BizNGO 2021 Annual Meeting

Transparency & Justice Rising

Thank you Sponsors!

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Virtual Meeting Overview

5 Sessions / 2 days

1. Addressing Environmental Justice Through Chemicals Management (December 7 @ 11am-2pm EST)
2. Transparency: Disclosing Chemicals in Products & Supply Chains (December 7 @ 3pm-6pm EST)
3. Safer Chemicals in Manufacturing (December 8 @ 11am-12:30pm EST)
4. Standards, Indexes, & Purchasers Tracking Corporate Progress to Safer Chemicals (December 8 @ 1:30pm-3pm EST)
5. Circularity & Toxics: Bringing Chemical Safety to Closed Loop Systems (December 8 @ 4pm-5:30pm EST)

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Session 3

Safer Chemicals in Manufacturing

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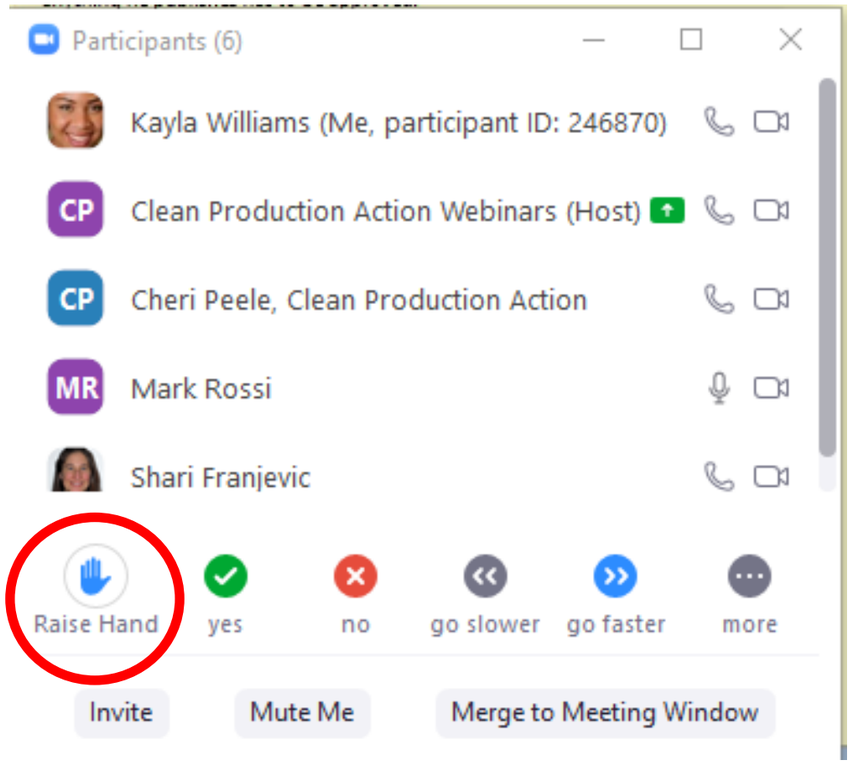
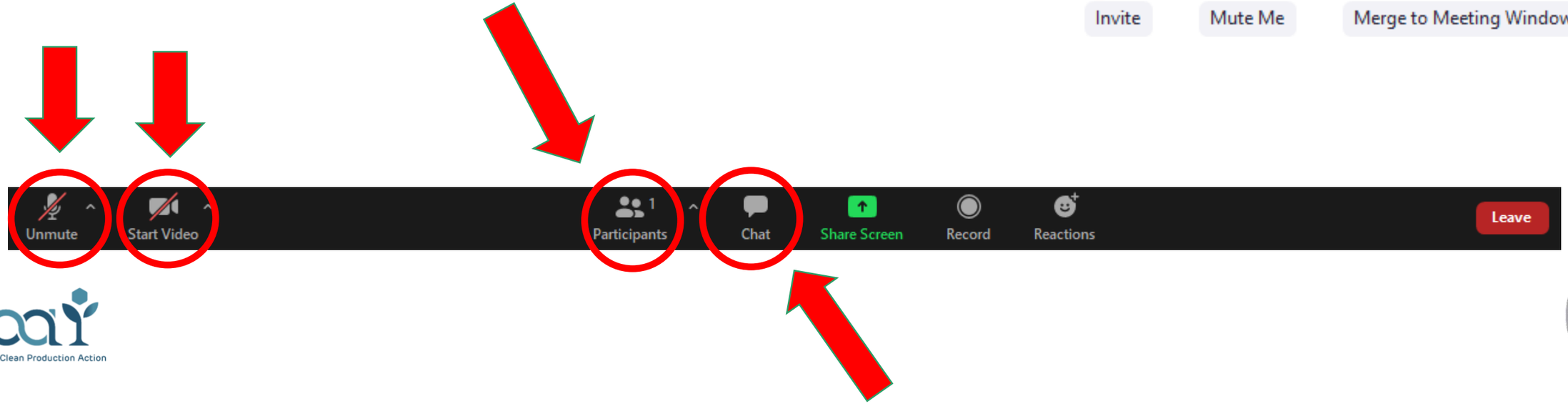
Zoom Protocol

- **Enter participant ID if calling in**
- **Rename yourself to include your organization**
- **Raise hand** to speak
- **Chat** for questions/comments
- **Mute** yourself
- **Feel free to show video**
- **Only presentations recorded**





Chatham House Rule

Participants are free to use the information received, but neither the identity nor the affiliation of the speaker(s), nor that of any other participant, may be revealed; unless approved by the participant

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Session 3 Desired Outcomes

- Understand the value of taking action to reduce the use of toxic chemicals in manufacturing operations beyond regulatory compliance.
- Know metrics and tools for identifying and reducing chemicals of concern in manufacturing operations.
- Learn the interconnections between manufacturing operations and environmental justice
- Take away strategies for accelerating the transition away from chemicals of concern to inherently safer solutions in manufacturing.

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Speakers

Charlotte Brody
Vice President for Occupational and Environmental Health,
BlueGreen Alliance

Jennifer Reece
Sustainable Materials Innovation Manager,
HP Inc.

Shari Franjevic
GreenScreen Program Manager,
Clean Production Action

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Session 3 Agenda

11:00 Presentations

11:40 Q&A

11:50 Small groups

12:15 Report backs & wrap up

12:30 Adjourn

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Safer Chemicals in Manufacturing

Charlotte Brody, RN

Vice President for Occupational and Environmental Health

BlueGreen Alliance

Why we don't have

Safer Chemicals in Manufacturing

Charlotte Brody, RN

Vice President for Occupational and Environmental Health

BlueGreen Alliance

December 29, 1970
President Nixon signs the Occupational Safety and Health Act

- BLS reports that 5,333 workers died on the job in 2019. The workplace fatality rate is now 3.5 per 100,000 workers compared to 18 per 100,000 when the Occupational Safety and Health Administration was created in 1970.

OSHA has made US workplaces safer.

But the 5000 workers who now die on the job every year is dwarfed by OSHA's estimate that 50,000 Americans die every year because of their exposure to chemicals at work.

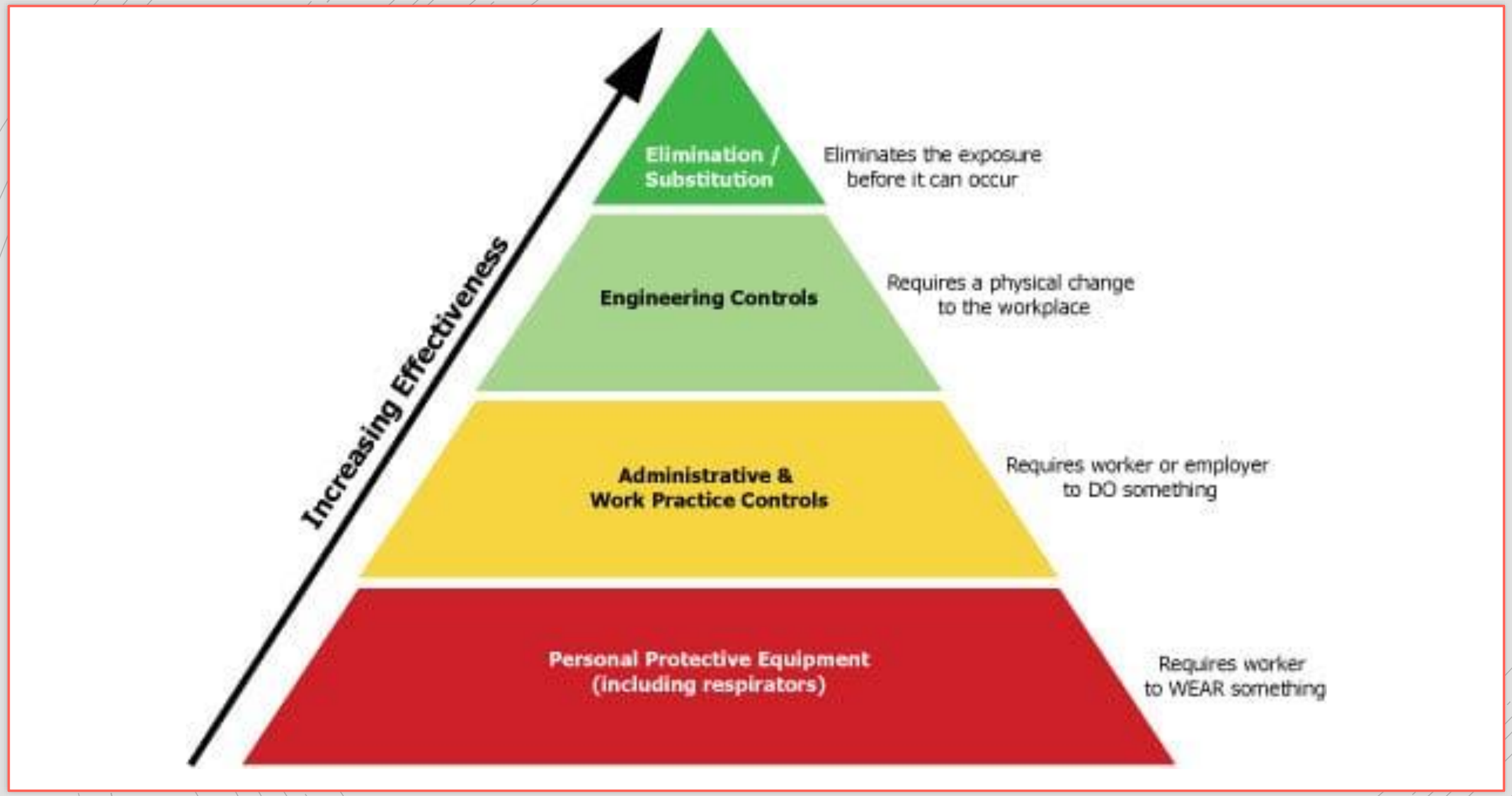
Permissible Exposure Limits – Annotated Tables

Table Z-1 **Table Z-2** **Table Z-3** **Important Note on ACGIH TLV®**

OSHA recognizes that many of its permissible exposure limits (PELs) are outdated and inadequate for ensuring protection of worker health. Most of OSHA's PELs were issued shortly after adoption of the Occupational Safety and Health (OSH) Act in 1970, and have not been updated since that time. Section 6(a) of the OSH Act granted the Agency the authority to adopt existing Federal standards or national consensus standards as enforceable OSHA standards. Most of the PELs contained in the Z-Tables of 29 CFR 1910.1000 were adopted from the Walsh-Healy Public Contracts Act as existing Federal standards for general industry. These in turn had been adopted from the 1968 Threshold Limit Values (TLVs®) of the American Conference of Governmental Industrial Hygienists (ACGIH®). Some consensus standards from the American Standards Association were also adopted at that time, following the 6(a) procedures. Comparable PELs were adopted for shipyards (29 CFR 1915.1000) and construction (29 CFR 1926.55).

Since 1970, OSHA promulgated complete 6(b) standards including new PELs for 16 agents, and standards without PELs for 13 carcinogens.

Industrial experience, new developments in technology, and scientific data clearly indicate that in many instances these adopted limits are not sufficiently protective of worker health.


Increasing Effectiveness
Elimination / Substitution
Eliminates the exposure before it can occur
Engineering Controls
Requires a physical change to the workplace
Administrative & Work Practice Controls
Requires worker or employer to DO something
Personal Protective Equipment (including respirators)
Requires worker to WEAR something

Health Hazard

- Carcinogen
- Mutagenicity
- Reproductive Toxicity
- Respiratory Sensitizer
- Target Organ Toxicity
- Aspiration Toxicity

Flame

- Flammables
- Pyrophorics
- Self-Heating
- Emits Flammable Gas
- Self-Reactives
- Organic Peroxides

Exclamation Mark

- Irritant (skin and eye)
- Skin Sensitizer
- Acute Toxicity (harmful)
- Narcotic Effects
- Respiratory Tract Irritant
- Hazardous to Ozone Layer (Non-Mandatory)

Three of OSHA's Hazard Communications Pictograms adopted from GHS

1-Bromopropane

- Required GHS Warnings:
- May cause cancer.
- May damage fertility or the unborn child.
- Causes damage to the nervous system through prolonged or repeated exposure.

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- May cause cancer.
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Missing on 58% of 58 unique SDSs

Missing on 27%

Missing on 94%

If OSHA restrictions and Safety Data Sheets don't encourage safer chemicals in manufacturing,

what does?

If OSHA restrictions and Safety Data Sheets don't encourage safer chemicals in manufacturing, what does?

If OSHA restrictions and Safety Data Sheets don't encourage safer chemicals in manufacturing,

what does?

Revealing lessons learned in piloting the Chemical Footprint Project's manufacturing module

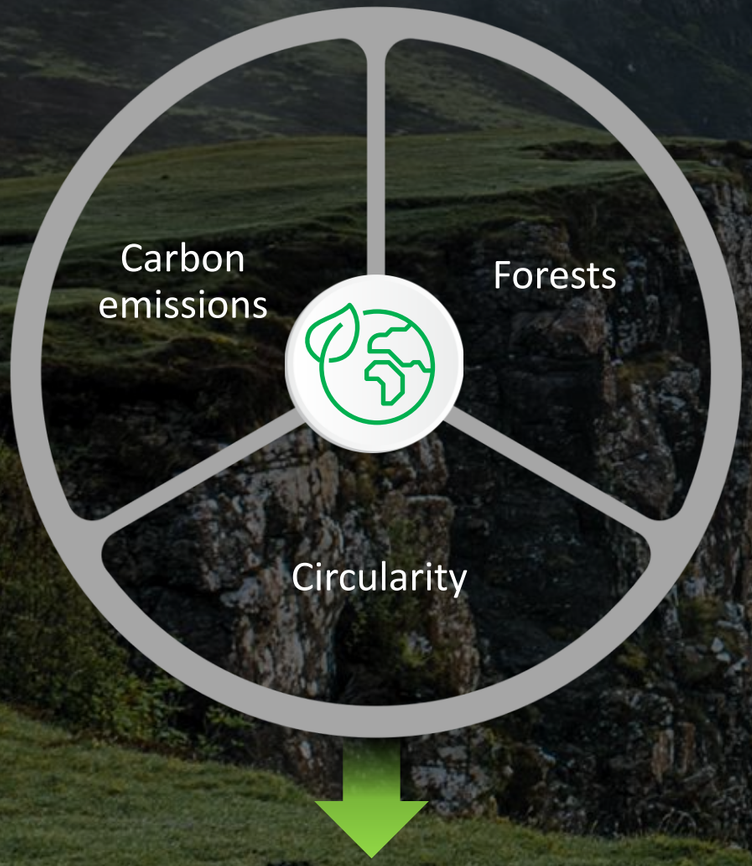
Jennifer Reece
Sustainable Materials Innovation Manager
Dec 2021

HP’s ambition is to be a lighthouse brand for purpose

We aspire to become the world’s **most sustainable and just** technology company

Sustainable Impact pillars

Climate action



Human rights

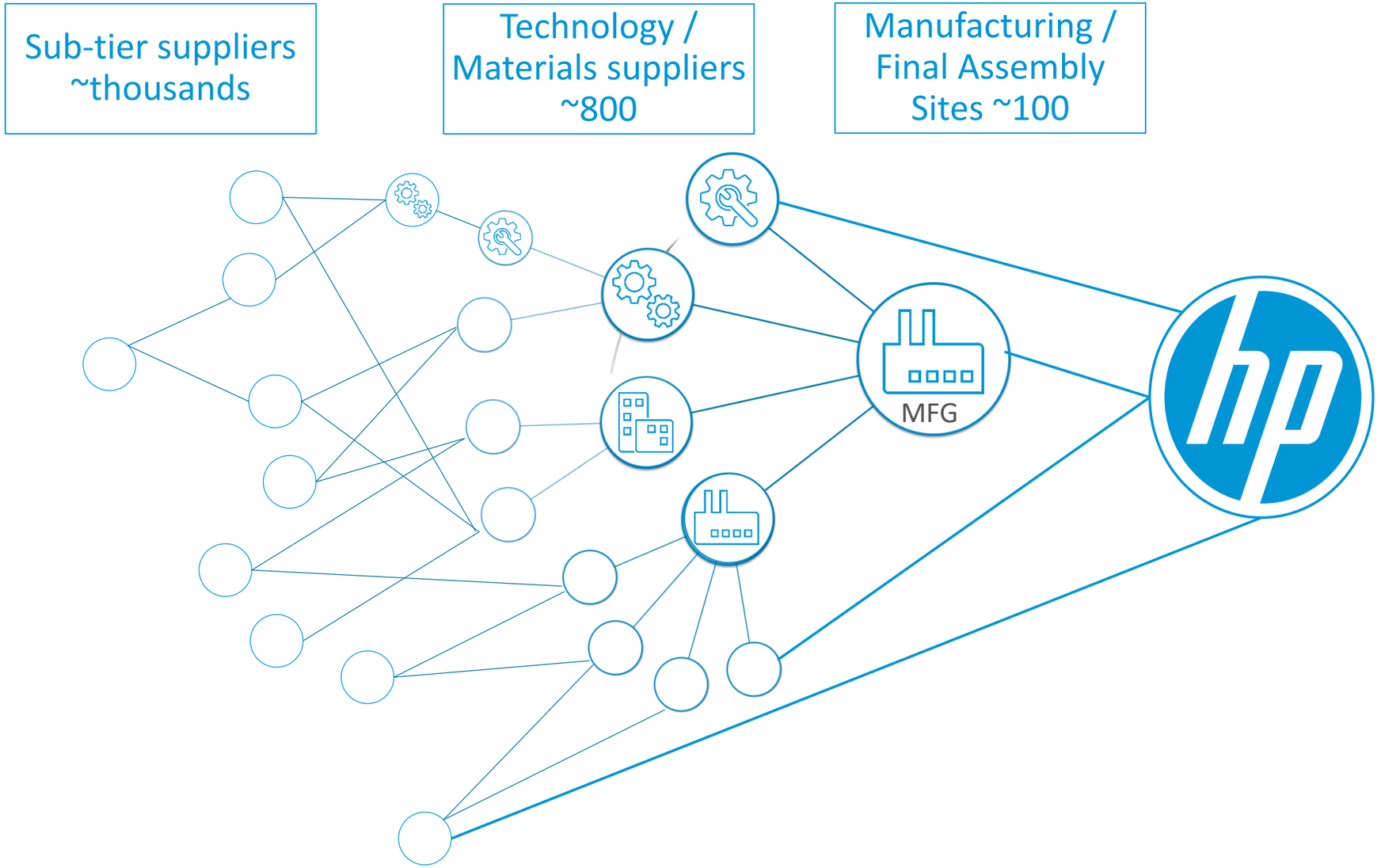
Digital equity

Our actions, outcomes and goals across each pillar will grow and accelerate over our 10-year horizon, creating an outsized impact on our business overall with a multiplier effect achieved by scaling across our value chain, leveraging the full spectrum of our partner ecosystem and influencing our industry.

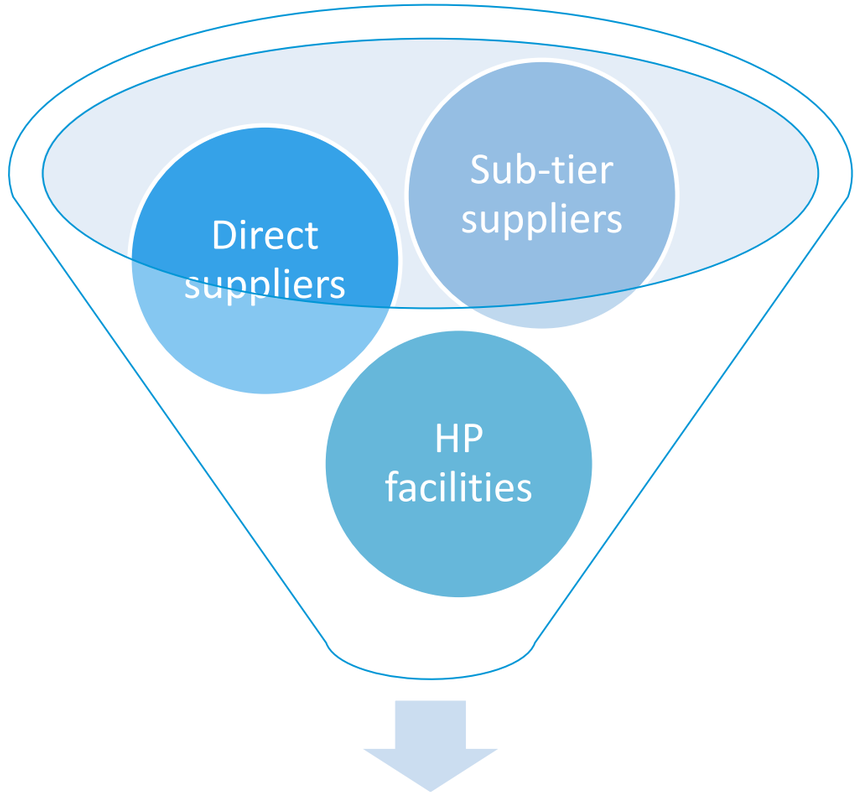
EVERY PERSON DESERVES DIGNITY AND RESPECT

We insist that workers in our supply chain have fair treatment, safe working conditions, and freely chosen employment

HP supply chain



Manufacturing chemical footprint pilot



Mfg chemical usage volume screened against CoHC list = Chemical Footprint

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Safer Chemicals in Manufacturing through GreenScreen Certified™

BIZNGO ANNUAL MEETING

DECEMBER 8, 2021

Simplifying the Complexity of Chemical Hazard

To support informed, proactive, and precautionary decision-making

Chemicals

Products

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2021

Cleaners & Degreasers in Manufacturing

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Focus on Workers

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Purchasers

- *Buy products not chemicals*
- *Want chemistry assessed but lack expertise*
- *Want a trusted independent party to assess products*

Manufacturers

- *Protect Confidential Business Information*
- *Promote products based on safer chemistry*

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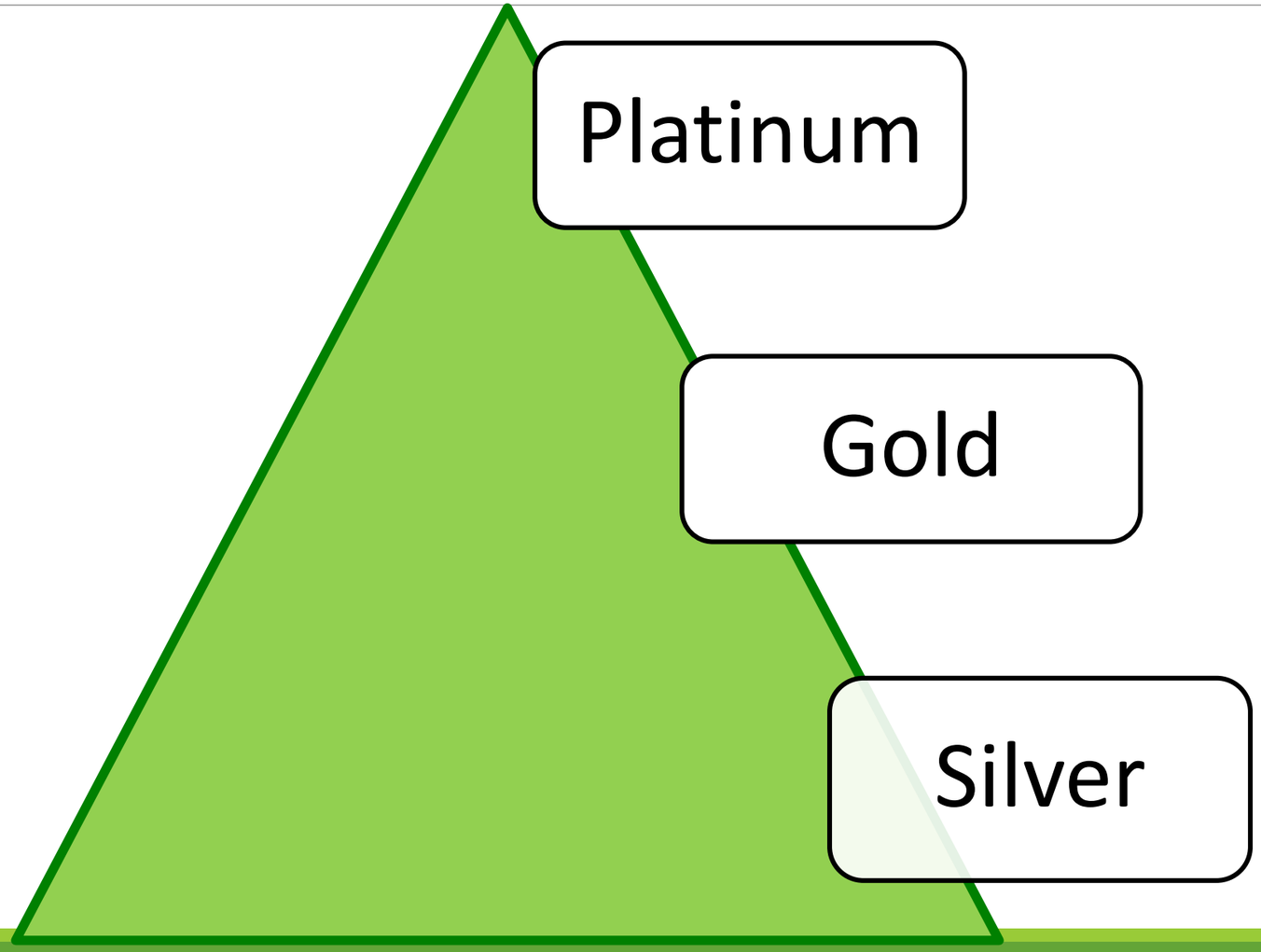
GreenScreen Certified: PFAS-Free and Preferred



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Chemicals Disclosed under Confidentiality

CONFIDENTIAL DISCLOSURE AGREEMENT

All **additives** present in the product at any level must be disclosed under confidentiality.

- E.g., surfactant

All **chemicals** present in all additives must be disclosed if:

- Intentionally added and present at any level in the product
- Impurity or residual and present at or above 100 ppm in the product

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Restricted Substances List

- Chlorinated Organic Compounds
- Brominated Organic Compounds
- Per- and Polyfluoroalkyl Substances
- Ozone Depleting Substances
- Alkylphenols & Alkylphenol Ethoxylates
- Solvents: Benzene, N-Hexane, Toluene, NMP, Methanol
- Cyclic Volatile Methyl Siloxanes: D4, D5, D6

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Value of Chemical Classes

- Efficient and precautionary framework
- Rooted in already well established toxicology methods
- Supports decision-making in absence of complete data
- Supports decision-making for new chemicals coming onto the market daily

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Products Tested to Verify Absence

Chemical or Group	Detection Limit	Requirement
Chlorinated organic compounds	≤ 50 ppm	None Detected
Brominated Organic Compounds		
Benzene	≤ 5 ppm	
N-Hexane		
Toluene		
N-methylpyrolidone (NMP)		

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Each chemical evaluated with GreenScreen

GreenScreen
List Translator

GreenScreen
Hazard
Assessment

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Chemicals of High Concern are Prohibited

- **CMRs** =
  - Carcinogens,
  - Mutagens, or
  - Reproductive / Developmental Toxicants
- **PBTs** =
  - Persistent, and
  - Bioaccumulative, and
  - Toxic
- **Equivalent Concern =**
  - Endocrine Disruptors

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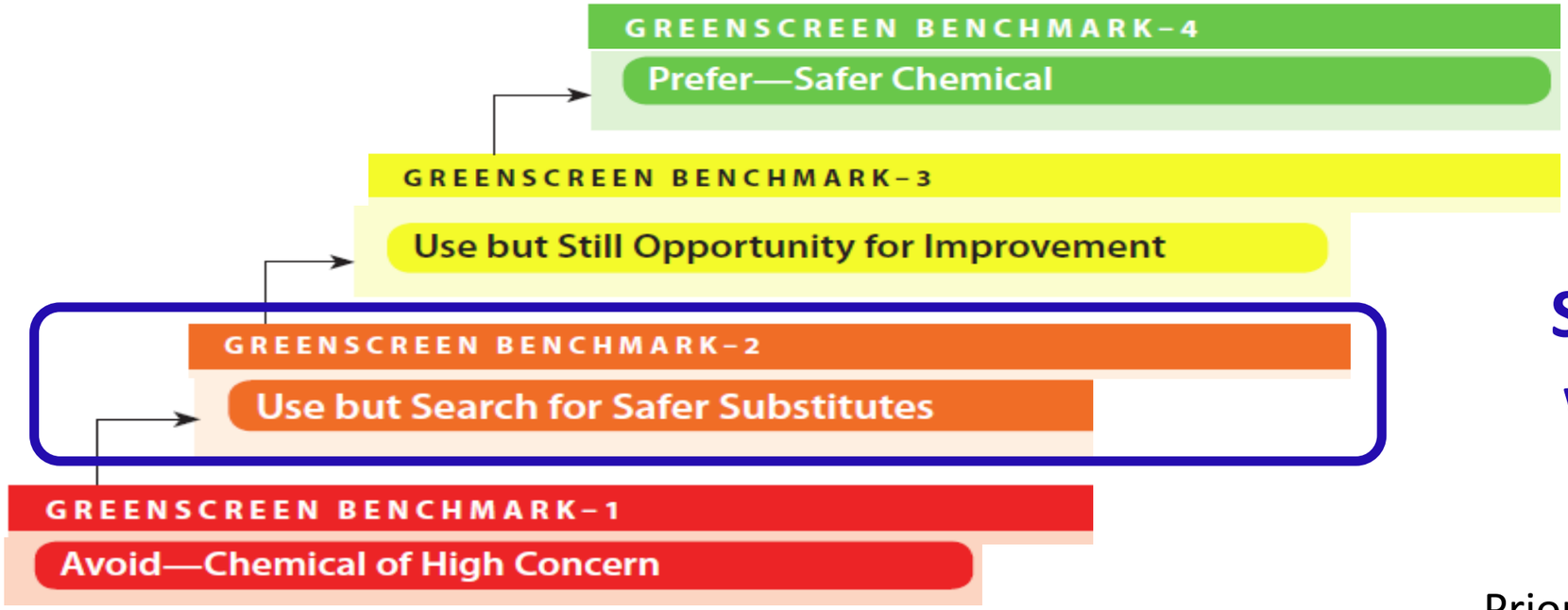
Creating Platinum



Subdivide Benchmark-2 with a focus on worker health and safety

Prioritized **chronic human health effects** such as cancer, birth defects, neurotoxicity, sensitization.

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Challenges & Lessons Learned

- Restrict chemical classes
- Evaluate each chemical for hazard

- Socialize needs and rationale
- Disclose to third party

- Transparent requirements
- Three levels
- Reformulation

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Technical Peer Reviewers

Xu Lu, Program Manager, Environment & Supply Chain Innovation (ESCI), Apple, Inc.

Art Fong, PhD, Environmental Technologies Smarter Chemistry Lead, Apple, Inc.

Jason Marshall, ScD, Director for TURI Cleaning Laboratory, University of Massachusetts-Lowell

Akos Kokai, PhD, Department of Environmental Science, Policy, and Management, University of California Berkeley

Michael Wilson, PhD, National Director for Occupational and Environmental Health, BlueGreen Alliance

Andrew Zhu, Senior Product EHS Engineer, 3M

Joachim Becht, PhD, Global Head R&D, Dr. Wack Holding GmbH

Terry Price, PhD, R&D Scientist, Zestron Americas

Christopher Teaf, PhD, Director, Center for Biomedical & Toxicological Research at Florida State University

Doug Covert, Senior Environmental Scientist, Hazardous Substance & Waste Management Research, Inc. (HSWMR)

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Thank you!

Contact Clean Production Action:

Shari Franjevic
shari@cleanproduction.org

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https://www.greenscreenchemicals.org/

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Q&A

The floor is open to ask Charlotte, Jennifer, and Shari questions or share your thoughts/reactions to their presentations.

Indicate you have something to say by typing it in chat or raising your hand.

Small Group Discussion

- How should environmental justice & safer chemicals in manufacturing interconnect?
- Which chemicals should be included in manufacturing restricted substances lists (MRSLs)?
- How can we accelerate demands for the use of inherently safer chemicals in manufacturing (as opposed to better exposure and pollution controls)?

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Thank you for joining! Today's presentations and slides will be made available at www.bizngo.org.

Please fill out the evaluation form for this session!

Join BizNGO workgroups at www.bizngo.org/get-involved/join-bizngo.

Up Next …

- Standards, Indexes, & Purchasers Tracking Corporate Progress to Safer Chemicals (1:30-3pm EST)
- Circularity & Toxics: Bringing Chemical Safety to Closed Loop Systems (4:00-5:30pm EST)

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