



# International METAL DECORATOR

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## ***The 3 R's of the 2019 IMDPA - Refining, Rebranding & Rejuvenating***

No entity can be successful by resting on its merits. Notice, the 3 R's did not include Resting; it never has been the case and we suspect that it never will be for the NMDA turned IMDA turned IMDPA. Over the 85 years of existence, this Association has evolved as the industry has required.

Having started as a small group of flat sheet decorators, the association was faced with recruiting members involved with the new Two-Piece decorating methodology. Coil coaters also needed a better platform to network with the metal decorating industry. They were welcomed with open arms. Realizing that being partners is better than being isolationists with regard to technology, suppliers were introduced into the membership. While decorating on metal was the focus, it was apparent that many members were also involved in the manufacturing of metal products. Subsequently, to clearly represent the Association's activities, the change was made to rename the Association to the International Metal Decorating & Packaging Association. The mission has not changed. "The IMDPA is dedicated to improving and fostering advancements in both metal decorating and metal packaging. The IMDPA strives to provide the metal decorating and packaging industry with valuable information and opportunities to network with fellow industry personnel."

Therefore, we seized the moment to expand our Conference agenda to include more packaging topics, to enhance our ability to communicate through an expanded website and to offer ease in registering and joining utilizing our new Membership Software program. The on line software is geared to making member's lives easier to conduct business with their Association and to reach out to other members.

As you read through this issue, you will find more detail on what awaits you as you begin to use or continue to use our refreshing new offerings.

Best wishes for your continued success.

# MEMBERSHIP

## 2019 OFFICERS & DIRECTORS

### President

Dr. William Hoyle, Hoyle Consulting\*

### Vice President

Renee Schouten, INX International Ink\*

### Secretary Treasurer

John Clark, Heraeus Noblelight America

### Executive Director

Michael Masenior\*

### Directors

Bob Blandford, Miltec UV

Sam Courtney, VN Graphics

Tim Duca, Ball Corp

Craig Eberts, Honorary Member\*

Paul Fennessy, Crown Cork & Seal

Joe Finan, INX International Ink Co.\*

Mark Finch, Silgan Containers

John Friedman, Northern Container

Eugene Furey, Honorary Member\*

William Graue, Honorary Member

Nick Hammer, Ardagh Group

Janelle Harris, Past President\*

Jim Hogan, Ardagh Group

Kyle Hurla, INX International Ink Co.

Art Hurley, Silgan Closures\*

Jack Knight, INX International Ink Co.\*

Kenneth Matyska, Honorary Member\*

Ted Nevins, Ball Metalpack

Mark Novotny, Nordson Corp

Neal Santangelo, Urethane Roller Specialists\*

Allan Sayers, Sayers Publishing

Phil Shaughnessy, Crown Cork & Seal

Gary Silke, Honorary Member

Steve Steerman, Ball Corp

Mark Von Bokel, SGS International

Henry Watson IV, Watson Standard

John Wise, Metal Container

Michael Yavorski, Valspar Corporation\*

\* Executive Committee Member



## IMDPA COMMITTEES & CHAIRS

### Conference Chair

Renee Schouten

### Scholarship Golf Chair

Kyle Hurla

### Newsletter Chair

Michael Masenior

### Website Chair

Renee Schouten

### Social Media Chair

Michael Masenior

### Membership Chair

Mark Novotny

### Decorators of Year Chair

Kyle Hurla

### Scholarship Chair

Gene Furey

### Excellence in Quality Chair

Michael Masenior

### Technical Resource Chair

Steve Steerman

### Nominating Chair

Mike Yavorski

## THE IMDPA ADDRESS

Please note that we have a new mailing address for postal mail:

IMDPA  
P.O. Box 992  
Sykesville, MD 21784 USA

Physical Address:  
1210 Creekside Court  
Sykesville, MD 21784 USA  
Telephone remains 410-252-5205  
Email remains [info@metaldecorators.org](mailto:info@metaldecorators.org)



## DecoDates

April 5-8, 2019

### NAPIM Convention

Coral Gables, FL

[www.napim.org](http://www.napim.org)

May 1-3, 2019

### Cannex

Denver, Co

[www.spgevents.com](http://www.spgevents.com)

May 21, 2019

### IMDPA Scholarship

### Golf Outing

Hilton Oak Brook Hills Resort

Oak Brook, IL USA

Tel: 410-252-5205

E: [info@metaldecorators.org](mailto:info@metaldecorators.org)

May 22-23, 2019

### IMDPA Annual Conference

Hilton Oak Brook Hills Resort

Oak Brook, IL USA

Tel: 410 252 5205

E: [info@metaldecorators.org](mailto:info@metaldecorators.org)

[www.metaldecorators.org](http://www.metaldecorators.org)

May 5-9, 2020

### METPAK

Messe Essen

[www.metpak.de](http://www.metpak.de)

May 19-21, 2020

### IMDPA Conference

Oakbrook, IL, USA

## MEMBERSHIP STATISTICS

(as of Jan 2019)

**MEMBERS 527**

**HONORARY 23**

**PRIVILEGED 18**

**TOTAL 568**

**COUNTRIES 25**



# PACKAGING IN CANS? DESIGNING FOR CANS? DECORATING ON CANS?

Get to market quicker with the INX Color Catalog

The INX 2-Piece Metal Color Catalog is the industry's only true color standard for 2-piece can design.

The Advanced Color Communication tool contains over 600 removable color swatches printed on metal, not paper. Brand owners, designers, and metal decorators have a true representation of color and can select, communicate, and approve color efficiently, reducing lead times and getting to market quicker.



## Complete Color Communication Package



Metal Switch Catalog



Digital Color Library

Learn more by visiting [inxcolorperfection.com](http://inxcolorperfection.com)





## *President's Message*

Dr. William Hoyle

In the last Newsletter and at the May 2018 Conference, we talked about the need to lay a foundation for the future of our organization. Change is happening all around us; it is not only affecting what we do but how we do it! An incredible example of this is the iPhone. The iPhone celebrated its 10<sup>th</sup> anniversary this last summer. Yes, it is only 10 years old but look at how it has changed the world and the lives of everyone of us!!

Our industry and your association not only need to keep up with this rapid pace of change, we need to embrace it if we are to provide value to every member and attract the next generation of members. In the last issue I discussed some of the committee level efforts. In this issue, I want to discuss:

- The Organization Name Change to IMDPA

- The College/ youth outreach program

- Association Modernization

**IMDPA:** Over the past year, your officers and Board members have reviewed who & what our association represents. That discussion has culminated in the decision to change our name to IMDPA: The **I**nternational **M**etal **D**ecorating and **P**ackaging **A**ssociation. This change incorporates the evolution that has taken place in our industry as the mix has moved from metal decorating to metal packaging. Our desire is to be more inclusive. The goal is to include the entire value chain: materials, suppliers, decorators, converters, fillers, etc. Renee and her team have been working hard to improve the website as we move to embrace the change to IMDPA.

**College interaction:** A number of Colleges have packaging programs. Typically, these programs have not incorporated metal packaging into their curriculum. Our goal is to effectively promote the metal packaging industry to these colleges and other trade associations. This effort will inform both the faculty and students about careers in the Metal Packaging Industry. In recognition of the importance of this goal, the board has authorized the formation of the Education Committee. John Clark & Sarah Jacks have agreed to co-chair the committee. The Education Committee has invited both Clemson University and Michigan State U to become committee members and to be adjunct advisors to our Board of Directors. We have also invited their students to present poster sessions on their research during the Conference Exhibition. If you are interested in working on the Education Committee, please let John, Sarah or I know.

**Association modernization:** In today's world, we need to have an online option for many things. We have contracted with *Growth Zone* to effect a number of these changes. The first of many changes will be moving payment of Association dues, membership applications, conference registration, communications, etc. to an electronic on line payment system. The first was the 2019 dues followed by the Conference Registration. Mike Masenior worked hard with Growth Zone to make this happen and he continues to enhance the services the system offers. As we expand our usage with the new system, we will add sponsorships, educational resources and Onboarding etc. to the Growth Zone/IMDPA system.

There is a lot happening in your association; I am looking forward to seeing everyone in May and discussing our progress.

*Bill Hoyle*



The IMDPA will be participating at the upcoming Cannex Show being held in Denver, CO from May 1-3, 2019. We will once again be communicating the value and benefits of belonging to your Association. We are looking for member volunteers to assist with the manning of the booth. If you are able to volunteer any amount of time to help out, please email Michael Masenior at [info@metaldecorators.org](mailto:info@metaldecorators.org).

## Website

As many of you know, the IMDPA has a new look to the website. Renee Schouten and her team put together a site that has an abundance of information on the Association. There you can find links to pay your dues, register for the Conference, apply for membership, apply for a scholarship and more. While this new site continues to develop, as of this writing, the previous years' Conference presentations, videos and photographs have not been posted, but should be in the near future.

While the member section from the previous site was not transferred over as such, you will now find the membership directory information in our new Membership Growth Zone package.

Please visit [www.metaldecorators.org](http://www.metaldecorators.org) to view all that there is to offer.

## Memorials

We are saddened to report the passing of **Edward Susralski** on January 25, 2019. Edward worked for Lakeside Lithography in Orland Park, IL and was a longtime member having joined in 1995.

The industry also lost a pioneer in printing technology, **Harvey Dahlgren**, at the age of 93 on March 2, 2019. Mr. Dahlgren was the founder of Epic Products International and was best known for the Dahlgren Dampener Systems.



## Welcome New Members

*The following new members were voted into the International Metal Decorators Association in October 2018.*

*We congratulate you for being our newest members and we hope that you have a long and satisfying tenure with our Association. Please reach out to any Officer or Board Member if you need assistance with your membership.*

First	Last	Company	Country
Amanda E.	Ghantous	PPG Industries	USA
Juan Carlos	Procel	Fabrica Devases	EQUADOR
Vicky	Ryan	Ardagh Group	USA
Nicholas	Schenkel	The Sherwin-Williams Company	USA
Ann-Marie	Wild	Sandon Global Engraving Technology Ltd	UNITED KINGDOM
James D.	Zawicki	ACTEGA North America	USA

## Future Newsletter Publications

### ***Request for Articles***

Following are the dates of future publications and featured topics.

#### **Second Quarter 2019** (copy due by April 15, 2019)

Topics: Pre-Press

Quality and Vision Systems

#### **Third Quarter 2019** (Copy due by June 28, 2019)

Topics: Conference Review

Quality Awards

#### **Fourth Quarter 2019** (Copy due by November 8, 2019)

Topics: New Equipment Reviews

New Services Offered

All issues will include Technology papers.

Please submit by the respective due dates.

Send your submissions to [info@metaldecorators.org](mailto:info@metaldecorators.org) or call 410-252-5205 for more information

*Mark your calendars, inform your PR staff, marketing departments and others key to providing valuable information for our industry.*

## Decorators of the Year

Managers have the opportunity to reward their high achievers with being named one of the IMDPA's Decorator of the Year. Individuals who have displayed exemplary performance this past year will be honored during our Awards Luncheon on Wednesday, May 22. Honorees will also be our guest for the Conference for all of the proceedings. Nominate your best by completing the form which can be obtained by requesting an application from [info@metaldecorators.org](mailto:info@metaldecorators.org).

## 2019 SCHOLARSHIPS



We are still accepting applications for scholarships until March 31, 2019. You can apply on line using our website or request an application by emailing [info@metaldecorators.org](mailto:info@metaldecorators.org). We will announce the recipients during our Awards Luncheon being held at the upcoming Conference in May.



# MEMBERSHIP



*KyLea Hurla, 2018 recipient*



*Audrey Chesney, 2018 recipient*

Dear IMDA Scholarship Committee,

I want to express my gratitude for selecting me as one of the scholarship recipients at this year's IMDA Scholarship event. It cannot be easy to choose only a select number of students whom are all each deserving of these scholarship awards. The scholarship that the committee so kindly awarded to me will be used towards paying for the expenses of my college education at the University of Cincinnati this year as I begin my sophomore year. This will greatly help me in paying for textbooks and tuition.

I am very appreciative to have been one of the few selected, and I will continue to work diligently in my classes as to put this scholarship I am thankful to have been awarded to good use.

Thank you,

KyLea Hurla

MIITEC  
UV

# How Deep Can You Cure?

Vivid Color HD  
Technology

UV Curing Systems

Your Solution for Curing DENSE INKS

# MEMBERSHIP

## ON LINE DUES PAYMENTS AND REGISTRATIONS

The IMDPA, with Executive Director Michael Masenior's efforts, has installed a membership software system where we are offering the opportunity to pay your dues and register for future Conferences. With the Board's approval in October, Michael worked from October until February in weekly sessions with Growth Zone software technicians to set up the system and attended numerous training webinars. Our goal was to have the implementation done for 2019's business and we were successful with setting it up in time for the dues mailings. Subsequently, with the assistance from the website committee, the Membership Growth Zone Software was linked to the new website.

We sent out the dues invoices to your registered email address on February 4th when the system went live. Many of you have remitted your dues on line successfully and some have chosen to download the invoice and pay by check or wired funds. While we prefer on line payments, we are able to accommodate other forms of payment to keep your membership active. That is the goal!

**If you still need to remit your 2019 dues payment, you can find the payment link on our website [www.metaldecorators.org](http://www.metaldecorators.org).**

We have all of your contact information in a personal portal that was set up for you. Using your registered email address, you will be able to view your information and make any necessary corrections. ***Please keep in mind that the email used in your application will be your username going forward to access your member portal.*** If we do not have your email in our system, you do not have access to the portal. The software offerings are evolving to include bylaws, a forum, technical information, etc. Please note that the membership Directory is available through your personal info hub.

Realizing that there may be questions on the use of our new system, we encourage you to reach out to us at [info@metaldecorators.org](mailto:info@metaldecorators.org) and we will provide guidance as needed. Michael has been doing so since the launch of the system.

## NEW MEMBER APPLICATIONS

Applicants now have the ability to apply for membership on line in our new Association Software Package. Applications can be found on our website [www.metaldecorators.org](http://www.metaldecorators.org) in the *About Us* section under *Membership* information. Click on the *Join the IMDPA* link and you will be directed to the Association Membership software. Complete the form, advise us if you want to participate on a committee, and submit payment in our secure Association Membership software. *You will be invoiced the \$50.00 initiation fee to join and a pro-rated annual membership fee based on when you are joining.* Once the Membership Committee approves your application, you will be assigned your own membership portal where you will be able to review and make adjustments to your information in the system. ***Please keep in mind that the email used in your application will be your username going forward to access your member portal.***

While we certainly encourage all to use the new system to join on line, we also can provide you with a pdf of a membership application for you to use for joining the International Metal Decorating and Packaging Association. Just email [info@metaldecorators.org](mailto:info@metaldecorators.org) or use the contact us section of the website to secure your application.

New applicants will begin to receive all membership communications via emails and print once the Membership Committee has approved the application.

If you have any questions or need assistance with joining, please do not hesitate to contact Michael Masenior, IMDPA Executive Director at 410-252-5205 or email your request to [info@metaldecorators.org](mailto:info@metaldecorators.org)



# EXCELLENCE IN QUALITY

**We are looking forward to seeing more award winning decorated products at this year's Conference.**

**Enter our 2019**

**International Metal Decorating & Packaging Association  
*Annual Excellence in Quality Competition***

**by April 16. Entry forms are available on  
[www.metaldecorators.org](http://www.metaldecorators.org)**

***or email [info@metaldecorators.org](mailto:info@metaldecorators.org)***



**Thank You to our 2019 Quality Showcase sponsors. There is still an opportunity to join this gracious group of companies who understand the value in promoting our decorated products.**

**INX International Ink Co.**

**Perm Machine & Tool Co.**

**SGS International**

**Sun Chemical**



# CONFERENCE



Join us from May 21– 23, 2019 for our Annual Scholarship Golf Outing and Conference being held once again at the renovated Hilton Oak Brook Hills Resort and Conference Center. The Conference Committee has been developing this year's agenda and it looks to be interesting and encompassing thus far.

## ***Schedule at a Glance***

### Tuesday, May 21

Golf Outing and Banquet

### Wednesday, May 22

Keynote Presentation

General Session

Awards Luncheon

Breakout Sessions

Sponsor Hosted Exhibits

### Thursday, May 23

General Session

Luncheon

Optional Brewery Tour

Afternoon departure

***Find the complete Conference Schedule and Registration links in the Event Section of [metaldecorators.org](http://metaldecorators.org). You are also able to register on line this year and you will find the link there as well.***

***Members need to register using their current email address to get the Member Rate. If your email address has changed or you don't know the address the IMDPA has on file please email [info@metaldecorators.org](mailto:info@metaldecorators.org).***





## ***IMDPA Memorial Scholarship Golf Outing***

The IMDPA Annual Memorial Scholarship Golf Outing and Banquet will be held on Tuesday, May 21, 2019 at the Hilton Oak Brook Hills Resort course.

Join the more than 200 golfers that day to enjoy the networking and golf activities. Not a golfer, then plan on attending the evening's banquet and network with the 300 attendees.

Register for the golf outing and banquet in the events section of [metaldecorators.org](http://metaldecorators.org).

This Outing supports our IMDPA Scholarship program and your participation is greatly appreciated.



## **Hilton Oak Brook Hills Resort and Conference Center, Oak Brook, IL USA**

***Reserve your room by April 28, 2019.***

***Call 1-800-HILTONS or 630-850-5555 and  
mention code IMDA19 to receive our reduced  
room rate.***

***You can also reserve on [metaldecorators.org](http://metaldecorators.org)***

# **LAGUNITAS** **BREWING COMPANY**

Thursday, May 23rd  
1:00 PM

Join us for a tour and tasting at Lagunitas Brewery. First Come, First Served! We will provide bus transportation from the Hilton Oakbrook Hills Resort to the Lagunitas Brewing Company. The bus will depart the hotel on Thursday, May 23rd at 1:00 pm and will return approx. 5:00 pm. To join the tour, Registered Conference attendees should RSVP by emailing [imdpatour19@gmail.com](mailto:imdpatour19@gmail.com) and advise that you wish to go.





## 2019 ANNUAL IMDPA CONFERENCE PRODUCT SPONSORSHIP & DISPLAY REGISTRATION

May 22-23, 2019

Hilton Oak Brook Hills Resort • Oak Brook, IL USA

**Promote Your Company • Showcase Your Technology  
Networking Opportunities • Prizes Awarded**

### 2019 Sponsorship – \$1,000.00

**\$1,200 Value**

Show your dedication to the industry, promote your company and get your name in front of 300+ metal packaging attendees during the IMDPA 2019 Annual Conference.

#### **Sponsorship Includes:**

1. Complimentary tabletop display during Sponsor Hosted Hospitality Event. **\$350.00 Value**
2. Logo placement/hyperlink on IMDPA website for 1 year. **\$750.00 Value**
3. Free listing in Resource Directory. **\$100.00 Value**
4. On-site company recognition throughout hotel conference center via signs and banners.
5. Free listing in Sponsor & Exhibitor Prospectus booklet.
6. Recognition by industry peers with special attendee badge.

*\$1,000 fee contributes to motivational speaker, conference giveaways, speaker gifts, exhibitor hospitality, promotional signage and other promotional costs incurred.*

### Product Display Exhibits

The Annual *Tabletop Display Sponsor Hosted Hospitality Event* will take place at the conclusion of Wednesday's general session. Displays will be set up in one large ballroom at the Hilton Oak Brook Hills Resort. During the Hospitality Event, refreshments and heavy hors d'oeuvres will be served. Prizes will be awarded to those in attendance.

#### **Guidelines:**

1. The Display and Sponsor Hosted Hospitality Event will be held on Wednesday, May 22nd.
2. The Exhibit fee is \$350.00 USD. Electrical services are available upon request for an additional \$75.00.  
*The Exhibit fee is waived for those who have signed up for Conference Sponsorship.*
3. Display space must be requested in advance by April 30th. Tables will be available on a 1st come basis.
4. Display areas will be limited to 30" x 72" of table space.
5. Display set-up will take place on Wednesday after the luncheon.
6. Information for display set-up will be forthcoming.

**\* Please complete the enclosed information form for the exhibit program to be distributed at the conference.  
For those attending the conference, please complete the separate conference registration form.**

*Please return this form to: **Note New Address***

**IMDPA • P.O. Box 992, Sykesville, MD 21784, USA • Fax: 410-628-8079 • Email: [info@metaldecorators.org](mailto:info@metaldecorators.org)**

Sponsor: ☐ Yes ☐ No \$1,000 – Includes FREE Exhibit Table. ☐ Please reserve a table at no cost. ☐ Add electric at \$75 additional.

Exhibitor: ☐ Yes ☐ No # Tables: ☐ \$350.00 per table without electric ☐ \$425.00 per table includes electric

Special needs (electrical for \$75.00 additional): \_\_\_\_\_

Name: \_\_\_\_\_ Company: \_\_\_\_\_

Phone: \_\_\_\_\_ Email: \_\_\_\_\_

Enclosed is a check # \_\_\_\_\_ in the amount of \$ \_\_\_\_\_ USD, payable to the International Metal Decorating & Packaging Association

Please charge my credit card \$ \_\_\_\_\_ USD

☐ American Express ☐ Visa ☐ Master Card Cardholder Name: \_\_\_\_\_

Card Number: \_\_\_\_\_ Expiration Date: \_\_\_\_\_

Signature: \_\_\_\_\_

***NOTE: Sponsorship does not include Conference Registration Fees. Attendees must register for the Conference.  
Exhibitors and display registrants must also register for the Conference.***

***Sponsorship and Exhibitor fees must be paid by May 11, 2019 to be included in all on site promotional materials.***

[www.metaldecorators.org](http://www.metaldecorators.org)

## ***RadTech Glossary of Terms Terminology Used for Ultraviolet (UV) Curing Process Design and Measurement***

This glossary of terms has been assembled in order to provide users, formulators, suppliers and researchers with terms that are used in the design and measurement of UV curing systems. It was prompted by the scattered and sometimes incorrect terms used in industrial UV curing technologies. It is intended to provide common and technical meanings as used in and appropriate for UV process design, measurement and specification. General scientific terms are included only where they relate to UV Measurements. The object is to be "user-friendly," with descriptions and comments on meaning and usage, and minimum use of mathematical and strict definitions, but technically correct. Occasionally, where two or more terms are used similarly, notes will indicate the preferred term.

### **Absorbance**

An index of the light absorbed by a medium compared to the light transmitted through it. Numerically, it is the logarithm of the ratio of incident spectral irradiance to the transmitted spectral irradiance. It is unitless number. Absorbance implies monochromatic radiation, although it is sometimes used as an average applied over a specified wavelength range.

### **Additive lamps**

Medium pressure mercury vapor UV lamps (arc or microwave) that have had small amounts of metal halide(s) added to the mercury within the bulb. These materials will emit their characteristic wavelengths in addition to the mercury emission.

### **Bandwidth**

The range of wavelengths between two identified limits, expressed in the same units as wavelength (*nm*).

### **Cosine response**

Description of the spatial response to incident energy where response is proportional to the cosine of the incident angle. A radiometer with a diffuser or a photo-responsive coating will exhibit nearly cosine response.

### **Dichroic**

Exhibiting significantly different reflection or transmission in two different wavelength ranges. Dichroic reflectors which have reduced reflectance to long wavelengths (IR) are also called "cold mirrors."

### **Diffuse**

A characteristic of a surface that reflects or scatters light equally in all directions (often confused with *spread reflectance*).

### **Dose**

A common, but loosely used, term for **energy density**, or radiant flux density, at a surface. (It is a precisely defined term in EB curing: 1 Gray (GY)=1 J/kg, a measure of absorbed energy per unit mass). In other technologies, the term usually applies to energy absorbed *within* the medium of interest, but in UV curing, is equated only to **irradiant energy density** *arriving at the surface* of the medium of interest. [The preferred shortened term is **energy density**, expressed in J/cm<sup>2</sup> or mJ/cm<sup>2</sup>].

### **Dynamic exposure**

Exposure to a varying irradiance, such as when a lamp passes over a surface, or a surface passes under a lamp, or lamps. In that case, energy density is the time-integral of the irradiance profile.

### **Dynamic range**

The span between the *minimum* irradiance and the *maximum* irradiance to which a radiometer will accurately respond. Expressed as a ratio, or in measured units (e.g., watts/cm<sup>2</sup>).

### **Effective energy density**

Radiant energy, within a specified wavelength range, arriving at a surface per unit area, usually expressed in joules per square centimeter or millijoules per square centimeter (J/cm<sup>2</sup> or mJ/cm<sup>2</sup>). Is expressed in a specified wavelength range (without wavelength specification, it is essentially meaningless). Commonly accepted abbreviation are WI or EI.

## Effective irradiance

Radiant power, within a specified wavelength range, arriving at a surface per unit area. It is expressed in watts or milliwatts per square centimeter ( $\text{W}/\text{cm}^2$  or  $\text{mW}/\text{cm}^2$ ) in a specified wavelength range (without wavelength specification, it is essentially meaningless). For brevity, when the wavelength range is clearly understood, the term is shortened to **irradiance**. Commonly accepted abbreviations are EI or II. Compare **spectral irradiance**.

## Energy density

Radiant energy arriving at a surface per unit area, usually expressed in joules or millijoules per square centimeter ( $\text{J}/\text{cm}^2$  or  $\text{mJ}/\text{cm}^2$ ). It is the time-integral of irradiance. (Terms applied in other technologies include "radiant exposure," "light dose," and "total effective dosage").

## Intensity

A generic term, with a variety of meanings; undefined, but commonly used to mean irradiance. Generally mis-applied in UV curing. Its precise optical meaning is flux/steradian ( $\text{W}/\text{sr}$ ), applied to emission of light; not useful in UV curing. [The preferred terms are irradiance or effective irradiance].

## Irradiance

Radiant power arriving at a surface from all forward angles, per unit area. It is expressed in watts per square centimeter or milliwatts per square centimeter ( $\text{W}/\text{cm}^2$  or  $\text{mW}/\text{cm}^2$ ). Compare **effective irradiance**, **spectral irradiance** and **fluence rate**.

## Joule (millijoule)

A unit of work or energy (a newton-meter). The time-integral of power. Abbreviated J or mJ. (Although derived from a proper name, the term is not capitalized, while its abbreviation is capitalized).

## Line emission

Narrow lines of emission from an atom in an excited state. These are the "spikes" observed in spectrometry. Low-pressure sources exhibit finely distinguished line emission, higher pressure sources exhibit more continuous spectra.

## Monochromatic

Light radiated from a source that is concentrated on only a very narrow wavelength range (bandwidth). This may be accomplished either by filters or by narrow-band emission.

## Monochromator

An instrument that separates incoming radiant energy into its component wavelengths for measurement. Two methods are used for dispersing the radiation: diffraction grating or prism. The typical resolution may be 1 nanometer or less.

## Nanometer

Unit of length. Abbreviated nm. Equals  $10^{-9}$  meter, =  $10^{-3}$  micron, = 10A (angstrom).

Commonly used unit to define wavelength of light, particularly in the UV and visible ranges of the electromagnetic spectrum. An older equivalent term, millimicron, is rarely used today.

## Optical density

The logarithm of the reciprocal of reflectance or transmittance. A dimensionless number. In printing and color, it is the log of the ratio of visible light absorbed by an "absolute white" to the light absorbed by the measured ink.

## Peak irradiance

The intense, peak of focused power directly under a lamp. The maximum point of the irradiance profile. Measured in irradiance units ( $\text{W}/\text{cm}^2$ ).

## Photometer

An instrument for measuring visible light, usually filtered or corrected to match the human eye response.

## Power (UV lamp)

Tubular UV lamps are commonly described by their operating power in "watts per inch" or "watts per centimeter." This is derived simply from the electrical power input divided by the effective length of the bulb. (It does not have a direct meaning to the output efficiency of a lamp system, to the spectral conversion efficiency, to the curing performance, nor to the UV irradiance delivered to a work surface).

## Radiachromic

Exhibiting a change of color or optical density with exposure to light. A character of films whose color or density change can be correlated to exposure to UV energy.



## Radiance

Generally refers to the radiant output of a source. It is radiant flux per unit area per steradian ( $W/cm^2sr$ ). In UV curing, it is used generically rather than a precise optical term.

## Radiant power

Rate of energy transfer, expressed in watts or joules/second ( $W = J/sec$ ).

## Radiant energy

Energy transfer, expressed in joules or watt-seconds ( $J = W \cdot sec$ ).

## Radiometer

A device that senses irradiance incident on its sensor element. Its construction may incorporate either a thermal detector or a photonic detector. The instantaneous signal output will usually have a linear proportionality to radiant flux, and will depend on incident wavelength(s). The resulting characteristic response to irradiance versus wavelength is called responsivity.

## Spectral output

The radiant output of a lamp versus wavelength. It is displayed in a variety of ways, but commonly a graph or chart of output watts plotted against wavelength. The appearance of the plot will vary dramatically, depending on the wavelength resolution used. A technique of normalizing is to integrate energy over 10-nanometer bands, to reduce the difficulty of quantifying the effects of line emission spectra.

## Spectral irradiance

Irradiance at a given wavelength per unit area per unit wavelength interval. Expressed in  $W/cm^2/nm$ . Usually measured with a spectroradiometer. Compare **effective irradiance**.

## Spectroradiometer

An instrument that combines the functions of a radiometer and a monochromator to measure irradiance in finely divided wavelength bands.

## Static exposure

Exposure to constant irradiance for a controlled period of time. Contrast with **dynamic exposure**.

## UV

Ultraviolet. Radiant energy in the 100 nm to 450 nm range. 100 nm to 200nm is generally called vacuum UV (VUV), because it does not transmit in air. There is no precisely defined boundary between UV and Visible Light, and may be considered about 400-450 nm.

## ***Will Your Company Share Its Technology and Services at the Conference?***

***The following companies have signed up to Exhibit  
as of this writing:***

ACTEGA Coatings and Sealants  
Anguil Environmental Systems, Inc.  
Bottcher America  
Bunting Magnetics  
Canmaking News  
Canned Water 4 Kids  
CanTech International  
Chromatic Technologies, Inc. Finzer Roller  
Innoson USA Inc.  
ISRA VISION AG

JM Travis Ltd  
Koenig & Bauer-MetalPrint GmbH  
Miltec UV  
Phototype  
Roeslein & Associates Inc  
Stolle Machinery Company  
Sun Chemical  
T.D. Wright Inc.  
The Canmaker Magazine

# RESOURCE WEBSITES

## *Resource Guide to Packaging, Regulatory and Sustainability Websites*

### Regulatory & Compliance:

#### Government:

##### Federal:

FDA	US Food & Drug Administration	<a href="http://www.fda.gov/food">www.fda.gov/food</a>
NIOSH	US National Institute of Occupational Safety & Health	<a href="http://www.cdc.gov/NIOSH">www.cdc.gov/NIOSH</a>
NIH	US National Institute of Health	<a href="http://www.nih.gov">www.nih.gov</a>
Health Canada	Canada Department of Food Safety: Regulations eng.php	<a href="http://www.hc-sc.gc.ca/fn-an/securit/index-eng.php">www.hc-sc.gc.ca/fn-an/securit/index-eng.php</a>
Canada Department of Food Safety: Food Inspection	<a href="http://www.inspection.gc.ca/eng/1297964599443/1297965645317">http://www.inspection.gc.ca/eng/1297964599443/1297965645317</a>	

##### State & Country

OEHHACalifornia Office of Health Hazard Assessment	<a href="http://www.oehha.ca.gov">www.oehha.ca.gov</a>
Prop 65California Office of Health Hazard Assessment	<a href="http://www.oehha.org/prop65">www.oehha.org/prop65</a>

### Trade Associations

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

*This site includes other association websites from around the globe*

EMPAC The European Organization for Packaging and the Environment	<a href="http://www.europen-packaging.eu">www.europen-packaging.eu</a>
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*This site has members in the metal packaging industry*

European Commission REACH	<a href="http://ec.europa.eu/enterprise/sectors/chemicals/reach/index_en.htm">http://ec.europa.eu/enterprise/sectors/chemicals/reach/index_en.htm</a>
European Commission Understanding Reach	<a href="http://echa.europa.eu/regulations/reach/understanding-reach">http://echa.europa.eu/regulations/reach/understanding-reach</a>

## AIR POLLUTION CONTROL

### 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

### Catalytic Products International

980 Ensell Road  
Lake Zurich, IL 60047  
847-438-0334  
www.cpilink.com

### Environmental Services & Technologies

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

### Art International

16745 Cagan Crossings Ste 102B-69  
Clermont, FL 34714  
Tel: +1 831-295-2969  
anilox@me.com

### John M Travis Ltd

27031 Trinity Heights  
San Antonio, TX 78261  
Tel: 740-407-0685  
www.travisltd.com

## BLANKETS

### DYC Supply

5740 Bay Side Road  
Virginia Beach, VA 23455 USA  
Tel: 800-446-8240  
www.d-y-c.com

## Package Print Technology

1831 Niagara Street  
Buffalo, NY 14207 USA  
Tel: 800-382-8851  
www.packageprinttech.com

## Premier Blankets

860 East State Parkway  
Schaumburg, IL 60173  
Tel: 847-310-8140  
www.premierblanket.com

## BODYMAKER Spare Parts

### Beckon Worldwide Inc

455 E. Clinton Place  
St. Louis, MO 63122 USA  
Tel: +1 314-965-0755  
www.beckonworldwide.com

## CHEMICALS & MATERIALS

### Coral Chemical Company (see Lubricants & Cleaners)

### Grace Davison Materials & Packaging

7500 Grace Drive  
Columbia, MD 21044 USA  
Tel: +1 410-531-4000  
bryan.t.pugh@grace.com

### Henkel Corporation

32100 Stephenson Hwy  
Madison Heights, MI 48071  
Tel: +1 248-577-2243  
www.henkelna.com

## COATINGS

### AkzoNobel Packaging Coatings

16651 Sprague Road  
Strongsville, OH 44136 USA  
Tel: +1 440-297-5589  
www.akzonobel.com

### PPG Industries

500 TechneCenter Drive  
Milford, OH 45150  
Tel: +1 513-576-3100  
www.packagingcoatings.com

### Prime Coatings

1002 Hickory Street  
Pewaukee, WI 53072 USA  
Tel: +1 262-691-1930  
www.primecoatings.net

## Valspar Corporation

2001 Tracy Street  
Pittsburgh, PA 15233 USA  
Tel: +1 412-766-9300  
packaging@valspar.com

## Watson Standard

616 Hite Road  
Harwick, PA 15049 USA  
Tel: +1 724-275-1000  
www.watsonstandard.com

## COATING APPLICATION SYSTEMS

### Nordson Corporation

300 Nordson Drive  
Amherst, OH 44001  
Tel: +1 440-985-4000  
www.nordson.com/container

## COATING, PRESS 2 PIECE ROLLERS

### Finzer Roller, Inc

129 Rawls Road  
Des Plaines, IL 60018 USA  
www.finzerroller.com

### Pacesetter Graphic Service Corp.

2672 Hickory Grove Road  
Acworth, GA 30101  
www.pacesetterusa.com

### Rollercoat Industries

10135 Hwy 62 East  
Tampa, FL 33610 USA  
Tel: 800-248-4351  
www.rollercoat.com

### Urethane Roller Specialists

100 S. Central Ave  
PO Box 566  
Eureka, MO 63025 USA  
Tel: 800-367-1136  
www.urethanageroller.com

## CONSULTANTS

**Beckon Worldwide**, see Bodymaker  
spare parts

**Environmental Services & Technology**  
see Air Pollution Control

## DAMPENING SYSTEMS

### Epic Products International

2801 E. Randol Mill Road  
Arlington, TX 76011 USA  
www.epicproducts.com



# RESOURCE GUIDE

## FLAT SHEET PRESSES

**Fuji Kikai Kogyo Co, Ltd.**  
44-2-10 Hachihonmatsuhigashi  
Higashihiroshima, 739-0146 Japan  
Tel: +81-82-428-2455  
[www.fujikikai.co.jp](http://www.fujikikai.co.jp)

**KBA-MetalPrint**  
Wernerstr. 119-129  
D-70435 Stuttgart, Germany  
Tel: +49 711-69971-0  
[www.kba-metalprint.de](http://www.kba-metalprint.de)

**Crabtree of Gateshead**  
Trading Estate, Gateshead  
Tyne & Wear, NE11 OSU UK  
Tel: +44-191-487-5071  
[www.crabpress.co.uk](http://www.crabpress.co.uk)

## INDUCTION HEATING

**Ajax Tocco Magnethermic**  
1745 Overland Avenue N.E.  
Warren, OH 44483 USA  
Tel: 330-372-8552  
[www.ajaxtocco.com](http://www.ajaxtocco.com)

## INKS

**Chromatic Technologies, Inc**  
1096 Elkton Drive, Suite 600  
Colorado Springs, CO 80907 USA  
Tel: +1 719-592-1557  
[www.ctiinks.com](http://www.ctiinks.com)

**INX International Ink Co**  
10820 Withers Cove Park Drive  
Charlotte, NC 28278 USA  
Tel: +1 704-372-2080  
[www.inxinternational.com](http://www.inxinternational.com)

**Sun Chemical**  
135 W. Lake Street  
Northlake, IL 60164  
Tel: 708-236-3798  
[www.sunchemical.com](http://www.sunchemical.com)

## LUBRICANTS & CLEANERS

**Chemtool Incorporated**  
8200 Ridgely Road  
Crystal Lake, IL 60039 USA  
Tel: +1 815-459-1250  
[www.chemtool.com](http://www.chemtool.com)

**Coral Chemical Company**  
1915 Industrial Ave.  
Zion, IL 60099  
1-847-246-6666  
[www.coral.com](http://www.coral.com)  
**JAX Inc**  
W134 N5373 Campbell Drive  
Menomonee Falls, WI 53051 USA  
Tel: +1 262-781-8850  
[www.jax.com](http://www.jax.com)

## MAGNETIC CYLINDERS

**Bunting Magnetics**  
500 S. Spencer Road  
Newton, KS 67114 USA  
Tel: 316-284-2020  
[www.buntingmagnetics.com](http://www.buntingmagnetics.com)

**T.D. Wright Inc.**  
292 Walnut Street  
St. Paul, MN 55102 USA  
Tel: +1 651-227-1302  
[www.magneticcylinders.com](http://www.magneticcylinders.com)

## MAINTENANCE

**Amro Supply Inc**  
140-11 Keyland Court  
Bohemia, NY 11716 USA  
Tel: +1 631-419-1203  
[www.amro-supply.com](http://www.amro-supply.com)

## METAL SHEET DETECTORS

**Prime Controls**  
4528 Gateway Circle  
Dayton, OH 45440 USA  
Tel: +1 937-435-8659  
[www.primecontrols.com](http://www.primecontrols.com)

## OVENS

**Ajax TOCCO Magnethermic**  
1745 Overland Avenue N.E.  
Warren, OH 44483  
Tel: 330-372-8552  
[asmetana@ajaxtocco.com](mailto:asmetana@ajaxtocco.com)

**Arc Pacific Limited**  
1005 Richards Road, Ste. P  
Hartland, WI 53029  
Tel: 262-367-5096  
[www.arcpacific.com](http://www.arcpacific.com)

## OVEN CLEANING

**Ace Cleaning Experts**  
4922 Chase Rd. SE  
Carrollton, OH 44615 USA  
Tel: 330-283-9464  
[chuck@acecleaningexperts.com](mailto:chuck@acecleaningexperts.com)

## OVEN PARTS & SERVICES

**Environmental Services & Technologies**  
4941 41st Street  
Moline, IL 61265  
Tel: 309-762-9551  
[www.envsrv.com](http://www.envsrv.com)

**Babcock & Wilcox Megtec Systems**  
830 Prosper Street  
De Pere, WI 54115  
Tel: 920-337-1505  
[www.megtec.com](http://www.megtec.com)

**Perm Machine & Tool Co**  
9660 Industrial Drive  
St. John, IN 46373 USA  
Tel: +1 219-365-5000  
[www.permmachine.com](http://www.permmachine.com)

## PREPRESS SERVICES

**Anderson Vreeland**  
15348 Rt 127 N.E. Bryan, OH 43506 USA  
Tel: 866-282-7697  
[www.andersonvreeland.com](http://www.andersonvreeland.com)

**Carey Color, Inc (Chicago Div.)**  
1160 Pierson Drive Suite 102  
Batavia, IL 60510  
Tel: 630-858-6901  
[bbeaver@careyweb.com](mailto:bbeaver@careyweb.com)

**Cocks Clark Graphics, Inc**  
2200 Arapahoe Street  
Denver, CO 80205 USA  
Tel: 1-303-919-3920  
[www.ocksclark.com](http://www.ocksclark.com)

**Hell Direct Laser Engraving**  
2185 Highway 292  
Inman, SC 29349  
864-472-0334  
[www.helldirectlasers.com](http://www.helldirectlasers.com)

**Meridian Arts & Graphics**  
16 Belgrade Street  
Youngstown, OH 44505  
Tel: 330-759-9099  
[twebb@meridianarts.com](mailto:twebb@meridianarts.com)

**Phototype**  
2141 Gilbert Avenue  
Cincinnati, OH 45206  
Tel: 513-281-0999  
[www.phototype.com](http://www.phototype.com)

## **SGS International**

626 W. Main Street Suite 500  
Louisville, KY 40202 USA  
Tel: 502-637-5443  
www.sgsintl.com

## **SS Studios**

1023 Commerce Avenue  
Union, NJ 07083  
Tel: 908-686-5536  
www.sstudios.com

## **VN Graphics**

14640 NE 91st Street  
Redmond, WA 98052 USA  
Tel: 425-454-5165  
www.vngraphics.com

## **Youngstown Pre-Press Inc**

3691 LeHarp Road  
Youngstown, OH 44515  
Tel: 330-793-3690  
gdoibrndt@ameritech.net

## **PRESS/COATER CYLINDER REPAIR/REPLACEMENT**

**Beckon Worldwide**, see Bodymaker  
spare parts

## **Brodie System**

1539 West Elizabeth Ave  
Linden, NJ 07036 USA  
Tel: 908-862-8620  
www.brodiesystem.com

## **QUALITY TESTING & VISUAL INSPECTION EQUIPMENT**

### **Acu-Gage Systems**

12 Park Avenue  
Hudson, NH 03051  
Tel: 603-622-2481  
www.acu-gage.com

## **Advanced Color Technologies**

200 Capri Court  
Greenville, SC 29609 USA  
Tel: 864-370-2990  
www.measurecolor.com

## **Applied Vision Corporation**

2020 Vision Lane  
Akron, OH 44223 USA  
Tel: +1 330-926-2222  
www.appliedvision.com

## **CMC-KUHNKE, Inc.**

1060 Broadway  
Albany, NY 12204 USA  
Tel: +1 518-694-3310  
www.cmc-kuhnke.com

## **ISRA Vision**

4470 Peachtree Lakes Drive  
Duluth, GA 30096 USA  
Tel: +1 770-449-7776  
www.isravision.com

## **Intelligence Sensing, Inc**

46828 Butternut Road  
Oberlin, OH 44074 USA  
Tel: +1 440-774-4411  
www.intelsen.com

## **Pressco Technology, Inc**

29200 Aurora Road  
Cleveland, OH 44139 USA  
Tel: +1 440-498-2600  
www.pressco.com

## **Sencon**

6385 W. 74th Street  
Bedford Park, IL 60638 USA  
Tel: +1 708-496-3100  
www.sencon.com

## **Sensory Analytics**

4413C West Market Street  
Greensboro, NC 27407 USA  
Tel: +1 336-315-6090  
www.sensoryanalytics.com

## **REPAIR (SPARE) PARTS**

**Beckon Worldwide**, see  
Bodymaker Spare Parts

### **Cleveland Folder Service**

4330 Lee Ave, Gurnee, IL 60031 USA  
Tel: +1 847-782-5850  
www.clevelandfolder.com

## **REBUILDS**

Integrated Packaging Solutions  
4010 Youngfield Street  
Wheat Ridge, CO 80033  
Tel: 303-426-4881  
Www.intpacsol.com

## **2 PIECE DECORATOR MACHINERY- Belvac Production Machinery**

237 Graves Mills Road  
Lynchburg, VA 24502  
Tel: +1 434-832-6300  
www.belvac.com

## **Intercan Group Ltd**

38 Burners Lane  
Kiln Farm, Milton Keynes  
MK11 3HB United Kingdom  
Tel: +44 (0) 1908 270041  
www.intercan.co.uk

## **Stolle Machinery**

6949 South Potomac Street  
Centennial, CO 80112  
Tel: +1 303-708-9044  
www.stollemachinery.com

## **USED EQUIPMENT DEALERS**

**Perm Machine & Tool** see oven  
parts & services

## **UV EQUIPMENT**

### **American Ultraviolet Co / Aetek UV Systems**

1229 Romeoville, IL 60446 USA  
Tel: +1 630-226-4200 ext. 6000  
www.americanultraviolet.com

### **GEW, Inc.**

Unit X, 11941 Abbey Road  
North Royalton, OH 44133 USA  
Tel: +1 440-237-4439  
www.gewuv.com

### **Heraeus Noblelight America**

910 Clopper Road  
Gaithersburg, MD 20878  
Tel: +1 301-527-2660  
www.heraeus.com.

### **IST METZ GmbH**

Lauterstrabe 14-18  
D-72622 Nürtingen, Germany  
www.ist-uv.com

### **Miltec UV**

146 Log Canoe Circle  
Stevensville, MD 21666  
Tel: 410-604-2900  
www.miltec.com





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