray repaired along with the can. This spray repair is not possible with a 2-piece can.

PIGMENT BINDER RATIO (P/B): The weight of pigment divided by the weight of binder.

PVC: Pigment Volume Concentration. CPVC is the Critical Pigment Volume Concentration, the maximum volume of pigment that can be wetted by the polymer (binder).

RETORT PROCESS: Thermal sterilization of packaged food (cans) by heating in a pressurized steam vessel (retort). Time and temperature (steam pressure) vary with the food product, the size and shape of the container and the expected shelf life.

RHEOLOGY: Science of the deformation and flow of matter.

ROLL COATING: (Reverse Roll Coating, Sheet Coating) Refers to the coating process where the coating is applied to the strip or sheet by a rubber roll.

SOLUTION: Systems where all portions of the coating are dissolved in the solvents like salt or sugar in water.

VEHICLE: The liquid portion of a coating, i.e. the solvent plus polymer.

VISCOSITY: (Body, Consistency) Resistance of a liquid to flow. Common units are poise (centipoise) and stokes (centistokes). Poise and stokes are related by the density of the liquid. From a practical standpoint, viscosity of coatings is usually measured by the time in seconds for the coating to flow out of a cup with a hole (Zahn, Ford, etc.).

WETTING: A characteristic of a liquid on a solid surface. If a drop of liquid spontaneously spreads on a surface it is said to wet the surface. The force involved is surface tension. A low surface tension liquid wets a higher energy surface.

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2017 CONFERENCE AGENDA 2017

Innovation and Technology

Wednesday, May 24th

7:00 am – 8:30 am — **REGISTRATION AND CONTINENTAL BREAKFAST**

8:00 am – 8:30 am — **ANNUAL MEMBERSHIP MEETING**
This is our annual meeting of the membership and for new members.

8:45 am – 9:00 am — **PRESIDENT'S OPENING REMARKS**
Art Hurley, *IMDA President*

9:00 am – 12 Noon — **GENERAL SESSION**

KEYNOTE PRESENTATION
Dr. Dan Abramowicz, *CTO, Crown Holdings*

Financial Presentation
Debbie Jones, *Deutsche Bank*

Regulatory Presentation
Dr. Tom Mallen, *Valspar Corporation*

MOTIVATIONAL SPEAKER
Generations in the Workplace
Hayden Shaw

12:00 noon – 1:15 pm — **AWARDS LUNCHEON**
Scholarships, Member of the Year, Decorators of the Year & Excellence in Quality – We will continue our recognition program this year as in the past. We will recognize our Scholarship Recipients, the 2017 Member of the Year, our Decorators of the Year, and the Excellence in Quality award recipients during our awards luncheon.

1:30 pm – 5:00 pm — **BREAKOUT SESSIONS**

Flat Sheet
Technical Advances in Prepress, Coating Applications and Pressroom.

Two Piece
Inspection Systems, New Product Packaging, Color Technology and Using Technology and Innovation for Branding

5:00 pm – 7:00 pm — **TABLETOP EXHIBITS & SPONSOR HOSTED HOSPITALITY**
Featuring Prize Drawing Giveaways

Evening is Open

Thursday, May 25th

7:00 am – 9:00 am — **CONTINENTAL BREAKFAST & NETWORKING**

8:30 am – 12 Noon — **GENERAL SESSION**
University Graphic Arts Programs, New Coating Technology and EB Curing and Technology.

12 Noon – 1:00 pm — **LUNCHEON & NETWORKING**
Featuring Raffle Drawing for valuable prize.

Visit **www.metaldecorators.org**, Events Section for registration forms.

Hotel Reservation Request

Hilton Oak Brook Hills Resort & Conference Center

3500 Midwest Road • Oak Brook, IL 60523
www.oakbrookhillsresort.com

A block of rooms have been reserved for our conference. The special room rate of **$163.00** plus tax per night will be available until April 30th or until the group block is sold-out, whichever comes first. In the past we have experienced a fully booked conference. ***We ask that you only reserve the amount of rooms you intend to use so we have rooms for all of our attendees on site. If you have reserved rooms and do not need them, please cancel to make rooms available.***

REGISTER ONLINE

Go to our website: **metaldecorators.org**

Click on the **Events** icon, and select **"Hotel Reservations"**.
You will be directed to our IMDA Hilton Hotel website
where you will be able to reserve your room.

You can also call the hotel to make reservations:

1-800-HILTONS • 630-850-5555

Be sure to mention code IMDA17
to receive the special rate of $163.00 + tax.

Reservations cut off date is April 30th.

IMDA Memorial Scholarship Golf Outing & Banquet

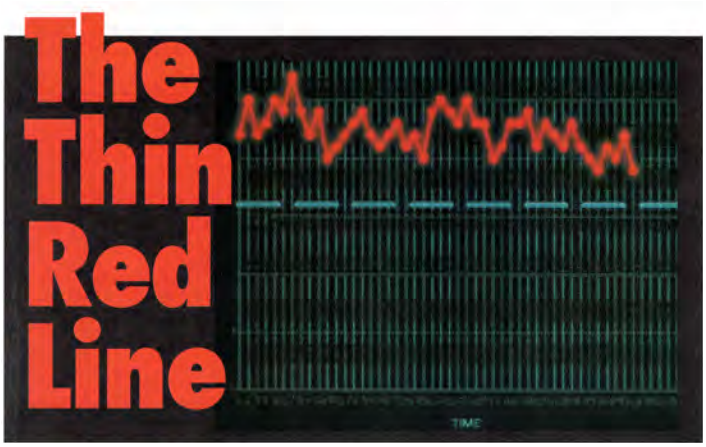
Tuesday, May 23, 2017

Hilton Oak Brook Hills Resort & Conference Center
Oak Brook, IL

Our Outing continues to support a most worthy cause. The proceeds from the outing are used to fund our IMDA Scholarship Fund. These funds are awarded to our members' children and grandchildren who will continue their pursuit of learning at the college level.

Golfers will enjoy the camaraderie and sportsmanship of fellow metal decorators as they play on the Willow Crest golf course. Upon completion of the play, we will host our ever-popular banquet that evening. This event has been a fun-filled and enjoyable evening for many attendees over the years. During the banquet we will recognize the achievements of the day's golfers and recognition is given on many fronts. The banquet is also open to those who choose not to play golf and want to share in the festivities and fellowship of the other industry members. To register and find more details go to:

www.metaldecorators.org
and click on the golf outing logo.



When it comes to process control, it's not only a question of what to buy, but also a question of what to measure.

– R. W. Stowe, Fusion UV Systems, Inc.

The variety of radiometers available today makes it difficult to determine which kind of instrument to select to measure a UV process. It's even more difficult to identify exactly what to measure. Ideally, if we had a measurement that can tell when a process is about to go out of control, or fall below the "red line," that would be an invaluable management tool.

A radiometric monitoring method is valuable only if the measurements can be related to the operating limits of the process, or the "process window". The most important limit is the point at which the end product will not pass its performance requirement. This is the "red line". Because changes and deterioration in any part of the system can result in process failure, knowing in advance that the process is nearing "red line" can indicate the need for maintenance or replacement of equipment.

When it comes to selecting instruments and methods, there are three conflicting temptations facing the user, and a desire to:

- find something simple, inexpensive, universal and quick
- use sophisticated, expensive instruments that have a high content of "science" in them; and
- find a valid Quality Control tool to use in production.

Are these compatible?

First, let 's distinguish process design from process monitoring. In the design of any UV application, it is essential to know the UV exposure conditions -- irradiance, energy, range and infrared energy-- which result in a successful UV-cured product. Relating the key end-properties to these conditions requires the ability to measure and quantify both. In a good design, optimization of these factors yields a more effective cure with reduced cost and less heat. This will usually involve the more complex, sophisticated, and expensive instruments.

Once a process is designed and set, process monitoring seeks to maintain the "process window. " The primary purpose is to know when something has changed before it threatens the process. However, the measurements must be of key exposure conditions as determined in the design process. If the data collected doesn't relate to the key factors affecting the cure, it doesn't mean much.

If you are currently using a UV process, and the key exposure factors have not been identified (or commun icated), or the instruments used to establish them are not known, you should find out now. This information allows you to determine the factors to monitor in your process and the methods you should use.

- If depth of cure and adhesion are important, then the long UV wavelengths should be monitored;
- If surface properties such as tack, stain, chemical or scratch resistance are important, then the short UV wavelengths should be monitored;
- If the relative irradiance of short and long wavelengths is important, then a periodic check of the ratio of the two will be useful;
- If the photoinitiator wavelength response range is known, it will identify an important range to monitor;
- Since the irradiance profile and peak are a function of lamp optics, specified in the design, then it's not necessary to monitor these - measurement of energy is more useful.

Because process monitoring is based on tracking changes in key exposure factors, the instrumentation used can be simpler and less expensive. If simple measurements are made, then those measurements must be correlated to the end result.

A Quick Method of Determining the "Red Line"

Determining the "red line" involves intentionally varying the process until failure is detected, while measuring and recording the associated conditions. The easy way to do this is a technique called a "cure ladder," using samples of production ink, coating, or adhesive, and samples of the actual production substrate:

- Incrementally increase the speed at which samples pass under the lamps, and
- Measure or calculate the energy in the important wavelength range(s) at successive speeds, until the process fails to meet requirements.
- The energy at which failure occurs is the "red line."
- Record this "red line" on the same data graphs on which periodic QC measurements are recorded.

Measurements can be mis-used. We regularly hear of UV production stopped because the measurements hit the "red line" – only to learn that the "red line" limit was based on a measurement that had little to do with the end result. Worse yet is a process that has become marginal but the radiometric measure provided no clue, because it was measuring the wrong wavelength band! A favorite bugaboo is a process measurement of energy ("dose") only, with complete disregard for irradiance or exposure profile as a key factor, or for the key wavelengths critical to the process. Remember, process monitoring assumes that the key interactions between lamps and chemistries have been established. This may be one of the worst assumptions in the technology. Many problems in radiometry arise from a lack of definition of the key exposure factors to be measured.

Successful implementation of a regular measurement program of meaningful exposure factors, and periodic benchmarking against a properly set "red line" can go a long way toward eliminating unnecessary "art" and "guesswork" from Process Control.

For more information on Radiometry, see Radiometry and Methods in UV Processing, by R.W. Stowe, Proceedings, RadTech North America 2000.April, 2000.

COATING DEFECTS

BLISTERS: Formation of dome-shaped projections in paints or varnish films resulting from local loss of adhesion and lifting of the film from the underlying surface.

BLOOM: A haziness which develops on high gloss surfaces resulting in scattering of the surface reflectance. One mechanism is by exudation of a component such as a lubricant out of the paint film.

BLUSH: A hazy appearance in a coating film after contact with hot water. The haze or cloudiness is due to water trapped in the film.

CHATTER: A transverse row of marks or lines of varying film thickness on a paint strip. The marks are usually due to vibration of the coating rolls, strip or to an eccentric roller.

CRACKING: Generally, the splitting of a dry paint or varnish film, usually as a result of aging. The following terms are used to denote the nature and extent of this defect: Hair-cracking - fine cracks which do not penetrate the top coat; they occur erratically and at random. Checking - fine cracks which do not penetrate the top coat and are distributed over the surface, giving the semblance of a small pattern. Cracking - Specifically, a breakdown in which the cracks penetrate at least one coat and which may be expected to result ultimately in complete failure. Crazing - Resembles checking, but the cracks are deeper and broader. Crocodiling or alligatoring - a drastic type of crazing, producing a pattern resembling the hide of crocodile.

CRAWLING AND DEWETTING: Defect in which a wet paint or varnish film recedes from small areas of the surface, leaving them apparently uncoated.

CRATERS: Film defect consisting of essentially round areas of low coating thickness, often with a raised circumference similar to a meteor crater.

FISH EYES: Craters, distinguished by a center which consists of a uniform flat painted region.

FROSTING: In Alcoa a rough, non-uniform surface due to adjacent high and low film weight areas. Also referred to as “ridging” “or roping”. Usually due to too high viscosity or sometimes too much heat early in the oven.

HAZE: Haze is a general term applied to virtually any dulling of a paint surface and is used to cover a wide variety of defects.

MOTTLING: Non-uniform blotched appearance due to coating weight difference. A macroscale (inches/centimeters) size defect. Usually addressed through pick-up roll speed or sometimes viscosity.

ORANGE PEEL: A surface bumpiness or waviness that resembles the skin of an orange.

PITS, PINHOLES, PORES: Very small craters.

SEEDS: Small granule-like defects which occur randomly over a coating surface marring the appearance. Seeds can result from undispersed or flocculated pigment, dirt, resin gel particles, precipitated resin and pigment due to solvent shock, or the products of chemical reactions between paint components, or impurities and active pigments.

SKIPPING, STARVING OUT: Irregular film thickness applied to the strip, usually the result of insufficient liquid level in the coating pan, adverse reaction of the coating to the shear actions, improper ratio between strip and coating rolls or improper wetting of the rolls by the coating material.

SOLVENT POPPING: The formation of defects by the violent evolution of trapped solvent which occurs after the coating has begun to gel during its cycle in the oven.

WATER SPOTTING: The change in surface appearance resulting from the action of water standing on a paint film or substrate.

THE DEADLINE IS FAST APPROACHING

It's not too late to submit your entries into this year's 21st Annual Excellence in Quality Competition.

The deadline is April 15th.

You can find the entry application on our website ***metaldecorators.org*** or you can email us at ***info@metaldecorators.org*** and we will forward the application to you. From what entries we have seen thus far, it looks to be a great showcase of the best metal decorating from around the world. We would like to see yours as well.

Thank you to our Sponsors for 2017

Gold Level

ES & T • INX International Ink Co. • Perm Machine & Tool • Watson Standard

Silver Level

Chromatic Technologies, Inc. • PPG

Bronze Level

SGS International • Sun Chemical

WEBSITE REPORT

Are you registered for the **IMDA Annual Conference** yet? If not, find all of the information you need to attend this year's conference, sponsor and exhibit on our Events page of the website. On the Events page you can also enter the Quality Awards Contest, apply for an IMDA Scholarship or Decorator of the Year Award. So head on over to ***www.metaldeocrators.com*** to get everything you need to attend and be part of this year' s conference. You can also find new Technical Resources recently published including technical articles on: Film Weight Control, Coil Coatings, Maintenance Strategy and UV Inkjet Curing. Please remember as a member of the IMDA you are granted permission to view valuable information only available to our members. In our Members section you will find the IMDA member directory as well as past conference presentations and videos.

METAL DECORATING RESOURCE GUIDE

AIR POLLUTION CONTROL

Adwest Technologies, Inc
(conference sponsor)
1175 North Van Horne Way
Anaheim, CA 92806
Tel: 714-632-9801
www.adwestusa.com

Anguil Environmental Systems
8855 N. 55th Street
Milwaukee, WI 53211 USA
Tel: +1 414-365-6400
www.anguil.com

Babcock & Wilcox Megtec Systems
830 Prosper Street
De Pere, WI 54115
Tel: 920-337-1505
www.megtec.com

Environmental Services & Technologies
(conference and quality sponsor)
4941 41st Street
Moline, IL 61265 USA
Tel: 309-762-9551
www.envsrv.com

Epcon Industrial Systems
PO Box 7060
The Woodlands, TX 77387
Tel: 936-273-3300
epcon@epconlp.com

Pro-Environmental, Inc
10134 6th Street, Suite K
Rancho Cucamonga, CA 91730
Tel: 909-898-3010
www.pro-env.com

ANILOX SYSTEMS

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www.d-y-c.com

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www.premierblanket.com

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Prime Coatings
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www.primecoatings.net

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Northlake, IL 60164
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www.ibea.de

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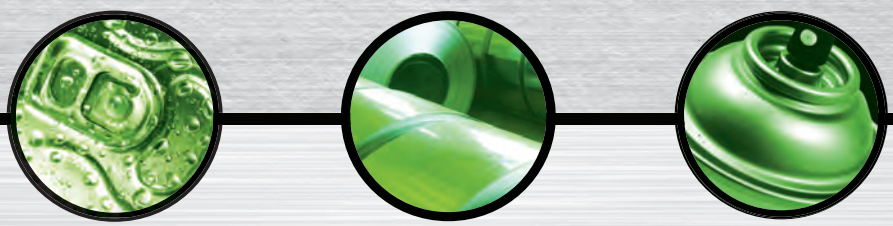

INNOVATION & TECHNOLOGY:

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WEDNESDAY, MAY 24
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