Engineered Water Panel Discussion
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CERTIFICATIONS/LEGISLATION ARE EVOLVING the DIRECTION of SUSTAINABLE CLEANING TECHNOLOGIES

- Population and Urbanization Trends
- Global Pandemic Concerns
- Sustainability Trend
- REACH
- Increased Worker Safety
- Green Cleaning Trend
- Green Building Legislation
- CSR Reporting Trend
- Food Safety Concerns
- Green Cleaning Trend
- Sustainable Cleaning Technologies
EVOLUTION of CLEANING EQUIPMENT

Improve IEQ
- “Dirty air” vacs to HEPA
- IC to Battery

Increase Safety
- Sealed/AGM/Li-ion

Improved Ergonomics
- Reduced Noise
- Ergo designs
EVOLUTION of GREEN CHEMICALS

• GS-37, GS-40

• CCD-110, 146, 148, 147

• US EPA Safer Choice (Used to be DfE)
CLEANING CHEMICALS CONTINUE TO EVOLVE

Evolution of Cleaning Chemicals

Traditional Cleaning Chemicals

“Green” Cleaning Chemicals

On-Site Generation
WHAT IS ON-SITE GENERATION?

Generation of cleaning and disinfectant/sanitizer solutions on site.

Replaces many conventional packaged chemicals that require shipping, storage, dilution, training, packaging, waste and disposal.
A NATURAL EVOLUTION

THEN

Barrels with Uncontrolled Dilution

Concentrates with Dilution Control

NOW!

On-Site Generation
BENEFITS OF ON SITE GENERATION

- **Simplified cleaning** — one simple OSG unit replaces an array of multi-colored and fragranced concentrates. Reduces training requirements.

- **Improved health & safety** — reduces employee, customer and cleaning team exposure to highly concentrated conventional packaged chemicals.

- **Brand reputation** — makes a bold statement that your enterprise is committed to “doing good.”

- **Lower “hard costs”** — significantly reduces weekly or monthly purchasing, shipping or disposal of most daily-use of packaged chemicals.

- **Sustainability** — reduces environmental footprint, minimizes packaging disposal.

- **Lower “soft costs”** — reduces training, ordering, stocking and inventorying of most daily-use packaged chemicals.
PACKAGED CHEMICALS DO HARM

• Have a large environmental footprint.
• Expose operators and those in their care to chemical odors and their residues.
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Chemical Manufacture
Smokestack Particulates

Shipping
Tailpipe CO₂ Emissions

Inventory
Safety Cost

Concentrate Exposure
Cleaning Staff Safety

Chemical Residues
Slip/Fall Odors

Packaging Disposal
Landfill
"ENGINEERED WATER"

Electrically Activated Water (EAW)
- Active Ingredients
  - Sodium Hydroxide (NaOH)
  - Hypochlorous Acid (HOCl)

Ozonated Water
- Active Ingredient
  - Aqueous Ozone (O3)
ELECTRICALLY ACTIVATED WATER (EAW) PROCESS

Salt (NaCl)

Water (H2O)

Disinfectant/ Sanitizer (HOCI)

Cleaner (NaOH)
WHAT PRODUCTS ARE REPLACED?
WHAT PRODUCTS ARE NOT REPLACED?

Most PROJECT Chemicals, such as:

- 3M Gum Remover
- Crew Super Blue
- Goof Off
- Vectra
- Zep Heavy-Duty Floor Stripper
Aqueous OZONE (O3) PROCESS

1. Extra Oxygen molecule added to stable O2.
2. The third oxygen molecule is attracted to germs and soil.
3. Oxidizes
4. Returns to stable O2.
How Tersano makes S.A.O.

1. Cold tap water enters the lotus® PRO Stabilization Module.
2. Stabilization Module treats cold tap water stream, extends the cleaning time up to *24 hours.
3. Treated water leaves the Stabilization Module.
4. Water passes through the FloJet connector, enters the High Capacity Unit.
5. Oxygen enters the dispenser through the replaceable filter cartridge.
6. 4,500 volts of electricity transforms O² to O³.
7. Ozone gas that is not saturated in the water is separated and safely dispensed as oxygen.
8. Aqueous ozone leaves the dispenser.
Cleaning Performance
- Verification Tools
- 3rd party testing

Antimicrobial Performance
- EPA Regulated as Pesticidal Device
- Production, labeling & testing requirements

3rd party certifications, registrations, approvals
Verification tools for OSG (and conventional products too)

- ATP
- Ozone and chemical test Strips
- ORP meters
- Clean Cards
- Onsite microbial kits
WELL Standard for Education
- Cleaning logs with verification
- Storage management protocols for bottled products
- Based on science

Water conservation
THANK YOU!