

Engineered Water Panel Discussion

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CERTIFICATIONS/LEGISLATION ARE EVOVLING the DIRECTION of SUSTAINABLE CLEANING TECHNOLOGIES



EVOLUTION of GREEN CHEMICALS



EQ CREDIT: GREEN CLEANING PRODUCTS AND MATERIALS

EQ: GCM

1 point

This credit applies to:

Existing Buildings: Operations & Maintenance (1 point)

EB: GCM Schools (1 point)

EB: GCM Retail (1 point)

EB: GCM Data Centers (1 point)

EB: GCM Hospitality (1 point)

EB: GCM Warehouse & Distribution Centers (1 point)

Intent

To reduce the environmental effects of cleaning products, disposable janitorial paper products and trash bags.

Requirements

EQCM, SCHOOLS, RETAIL, DATA CENTERS, HOSPITALITY, WAREHOUSE & DISTRIBUTION CENTERS

ESTABLISHMENT

None

PERFORMANCE

Purchase green cleaning materials and products, floor finishes and strippers, disposable janitorial paper products and trash bags. Cleaning product and material purchases include items used by in-house staff or outsourced service providers.

At least 75% of the total annual purchases of these products (by cost) must meet at least one of the following standards, by category:

Cleaning products must meet 1 or more of the following standards for the appropriate category:

- Green Seal GS-37, for general-purpose, bathroom, glass and carpet cleaners used for industrial and institutional purposes.
- Environmental Choice CCD-110, for cleaning and degreasing compounds.
- Environmental Choice CCD-149, for hot-surface cleaners.
- Environmental Choice CCD-148, for carpet and upholstery care.
- Green Seal GS-40, for industrial and institutional floor care products.
- Environmental Choice CCD-147, for hard floor care.
- US EPA's Design for the Environment Program's Standard for Safer Cleaning Products for these product categories.
- EcoForm's Information-Based Environmental Label for these product categories.
- Cleaning products that use only **electrically activated water**.

Disinfectants, metal polish, or other products not addressed by the above standards must meet 1 or more of the following standards for the appropriate category:

- Environmental Choice CCD-112, for digestion additives for cleaning and odor control.
- Environmental Choice CCD-113, for drain or grease traps additives.
- Environmental Choice CCD-111, for odor control additives.
- California Code of Regulations maximum allowable VOC levels for the specific product category.
- US EPA's Design for the Environment Program's Standard for Safer Cleaning Products for these product categories.
- EcoForm's Information-Based Environmental Label for these product categories.
- Cleaning products that use only **electrically activated water**.



• GS-37, GS-40



• CCD-110,
146,148,147

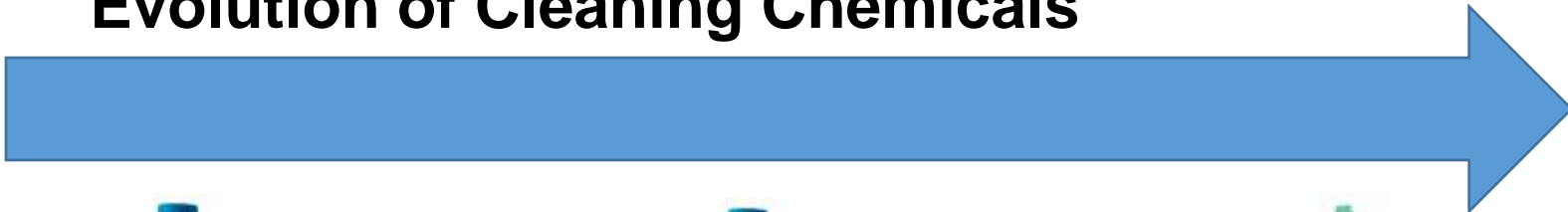


epa.gov/saferchoice

• 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

NOW!

THEN



**Barrels with
Uncontrolled
Dilution**



**Concentrates with
Dilution Control**



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.



PACKAGED CHEMICALS DO HARM

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“ENGINEERED WATER”

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graph TD; A["ENGINEERED WATER"] --- B["Electrically Activated Water (EAW)"]; A --- C["Ozonated Water"]
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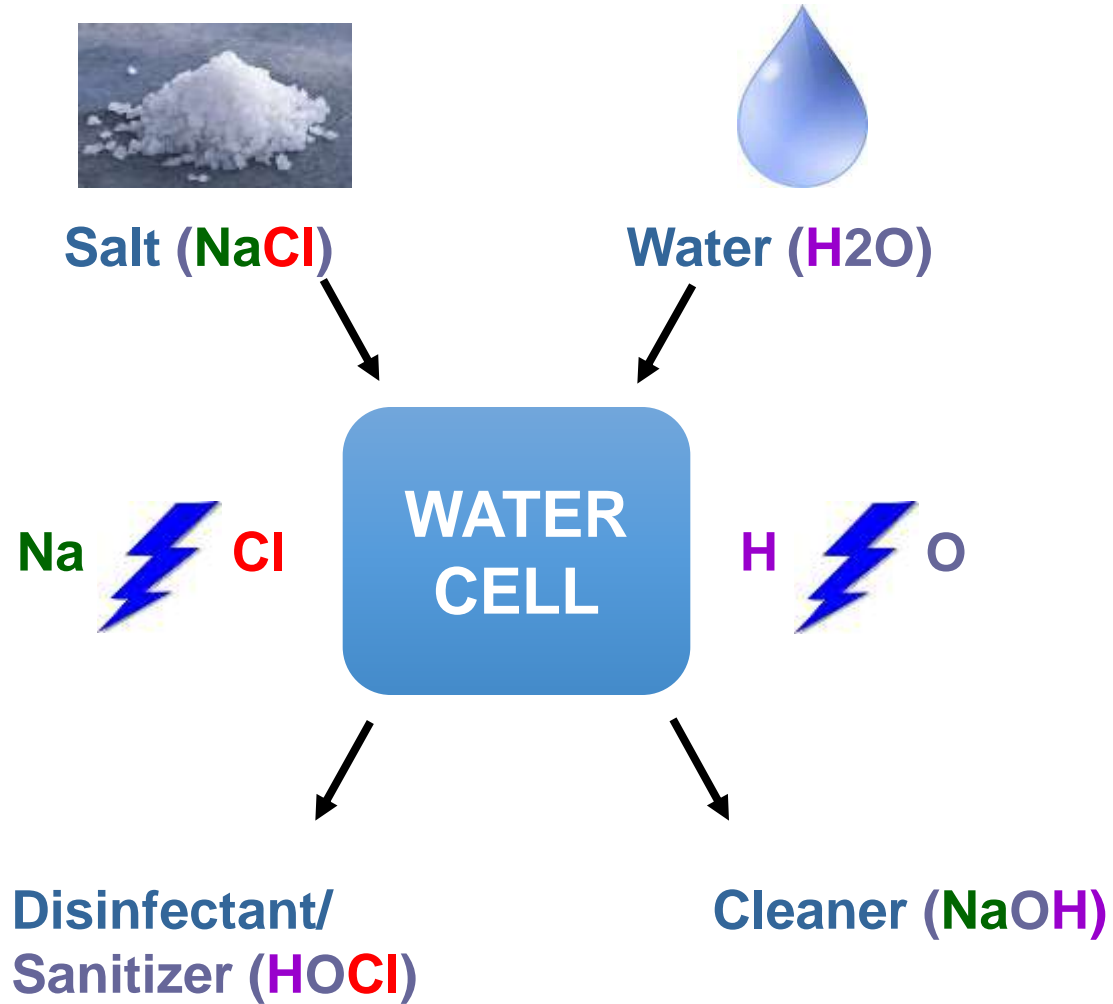
**Electrically Activated Water
(EAW)**

Active Ingredients
Sodium Hydroxide (NaOH)
&
Hypochlorous Acid (HOCl)

Ozonated Water

Active Ingredient
Aqueous Ozone (O₃)

ELECTRICALLY ACTIVATED WATER (EAW) PROCESS



WHAT PRODUCTS ARE REPLACED?



WHAT PRODUCTS ARE NOT REPLACED?

Most PROJECT Chemicals, such as:



Aqueous OZONE (O₃) PROCESS



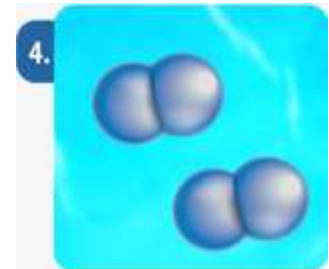
Extra
Oxygen
molecule
added to
stable
O₂.



The third
oxygen
molecule
is
attracted
to germs
and soil



Oxidizes



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 O^2 to O^3 .
- 7 Ozone gas that is not saturated in the water is separated and safely dispensed as oxygen.
- 8 Aqueous ozone leaves the dispenser.



Do these technologies really work?

How can I tell?

What do I look for?

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



WHAT'S COMING NEXT



WELL Standard for Education

- Cleaning logs with verification
- Storage management protocols for bottled products
- Based on science

Water conservation

THANK YOU!