

## DOCKETED

<b>Docket Number:</b>	15-AAER-02
<b>Project Title:</b>	Pool Pumps and Spa Labeling
<b>TN #:</b>	212266
<b>Document Title:</b>	Presentation - Spa Covers Exposed
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<b>Filer:</b>	Sean Steffensen
<b>Organization:</b>	California Energy Commission
<b>Submitter Role:</b>	Commission Staff
<b>Submission Date:</b>	7/13/2016 9:35:26 AM
<b>Docketed Date:</b>	7/13/2016

# SPA COVERS EXPOSED!



- EPS Foam, an **irresponsible** choice for spa covers and future generations!

By E. Jess Tudor, Coverplay, Inc.

# Key Points

- **Insulating value of EPS degrades in less than one year**
- **Industry claimed R values mislead the public**
- **Energy dollars lost every month to water soaked covers**
- **MSDS reports Toxic VOC's released when EPS, PVC exposed to strong oxidizers**
- **IARC classifies styrene a probable carcinogen in humans**
- **Mountains of polystyrene covers, tossed in landfills monthly**
- **EPS foam buried in landfills for 20 Centuries**
- **TheAirframe spa cover, a sustainable solution**

# The average discarded spa cover represents 3,520 Styrofoam cups or 7 billion annually.

North Americans discard a mountain of spa covers per month...annually that would equal enough 4" tall polystyrene cups laid end to end to circle the globe at the equator more than 17 times!



1 spa cover = 3520  
Styrofoam Cups



# Planned Obsolescence



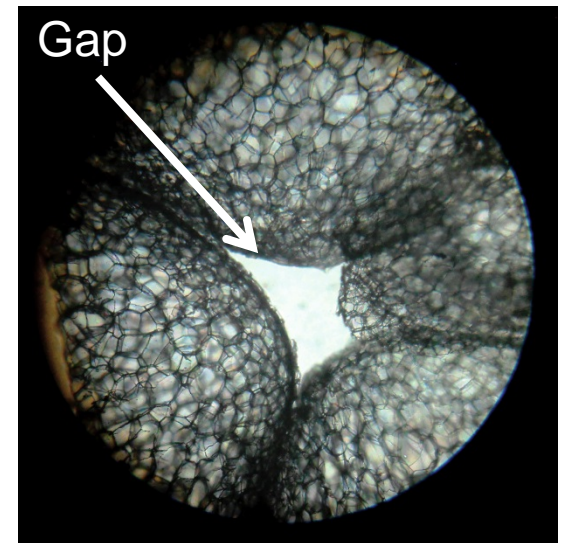
**Discarded spa covers that until recently were on a rate payers spa. Many of these covers were so water heavy they had to be slashed to be carried away.**



# Foam does not insulate...

## AIR in the foam insulates!

The average effective insulating value of polystyrene foam/vinyl spa cover on a heated spa is less than one year due to **interstitial gaps** between foam beads allowing condensation to saturate it. Applied vapor barriers intended to protect the foam actually help contain condensation until the spa cover is unmanageably water heavy.



Warm water expands air in foam gaps until cooler ambient weather condenses it creating water vapor inside the core. Increased differences in heated water temperature and cooler outdoor weather conditions accelerate water permeation accordingly. Water saturated foam covers conduct heat and could cost up to 3 times more to heat a spa on standby ready power.

# Dual hinge, “Silent energy thief”

There are some who can convince others their gusset provides R-12 insulation yet that differs from test results.

The dual hinge allows for a, “Cover lifting bar” to transition the cover on and off the spa, stressing the thin vinyl hinge with predictable results.



# Dual hinge vs Single hinge



**Typical Dual-hinge design invites convection energy loss.**



**Single angle of compression design eliminates gap. (Patented 2005)**

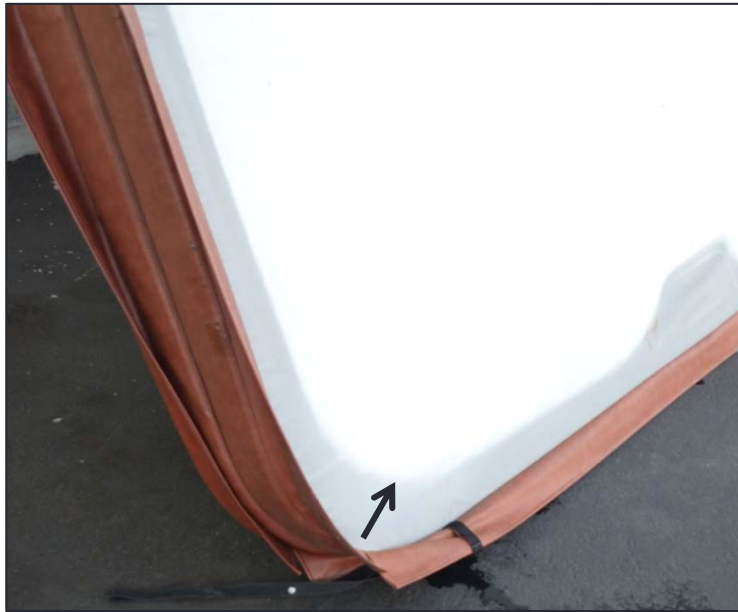


# PVC Vinyl, Stitching & UV sunlight



PVC Vinyl is another petroleum based product that weathers poorly outdoors. These stitched spa covers are coming apart at the seams while off-gassing dangerous VOC's bathers detect as they lift their spa cover!

## Toxic VOC's released when exposed to strong oxidizers



“Witness mark” from early damage from oxidizers to PVC scrim



Extremely degraded by ozone, PVC scrim

Inhaling vapors or transdermal exposure are inevitable when EPS foam is mixed with sanitizers chlorine, bromine, hydrogen peroxide or ozone.

**MSDS: Avoid contact with peroxides, oxidizing agents, acids and bases.** Extremely reactive with chlorosulfonic acid and sulfuric acid.

# Chemical Safety Act June 22, 2016

The Lautenberg Chemical Safety for the 21st Century

- **States now have the power to reject chemicals.**

Chemical Safety Act requires EPA to consider only the health and safety impacts of a chemical never the cost or burden to manufacturers when assessing chemicals for safety.

It ensures special protections for those most vulnerable from chemicals defined in the bill as pregnant women, infants, the elderly and chemical workers.

It sets a new fee so chemical companies will bear a larger share of the cost of evaluating and regulating chemicals.

It provides certainty in the law about when states may step in if EPA does not act to regulate or ban dangerous chemicals.



# CA Cities Ban EPS Foam

- Alameda (2008)
- Albany (2008)
- Belmont (2012)
- Berkeley (1988)
- Burlingame (2011)
- Calabasas (2008)
- Capitola (2012)
- Carmel (1989)
- Carpentaria (2009)
- Dana Point (2012)
- Del Ray Oaks (2010)
- El Cerrito - 2014.
- Emeryville (2008)
- Fairfax (1993)
- Foster City
- Fremont (2011)
- Half Moon Bay (2011)
- Hayward ( July 2011)
- Hercules (2008)
- Hermosa Beach (2012)
- Laguna Beach (2008)
- Livermore (2010)
- Los Altos Hills (2012)
- Malibu (2005)
- Manhattan Beach (2013)
- Marin County (2010)
- Marina (2011)
- Menlo Park (2012)
- Millbrae (2008)
- Mill Valley (2009)
- Monterey City (2009)
- Monterey County (2010)
- Morgan Hill (2014)
- Newport Beach (2008)
- Novato (2013)
- Pacific Grove (2008)
- Pacifica (2010)
- Palo Alto (2010)
- Pittsburg (1993)
- Portola Valley (2012)
- Pleasanton - July 2013.
- Redwood City (2013)
- Richmond (2010)
- Salinas (2011)
- San Bruno (2010)
- San Carlos (2012)
- San Clemente (2011)
- San Francisco (2007)
- San Jose (2010/2013)
- San Leandro (2012)
- San Mateo City (2013)
- San Mateo County (2008)
- San Rafael (2013)
- Santa Clara County (2013)
- Santa Cruz City (2012)
- Santa Cruz County (2008)
- Santa Monica (2007)
- Sausalito (2008)
- Scotts Valley (2009)
- Seaside (2010)
- S. San Francisco (2008)
- Watsonville (2009)
- West Hollywood (1990)
- Yountville (1989)
- Aliso Viejo (2005)
- Huntington Beach (2005)
- Laguna Hills (2008)
- Laguna Woods (2004)
- Los Angeles City (2008)
- Los Angeles County (2008)
- Orange County (2005/6)
- San Juan Capistrano (2004)
- Sonoma County (1989)
- Ventura County (2004)

# San Francisco Bans all Polystyrene!



SF Supervisors vote unanimously for city/county wide ban on  
June 24, 2016!

# 21<sup>st</sup> Century Technology

## • The Airframe Spa Cover

- Energy Tested Design
- Environmentally Friendly
- Technologically Advanced
- Doesn't Gain Water Weight
- Lightweight, easier to handle!
- No Harmful VOC's or Styrene
- Beautiful Gas Permeable Fabric





# Radiant Barrier Technology



The Airframe spa cover uses chambered air with radiant barriers to minimize mass, lowering conductivity while reflecting heat energy back to the water. The gas permeable fabric prevents condensation while limiting convection air exchange. U.S. Patent # 9340989, May 2016.

# Pollution Poison

- Tests show spa covers insulate poorly at 2 years yet the average EPS spa cover is replaced every 4-5 years.
- The largest spa cover manufacturers in North America are in Mexico replacing 15,000 covers monthly in CA.
- Importing replacement EPS foam covers costs fuel, lost local revenue, and lost jobs.
- Millions of dollars in wasted energy.
- Exposure to toxic health care issues.
- 2,000 years of toxic waste in American landfills.



# The Airframe Antidote

**The Airframe** spa cover is a solution to halt this dire future now before another 35 years pass.

1. Save wasted energy & millions in CA Energy Costs.
2. Bring manufacturing & jobs back to California.
3. Dramatically reduces VOC health exposure from reaching CA residents and families.
4. Thousands of toxic covers prevented from landfills
5. Creating a sustainable Spa Cover that recyclable & Repairable.