UV & EB COMPLIANCE WITH FEDERAL CONSUMER PRODUCT SAFETY STANDARDS

The webinar will be begin shortly.

ESF State University of New York
College of Environmental Science and Forestry

RADTECH
THE ASSOCIATION FOR UV&EB TECHNOLOGY

Moderator

Doreen M. Monteleone

Director of Sustainability &
EHS Initiatives

RadTech

All webinars in this series are posted and archived at http://www.esf.edu/outreach/uvebwebinar

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THE FUTURE OF UV/EB ADVANCED MANUFACTURING
TRENDS, STRATEGIES AND APPLICATIONS

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Future of UV/EB Advanced Manufacturing: Trends, Strategies, and Applications

SUNY College of Environmental Science and Forestry's (SUNY-ESF) in collaboration with RadTech International North America presents **The Future of UV/EB Advanced Manufacturing: Trends, Strategies, and Applications** - a free webinar series. All of the previous webinars can be found on this page below. A list of upcoming webinars, and how to register can also be found below.

This national webinar series will address timely and relevant trends, issues and applications for individuals and organizations committed to expanding or exploring Ultraviolet/Electron beam (UV/EB) curing technologies. Selected topics will include an introduction to UV/EB materials, equipment, measurements, state and federal regulations and applications to food packaging and metals substrates. Webinars will entail sixty minutes of real-time presentation and interactive facilitated discussion with participants. This webinar series will also feature training and education opportunities available through the SUNY-ESF/RadTech collaboration. All webinars are offered free to interested individuals.

RadTech International North America is the nonprofit organization dedicated to the technical, educational and market advancement of Ultraviolet (UV) and Electron Beam (EB) Technology. RadTech has over 600 members that supply and use UV/EB equipment, raw materials and formulated products.

How to Participate in Webinars:

- Using Adobe Connect Instructions

Radiation Curing Program Links

- Home
- Registration, Fees & Billing
- **Program:**
  - Overview & Outcomes
  - Courses and Schedule
  - Who Should Attend
- UV/EB Overview
- Instructors and Staff
- About the Radiation Curing Program (RCP)
- **Related Programs:**
  - Certified Production Technician Program (CPT)
  - Future of UV/EB Webinar Series
- Related Links and Resources
- Gainful Employment Program Disclosure 2013
- Principles of Energy Curing Technologies

Contact

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Program Coordinator, ESF Outreach
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Upcoming Webinars

UV & EB Compliance with Federal Consumer Product Safety Standards

Doreen M. Monteleone, Ph.D., Director Sustainability & EHS Initiatives, *RadTech*
Mary Toro, Director of Regulatory Enforcement, *Consumer Products Safety Commission*
Neal S. Cohen, Small Business Ombudsman, *Consumer Products Safety Commission*

October 7, 2014, 2:00 PM EDT
Webinar Description:

Do your customers ask questions about the safety and compliance of your UV/EB coatings? Are you curious about which federal government consumer product safety regulations possibly address UV/EB? Have you ever been asked by your customers to certify the lead or phthalate content of your coatings?

In the webinar, you will hear directly from product safety professionals from the U.S. Consumer Product Safety Commission (CPSC). They will provide a detailed presentation followed by a question and answer session about the applicability of federal safety laws (mandatory and voluntary) including the Consumer Products Safety Improvement Act (CPSIA) to the UV/EB industry. CPSC staff will discuss requirements for lead in surface coatings, the use of phthalates, and the options around third-party testing for children's products. There is also a voluntary testing option that may be interest to members whose customers have requested safety information. Please feel free to send questions (and examples) ahead of time in order to make the presentation as relevant and helpful as possible. All questions and examples should be sent to Doreen Monteleone at Doreen@RadTech.org and received no later than Sept. 30, 2014.

Click Here to register.

Archive of Past Webinars

Index
2014 Webinars

UV 3D Printing and Additive Manufacturing - Lance Pickens	August 27, 2014
Light Curable Adhesives for Automotive and Electronic Applications and the Benefits of Surface Treatments - Brian Betty, Jeff Leighty, & Paul Mills	April 24, 2014
UV Curing Technology: A Route to Solvent-Free Adhesives and Coatings - Dr. Stephen Cantor	April 9, 2014
Recent progress in UV-A, UV-B, and UV-C LED technology, and emerging applications - Dr. Paul Rudy	March 5, 2014
Introduction to Design of Experiments for UV/EB Scientists and Engineers - Dr. Allan Guymon	February 25, 2014
Demystifying UV & EB Technology - Dr. Doreen M. Monteleone, Lisa Fine, & Dr. Stephen C. Lapin	January 29, 2014

2013 Webinars

Hyphenated Thermal, Thermomechanical, and Dielectric Analysis Techniques for Optimizing and Monitoring Photo-curing Processes - Dr. Pamela Shapiro	December 4, 2013
UV LED Review & Preview for UV LED Summit 2013 - Jennifer Heathcote, Chad Taggard, & JoAnn Arceneaux	September 13, 2013
UV/EB Technology Center at SUNY-ESF - Dr. Mark Driscoll	September 11, 2013
Radiation Curable Additives Enabling Excellent Paint Surfaces - Dr. Paulo Roberto Vieira Jr.	April 29, 2013
Enabling Clean Air Manufacturing with UV & EB Technology - Rules & Planning Panel Discussion - Special Broadcast from uv.eb West 2013	February 26, 2013
Staying in Compliance and in Business with UV/EB - Rita Loof	January 14, 2013

2012 Webinars

New Press Technologies for UV/EB - Tony Bean	December 17, 2012
The ABC's of UV Measurement & Process Control - Jim Raymont	November 29, 2012
Introduction to the Selection of UV and EB Curing Equipment - Dr. Stephen C. Lapin	October 24, 2012
Introduction to UV/EB Materials - Dr. Mike Idacavage	September 27, 2012

UV 3D Printing and Additive Manufacturing

Lance Pickens, CEO and Founder, MadeSolid

August 27, 2014, 2:00 PM EST
Webinar Description:

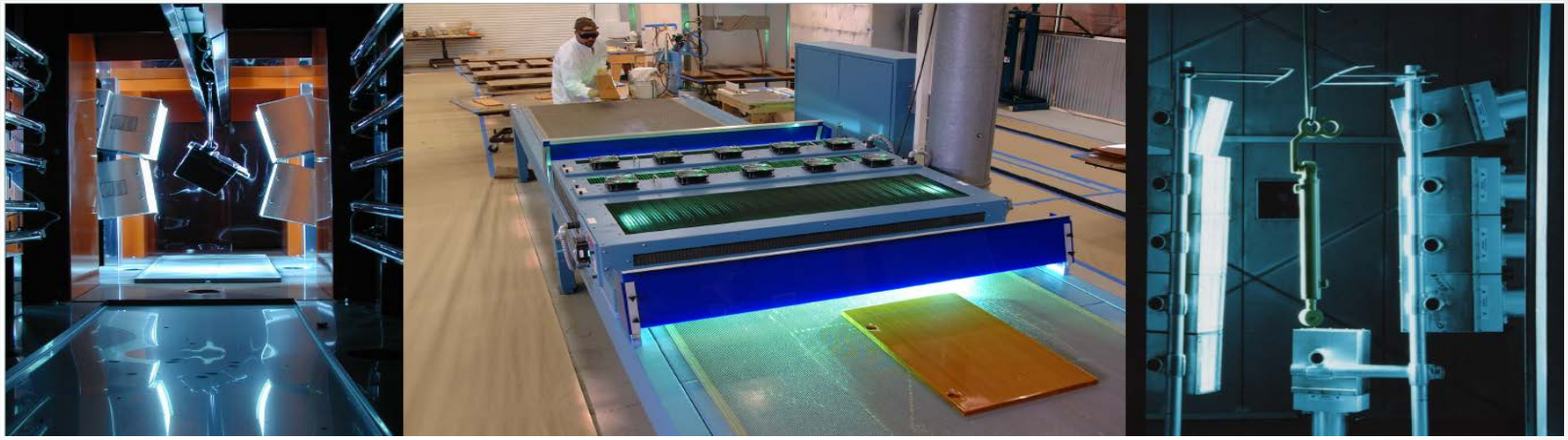
"3-D printing is set to skyrocket," according to a recent market research report, with UV materials poised to play a major role in the development of the technology. Lance Pickens is fast emerging as a visionary in 3-D printing and is the Founder and CEO of MadeSolid, Inc., based in Emeryville, California, and has agreed to Keynote our 2014-2015 webinar series.

MadeSolid develops advanced materials for 3-D printers with a reported meticulous focus on superior mechanical properties while promoting ease of use. With the help of early beta users and a crowdsourcing campaign, MadeSolid has released several products that give 3D printer users access to advanced materials. Lance holds degrees from USC and the Illinois Institute of Technology.

The webinar will recount developments in advanced materials for 3-D printing and Lance will share his experiences and outlook for the role of UV as the technology continues to accelerate.

- View Archived Presentation (Requires Adobe Flash)

Radiation Curing Program [RCP]



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March 10-11, 2015 -- Redondo Beach, CA

www.RadTech.org

Speakers

U.S. Consumer Products Safety Commission

Mary Toro
Director Regulatory Enforcement

Neal S. Cohen
Small Business Ombudsman

John Boja, Ph.D.
Team Lead Regulated Chemicals

Overview of Chemical, Hazardous Substance & Other Product Safety Requirements

RadTech Webinar

October 7, 2014

Views expressed in this presentation are those of the staff and do not necessarily represent the views of the Commission.

Agenda

- Intro to CPSC
- Consumer Products Safety Act (CPSA) & Federal Hazardous Substances Act (FHSA)
- What is a Children's Product?
- Consumer Product Safety Improvement Act (CPSIA) of 2008
  - ✓ Key Substantive Requirements
    - ✓ Chemical content – lead, lead in paint, phthlates
  - ✓ Key Procedural Requirements
    - ✓ Third Party Testing; labeling requirements

U.S. Consumer Product Safety Commission

- Independent, federal regulatory agency; established in 1973.
- Mission is to reduce unreasonable risks of injury from consumer products.
- Jurisdiction includes thousands of different types of products sold to consumers for personal use in or around the household or school and in recreation.
- Five Commissioners, appointed by the President and confirmed by the Senate

Key Legislation

Consumer Product Safety Act (CPSA)

- Manufacturers and importers of children's products must third party test (CPSC-accepted laboratory) and certify to demonstrate that their products comply with the Act and applicable regulations.
- Manufacturers and importers of non-children's products must test and certify to demonstrate that their products comply with the Act and applicable regulations.
- Industry mandatory self-reporting through Section 15.
- Establishes prohibited acts and includes civil and criminal penalties for violations.

Key Legislation

Federal Hazardous Substances Act (FHSA)

- Requires precautionary labeling on the immediate container of hazardous household substances to help consumers safely store and use those products and to give them information about immediate first aid steps to take if an accident happens.
- Bans certain products that are so dangerous or the nature of the hazard is such that the labeling the Act requires is not adequate to protect consumers.
- Bans toys and or article intended for use by children that is, or bears, or contains a hazardous substance in such manner as to be susceptible of access by a child to whom the toy is entrusted.

Key Powers available to CPSC

- Order a manufacturer to cease distribution, recondition/repair, replace, or refund the price of a product
- Refuse admission of non-compliant products; seize and destroy product at the port of entry with Customs & Border Protection (CBP)
- Issue public communications and warnings re: a product and a recall/corrective action plan
- Investigate for civil and criminal penalties for prohibited acts, including failure to report in a timely and adequate manner & other violations
- Injunctive relief
- Above can be via court or administrative proceedings or voluntary, in cooperation with the manufacturer.

What is a Children's Product?

"Children's products" are those products designed or intended primarily for children 12 years old and younger – children's toys are included.

What is a Children's Product?

- The following 4 factors will be considered:
  - A statement by the manufacturer about the intended use of the product, including a label on the product, if such statement is reasonable.
  - Whether the product is represented in its packaging, display, promotion, or advertising as appropriate for use by children 12 years of age or younger.
  - Whether the product is commonly recognized by consumers as being intended for use by a child 12 years of age or younger.
  - The Age Determination Guidelines (pdf) issued by the Commission staff in September 2002, and any successor to such guidelines.

Lead and Children

- Lead is a cumulative toxic heavy metal which, in humans, exerts its effects on the renal, hematopoietic, and nervous systems.
- There appear to be three stages to childhood lead poisoning.
  - (1) Adverse health effects in the first stage are not clinically present but metabolic changes can be observed.
  - (2) Loss of appetite, vomiting, apathy, drowsiness, and inability to coordinate voluntary muscle movements.
  - (3) Hyperactivity, impulsive behavior, prolonged reaction time, perceptual disorders and slowed learning ability.

Lead and Children's Products

- Surface Coatings: Lead is limited to a maximum of 90 parts per million (ppm) in paint and other surface coatings in children's products and other products.
- Substrates: Lead is limited to a maximum of 100 ppm in the substrates of all children's products.
- Note → Each lead requirement is distinct, with its own definitions and test methods.

Regulatory History of Lead in Consumer Products

- **2007 was the 'Year of The Recall'**
  20 million toy units recalled in the United States
  Consumer Product Safety Improvement Act of 2008 (CPSIA)

- **Limits in Lead in Paint Reduced to 90 ppm** (0.009%)
  - Previously 600 ppm (0.06%)
  - Section 101 of the CPSIA, Pub. L. 110-314

- **Limits in Total Lead Content in Substrate *created*:**
  Phased in to **100 ppm** (0.01%)

Lead in Paint: Scope and Application

- Paint and similar surface-coating materials for consumer use

- Applies to those products that are customarily produced or distributed for sale to or for use, consumption, or enjoyment of consumers in or around a household, in schools, or in recreation.

- Also applies to products that are used or enjoyed by consumers after sale, such as paints used in residences, schools, hospitals, parks, playgrounds, and public buildings where consumers will have direct access to the painted surface.

Exclusions

16 C.F.R. § 1303.1:

- Excluded paint and coatings uses:
  - Motor vehicles
  - Boats
  - Industrial
  - Agricultural

Definitions

16 C.F.R. § 1303.1

(1) Paint and other similar surface-coating materials means fluid, semi-fluid, or other materials, which change to a solid film.

(2) Lead content is calculated (as lead metal) by the weight of the total nonvolatile content of the paint or the weight of the dried paint film.

Definitions

16 C.F.R. § 1303.1:

(3) Toys and children's products *

*Testing at CPSC-accepted laboratory

(4) Furniture article:

- ✓ means movable articles,
- ✓ But does not include appliances, fixtures, or household items.

Exemptions with Required Labeling

16 C.F.R. § 1303.3

- ✓ Agricultural and industrial equipment refinish coatings
- ✓ Industrial (and commercial) building and equipment maintenance coatings
- ✓ Traffic and safety marking coatings
- ✓ Graphic art coatings
- ✓ Touch-up coatings for agricultural equipment, lawn and garden equipment, and appliances
- ✓ Catalyzed coatings marketed solely for use on radio-controlled model powered aircraft

Lead in Surface: Required Labeling

These products must bear on the main panel of their label:

- ✓ "Warning"
- ✓ "Contains Lead. Dried Film of This Paint May Be Harmful If Eaten or Chewed"
- ✓ Application prohibitions
- ✓ Keep out of reach of children

Exemptions (No Required Labeling)

16 C.F.R. § 1303.3

- ✓ Mirrors that are part of furniture articles to the extent that they bear lead-containing backing paint
- ✓ Artists' paints and related materials
- ✓ Metal furniture articles (but not metal children's furniture) bearing factory-applied coatings

Application

- Generally, CPSC staff differentiates inks, paints, or pigments from material substrates by applying a razor test.
- If the ink, paint, or pigment scrapes off then it is considered to be a surface coating; if it does not scrape off, then it is considered to be part of the substrate itself.
- Substrate of children's products must be third-party testing for lead.
  - Different standard and different test method.

Total Lead Content

- Substrates of children's products are subject to a *different* lead limit of 100 ppm, using different testing methods.
  - Citation: 15 U.S.C. 1278a
- Accessible component parts only
  - Citation: 16 CFR §1500.87

Total Lead Content: Exemptions

- Exemptions to required lead testing include but not limited to:
  - Paper and similar materials made from wood or other cellulosic fiber, including, but not limited to, paperboard, linerboard, and medium and *coatings on such paper which become part of the substrate*.
  - Dyed and undyed textiles
  - CMYK process printing inks

  Third party lab testing *not* required to verify above list

  Full exemption listing at: 16 CFR §1500.91
    – Access via www.ecfr.gov, under Title 16.

Phthalates

- Congress has permanently banned three phthalates (DEHP, DBP, BBP)
  - Limit: Banned in any amount greater than 0.1 percent (computed for each phthalate, individually) in accessible component parts of (1) children's toys and (2) certain child care articles.
- Congress has also banned (on an interim basis) three additional phthalates (DINP, DIDP, DnOP)
  - Limit: in any amount greater than 0.1 percent (computed for each phthalate individually) in accessible component parts of (1) a children's toy that can be placed in a child's mouth, and (2) child care articles

Phthalates

- ✓Chronic Hazard Advisory Panel (CHAP) on Phthalates, report available on www.cpsc.gov

Phthalates

- The ban does not apply to component parts that are inaccessible to a child.
- Applies only to plasticized component parts (or other product parts that could conceivably contain phthalates) of children's toys and child care articles.
- It is not necessary to test and certify materials that are known not to contain phthalates or to certify that phthalates are absent from materials that are known not to contain phthalates.

Toys – Chemical Restrictions

- The Toy Standard, ASTM F963-11, also includes requirements for the soluble limits of eight heavy metals:
  - Antimony; Arsenic; Barium; Cadmium; Chromium; Lead; Mercury; Selenium
- *Both* surface coatings and substrates
- The requirements apply to toys but are sometimes referenced in retailer and other requirements.
- **Total screening test available to test all eight metals in one test.**

Premarket Requirements – Testing

Initial Certification Testing: Children's products must be tested for compliance at CPSC-accepted laboratories. Products must be certified in a Children's Product Certificate.

Periodic Testing: Children's products with continuing production must be retested and recertified at a minimum of once every year, except for those manufacturers conducting additional production testing. 16 CFR Part 1107.

Material Change Testing: Material changes require a retest of the product or of the component part that was changed.

www.cpsc.gov/testing

www.cpsc.gov/cpc

Premarket Requirements – Testing

Component Testing: Certifiers may rely upon the test results or a certification from a component part supplier if the requirements in the regulation at 16 CFR Part 1109 are met.

In order to rely upon test results or a certification from a supplier, you must use due care to ensure that the tests results or the certificate is valid, and be given access to the underlying documentation. Component testing is completely voluntary.

www.cpsc.gov/testing

www.cpsc.gov/cpc

Composite Testing

- Composite testing is allowed to test for lead in paint, lead, and phthalates as long as the requirements at 16 CFR § 1109.21 are met.
- One may test a combination of different samples as long as test procedures are followed to ensure that no failure to comply with applicable limits will go undetected, and as long as the other requirements for component part testing are met.

Testing: Wet Chemistry for Lead in Paint

- General approach is to carefully scrape lead from surface of a sample, taking care not to include substrate material; digest an aliquot completely in nitric acid.
- Analyze by Inductively Coupled Plasma Optical Emission Spectroscopy (ICP-OES). Other analytical methods, such as Inductively Coupled Plasma – Mass Spectrometry (ICP-MS) and others may be acceptable.
- Test Method Lab Page: http://cpsc.gov/Business--Manufacturing/Testing-Certification/Lab-Accreditation/Test-Methods/

Testing: Energy Dispersive X-ray fluorescence spectroscopy (EDXRF)

Testing Methods:

- Energy Dispersive XRF Spectrometry Using Multiple Monochromatic Excitation Beams (EDXRF) can be used to determine quantitatively the amount of Pb in paint by following ASTM F2853-10e1, with limitations.
- May rely on EDXRF for certification using third party, CPSC-accepted laboratories.

Testing: Wet Chemistry for Total Lead Content

- General approach is to grind or cut any accessible component part of a sample into small pieces or a powder; digest an aliquot completely in nitric acid, or for siliceous products, in a combination of hot, concentrated nitric and hydrofluoric acids;
- Analyze by Inductively Coupled Plasma Optical Emission Spectroscopy (ICP-OES).
- Other analytical methods, such as Inductively Coupled Plasma – Mass Spectrometry (ICP-MS) and others may be acceptable.

Testing: X-ray fluorescence spectroscopy (XRF) for Lead Content

Testing Methods:

- Staff have studied the effectiveness, precision, and reliability of XRF
- May rely on XRF for certification to total lead content using third party, CPSC-accepted laboratories.
- XRF spectroscopy can be used, with limitations, to determine lead content in homogeneous metal, plastic , siliceous, and polymeric materials substrates.
  - Not suitable for testing glazed ceramics or electroplated metals as these are inhomogeneous
- Use of standard reference materials and standardized test method are needed.
- Periodic review of test methods no less than every 5 years

Testing: Energy Dispersive X-ray (EDXRF) fluorescence spectroscopy

Testing Methods for Lead Content:

- Energy Dispersive XRF Spectrometry Using Multiple Monochromatic Excitation Beams (MMB-XRF) as well as other forms of Energy Dispersive XRF Spectrometry (EDXRF) can be used to determine quantitatively the amount of Pb in homogeneous materials.
- Follows ASTM F2853-10e1 (for EDXRF) or ASTM F2853-10 (for other EDXRFs), each with specific limitations, as set forth in CPSC-CH-E1001-08.3 (metals) and CPSC-CH-E1002-08.3 (non-metals) (as well as for paint, as discussed previously).
- The CPSC methods explain testing requirements to determine homogeneity and additional instrumental QC requirements beyond those for EDXRF for other MMB-EDXRF instruments.
- May rely on XRF for certification using third party, CPSC-accepted laboratories.

Learn More

Key Website Links

General Business Education

www.cpsc.gov/BusinessEducation

www.cpsc.gov/DesktopGuide

Testing & Certification

www.cpsc.gov/Testing

www.cpsc.gov/CPC

www.cpsc.gov/LabSearch

Key Substantive Requirements

www.cpsc.gov/leadinpaint

www.cpsc.gov/lead

www.cpsc.gov/phthalates

Resources

Desktop Reference Guide
www.cpsc.gov/desktopguide

CPSIA Resources
www.cpsc.gov/GettingStarted

Twitter
@CPSCSmallBiz

Slideshare
Downloadable Presentations
www.SlideShare.net/USCPSC

Email list signup
www.cpsc.gov/email

Thank You

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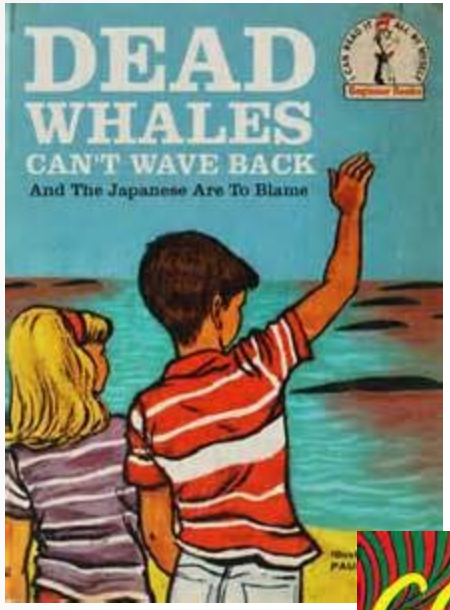
Questions?

Blocks

Toy Cars

Books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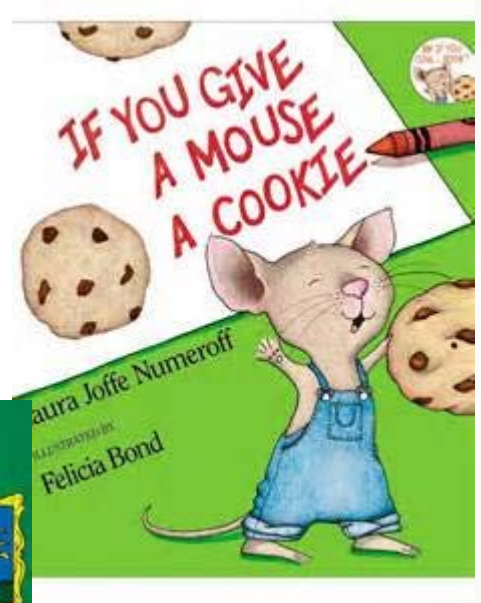
WHALES
CAN'T WAVE BACK
And The Japanese Are To Blame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A COOKIE
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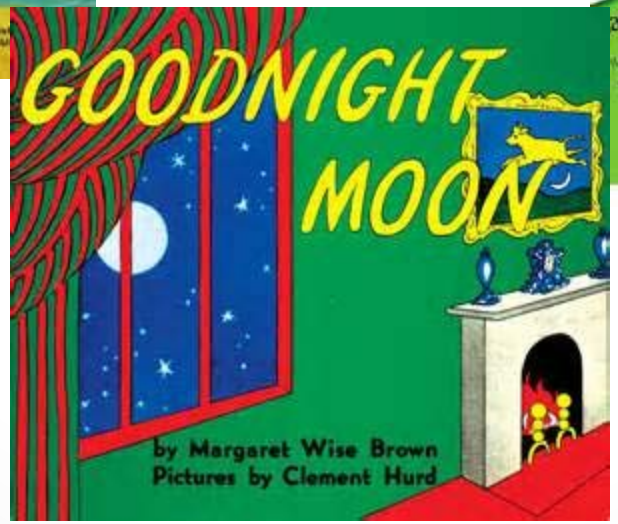
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by Margaret Wise Brown
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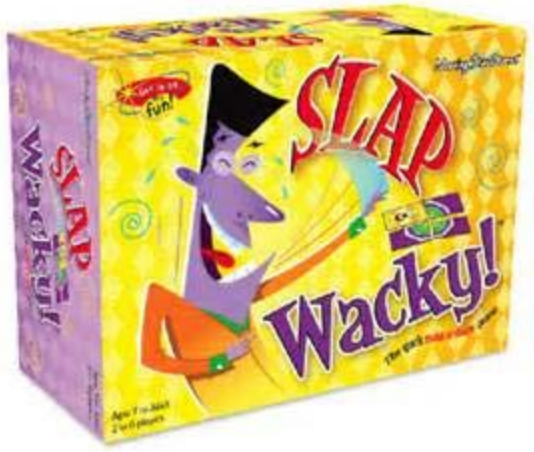
Furnishings

Packaging



Questions?

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