

# VOC Alert!

Learn the facts about harmful VOCs in cleaning chemistries.

**VOCs are highly regulated and targeted for stronger regulation by the OTC and EPA!\***

**VOCs contribute to global warming and smog!\***

**VOCs can cause the following health problems:**

Eye, nose, and throat irritation; headaches, loss of coordination, nausea; damage to liver, kidney, and central nervous system. Some organics can cause cancer in animals; some are suspected or known to cause cancer in humans. Key signs or symptoms associated with exposure to VOCs include conjunctival irritation, nose and throat discomfort, headache, allergic skin reaction, dyspnea, declines in serum cholinesterase levels, nausea, emesis, epistaxis, fatigue, dizziness.\*\*  
\*www.otcair.org \*\*www.epa.gov/iaq/voc.html

## STENCIL CLEANING CHEMISTRIES CONTAINING VOCs

### Zestron

Vigon SC200  
Vigon SC202  
Vigon RC101  
Zestron SD100  
Zestron SD301  
Zestron SW

Ask your supplier to reveal their true VOC Content on MSDS & Tech Data Sheets.

### Kyzen

Aquanox A4241  
Aquanox A4651US  
Lonox L5611  
Lonox L5314

### Petroferm

Bioact SC-22  
Hydrex A-Plus  
Hydrex SP  
Hydrex SP-50  
Hydrex WS

### Sunshine Makers, Inc.

Simple Green Cleaner  
& Solder Paste Remover

### EnviroSense, Inc.

Enviro Gold #896

### Electrolube

Safewash Extra (SWAX)

## VOC-FREE STENCIL CLEANING CHEMISTRIES

### Smart Sonic

440-R® SMT Detergent



## Smart Sonic Corporation

www.SmartSonic.com

E-mail: SMT@SmartSonic.com Tel: +1-818-610-7900

**Request your free sample today!**

**440-R SMT Detergent is the only VOC-free Stencil Cleaning Chemistry!**

**440-R SMT Detergent is also the only Stencil Cleaning Chemistry . . .**

- Verified for environmental safety, user safety and cleaning efficiency by the U.S. EPA's Environmental Technology Verification Program(ETV)<sup>†</sup>
- Able to clean all solder pastes introduced since 1985
- Approved by Permal for ultrasonic cleaning of Durostone pallets
- Guaranteed to clean any type of solder paste from any fine-pitch stencil
- Priced less than \$31.00 per gallon as a concentrate (\$3.10 per gallon at recommended 10% concentration)

**Why use a VOC chemistry when 440-R SMT Detergent is safer, costs less, cleans better and is VOC free?**

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<sup>†</sup>For additional information regarding the ETV program go to: <http://www.epa.gov/etv/fp-pprwt.html#acbc>

## Change is coming to the cleaning industry...again!

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Cleaning is once again the focus of government regulation. The last big change in cleaning came in 1995 as a result of the Montreal Protocol eliminating the use of chlorofluorocarbon solvents (CFCs) for cleaning everything from PCBs to the aircraft engines. For the PCB industry, the elimination of CFC solvents spurred the introduction of water washable and no-clean solder pastes and switching from spraying Freon and 111-trichloro-ethylene to the use of saponifiers and IPA to clean boards, stencils, pallets and related tooling. For those of us “experienced” enough to remember those good-old days, changing from a solvent-cleaning process that was working to an unknown aqueous-based process was a royal pain. It’s bad enough to research a cleaning process when you need one, but to have the government take away a perfectly good process just because Antarctica may get a little too much UV light through a newly discovered ozone hole was tough to bare. Well, get ready, because change is coming once again! The Ozone Transport

Commission (OTC), an organization of states in the Northeast/Mid-Atlantic region created under the Federal Clean Air Act, is charged with achieving better air quality, in part by decreasing Volatile Organic Compounds (VOCs). OTC has put together a Model Rule for Solvent Degreasing that can be adopted or adapted by individual states. Before you say, “I don’t work in that region, so it won’t affect me,” or “Who cares? I don’t use solvents; I use water-based cleaning,” think again.

The EPA cannot mandate specific rules for individual states. However, it has deemed that more

areas throughout the U.S. do not have acceptable air quality. This prompts a geographically-encompassing chain reaction that is likely to result in lower allowable emissions of VOCs in many areas.<sup>2</sup>

The rule contains language nearly identical to that found in the South Coast Air Quality Management District (SCAQMD) Rule 1122 in Southern California. The Rule also takes cues from the Santa Barbara Air Pollution Control District. The VOC limit in the Model Rule is 25 g/L. If a company wanted to use higher VOC limits, “airless” cleaning systems would be required. This will have a tremendous impact on cleaning boards, stencils, screens, and pallets in the PCB assembly industry as all cleaning chemicals currently used contain VOCs (except 440-R® SMT Detergent by Smart Sonic Corporation which is VOC-free). Even chemicals described as “water-based” contain elevated amounts of VOC solvents and are targets of the OTC Model Rule. MSDS regulations do not require disclosure of VOC content so users should obtain a written statement from their chemical provider disclosing VOC content of any cleaning chemical in use, as the new rule may encourage manufacturers to avoid VOC disclosure.

The following stencil-cleaning chemicals contain VOCs:

- **Aquanox A4241, Aquanox A4651US, Lonox L5611, Lonox L5314 and E5615 Fast Drying Stencil Cleaner** manufactured by Kyzen of Nashville, TN
- **Bioact SC-22, Hydrex A-Plus, Hydrex SP, Hydrex SP-50 and Hydrex WS** manufactured by Petroferm of Gurnee, IL
- **Enviro Gold #896** manufactured by EnviroSense, Inc. of Cupertino, CA
- **IPA (Isopropyl Alcohol)** – various manufactures
- **Safewash Extra (SWAX)** manufactured by Electrolube, a UK-based company
- **Simple Green Stencil Cleaner & Solder Paste Remover** manufactured by Sunshine Makers, Inc. of Huntington Beach, CA
- **Vigon SC200, Vigon SC202, Vigon RC101, Zestron SD100, Zestron SD301 and Zestron SW** manufactured by Zestron, a German-based company

The following stencil-cleaning chemistries do NOT contain VOCs:

- **440-R® SMT Detergent** manufactured by Smart Sonic Corporation, Canoga Park, CA

Many state and federal regulating agencies are notorious for giving short notice. The prudent assembler would be wise to take a proactive approach to the inevitable change that is coming and begin the selection process sooner rather than later for a cleaning chemical to replace the VOC chemicals targeted by the OTC.

#### *References:*

1. Bill Schreiber, “From Maintenance to Precision: The Value of a Stencil Cleaning Handbook”, IPC Review, Vol. 48, No. 4: May 2007.
2. Barbara Kanegsberg, “OTC Model Rule and Critical Cleaning”, BFK Solutions Newsletter, October 2011, <http://www.bfksolutions.com/index.php/newsletter/archived-newsletters/141-otc-progress-productive-manufacturing-and-better-air-quality>