

# Maintenance and Safety Notes for Vapor Degreasing / Cleaning

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# Handling of Vapor Cleaning and Degreasing Chemicals

- All chemicals should be handled with care at both work and at home
- Primary concerns are based on the type of exposure, such as inhalation or by touching
- In production, solvent exposure is limited by the equipment, i.e. vapor degreaser
- In maintenance, the solvent exposure is more probable because of the handling, so protection equipment must be used



# Use Gloves / Face Masks when Changing Out the Solvent

3M Model 6000 Face Mask / Honeywell SilverShield SSG29 Gloves



# Exposure to NPB-based Solvents

- US EPA Exposure Limit is 18 ppm (8 hr Avg)
- Several Manufacturers Recommend an Exposure Limit of between 10 ppm and 100 ppm (8 hr Avg)
- ACGIH recommends a 1 ppm (or less) 8 hr Avg exposure guideline to be used by trained Industrial Hygienists
- As with all solvents, personal exposure should be minimized when possible



# Solvent Exposure

- Most Exposure Limits are based on an 8 Hour Average
- Typically, a single employee will interface with a degreaser for less than 1 minute per cleaning cycle, and possibly 2 to 6 cleaning cycles per hour
- That “interface exposure” is very low due to the “Vapor Trap” controls of the degreaser
- Solvent Exposure badges can be used to MEASURE each employee's exposure, and other controls can be added as needed



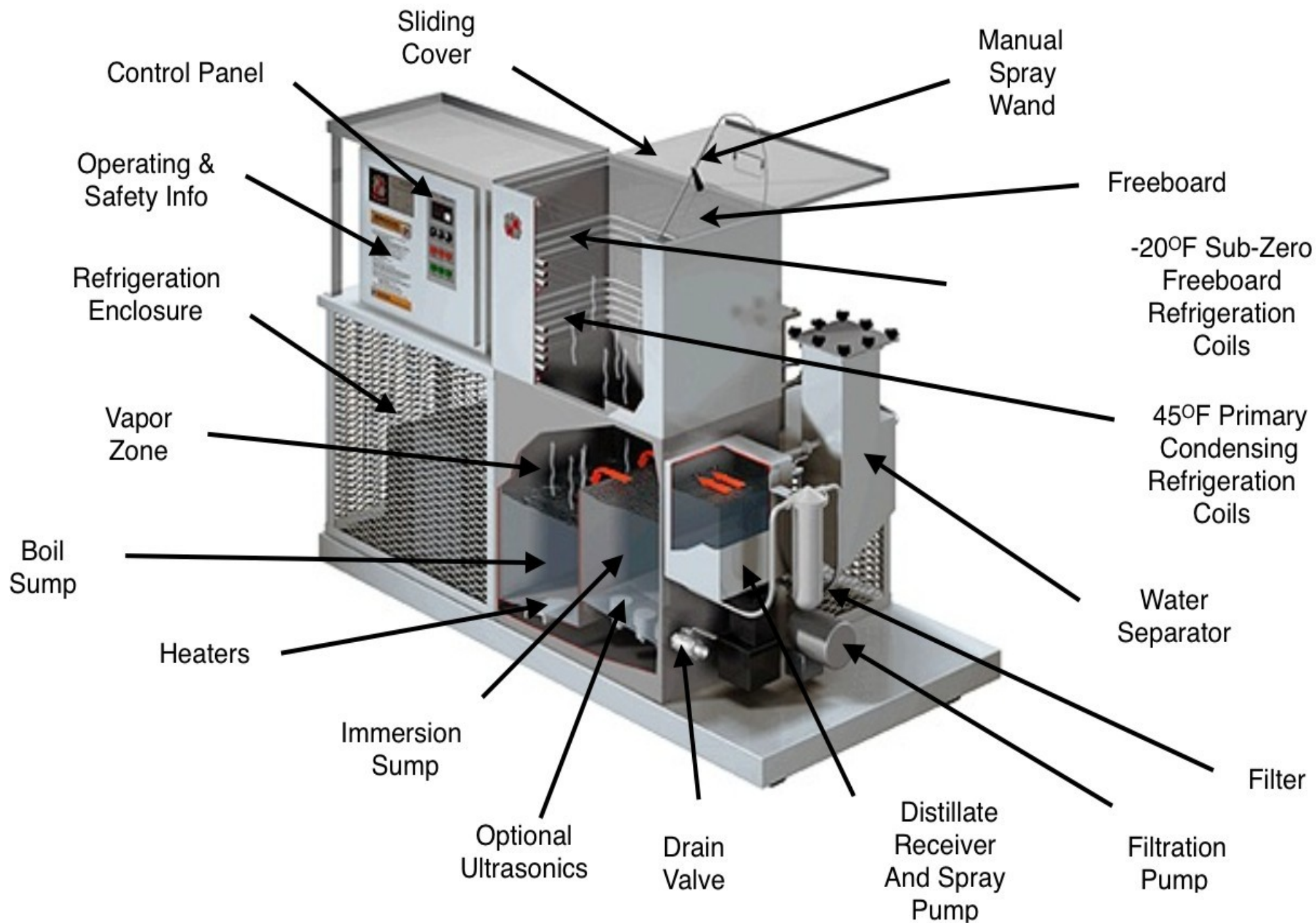
# Minimize Exposure

- **New Vapor Degreasing Machines are Built with 2 Concentric Cooling Coils inside the tank**
- **The top coil should operate at -20 to -10 degrees F, in order to trap fugitive emissions inside the degreaser, known as the Vapor Trap**
- **Automatic Hoists or simple Lifts are Strongly Recommended because they remove Employees from Chemical Exposure and Standardize the Cleaning Process**



# Single Axis Automatic Programmable Lift System







# Environmental, Health, Safety

- **Use of Eye Guards**

- While handling ANY chemical everyone should protect their eyes using eye glasses with side shields

- **Use of Gloves**

- Generally recommended; but depends on if y EHS requires it. A list of compatible gloves is available from Chemical Logic



# Environmental, Health, Safety

- **Reasons to Use ENTRON or NuSolv Solvents**
  - Replacing Flammable or Toxic Solvents
    - Methylene Chloride, Xylene, Toluene, MEK, TCE
  - Replacing Ozone Depleting Solvents
    - 1,1,1 Trichloroethane, HCFC 141b, AK225
  - Reducing HAPs, Cancer Causing Solvents
  - Reducing Wastewater / Hazardous Waste
  - Reducing CO2 / Global Warming Emissions



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# Environmental, Health, Safety

- **Optional Use of Face Mask**

- While Not Required in Most Instances, some people choose to wear a face mask while using the solvent, especially if an automatic hoist is not used.

- Recommended:

- 3M Half Mask 5000 or 6000 series, with the 6001 organic vapor filter



# Maintaining Your Vapor Degreaser



# Maintenance

- **Solvent Loading / Change Out**

- When the Boil Temperature reaches 5 degrees F, over the normal boiling temp, it is time to run a “Boil Down”, remove waste, and add fresh solvent
- You can also just set a regular schedule to change out the solvent – every 3 months for example

- **Boil Down of Solvent Tank**

- Degreaser is Run and Condensate is captured in a Clean Drum for Reuse. Stop Boil Down so Thicker Waste can be removed from the boil tank (does not apply when a recycling still is used)



# Maintenance

- **Solvent Height in Degreaser**
  - In a 2 tank vapor degreaser, the boiling side tank (left side) should have a solvent level about 3 to 8 inches **BELOW** the clean side (right side)
- **Changing the Cannister Filter**
  - Change the Cannister Filters every 3 months. They are inexpensive. Replace with a SERFILCO 10 micron cotton-wound filter No. 10C10T, or similar

# Maintenance

- **Stabilizer Test – Very Very Important**
  - The Stabilizer Test Kit is used to check the amount of Stabilizer in the solvent. You should run the test a minimum of once per month. Protects the Equipment
- **Removal of Water**
  - Water that has accumulated in the Water Separator should be removed once per week, or more frequently in humid areas





# Stabilizer Test

1. Get a Sample from the Condensate or Spray Wand; Put 1.5 ml into Test Tube
2. Add 3.0 ml of Solution A; place cap, shake, and wait 10 minutes
3. Add Drop by Drop of Solution B; Count the Drops until the Solution turns to Blue
4. Look at the Graph and determine if you are Okay, or Need to Add Stabilizer

**We can Visit and Show You How to Do This**



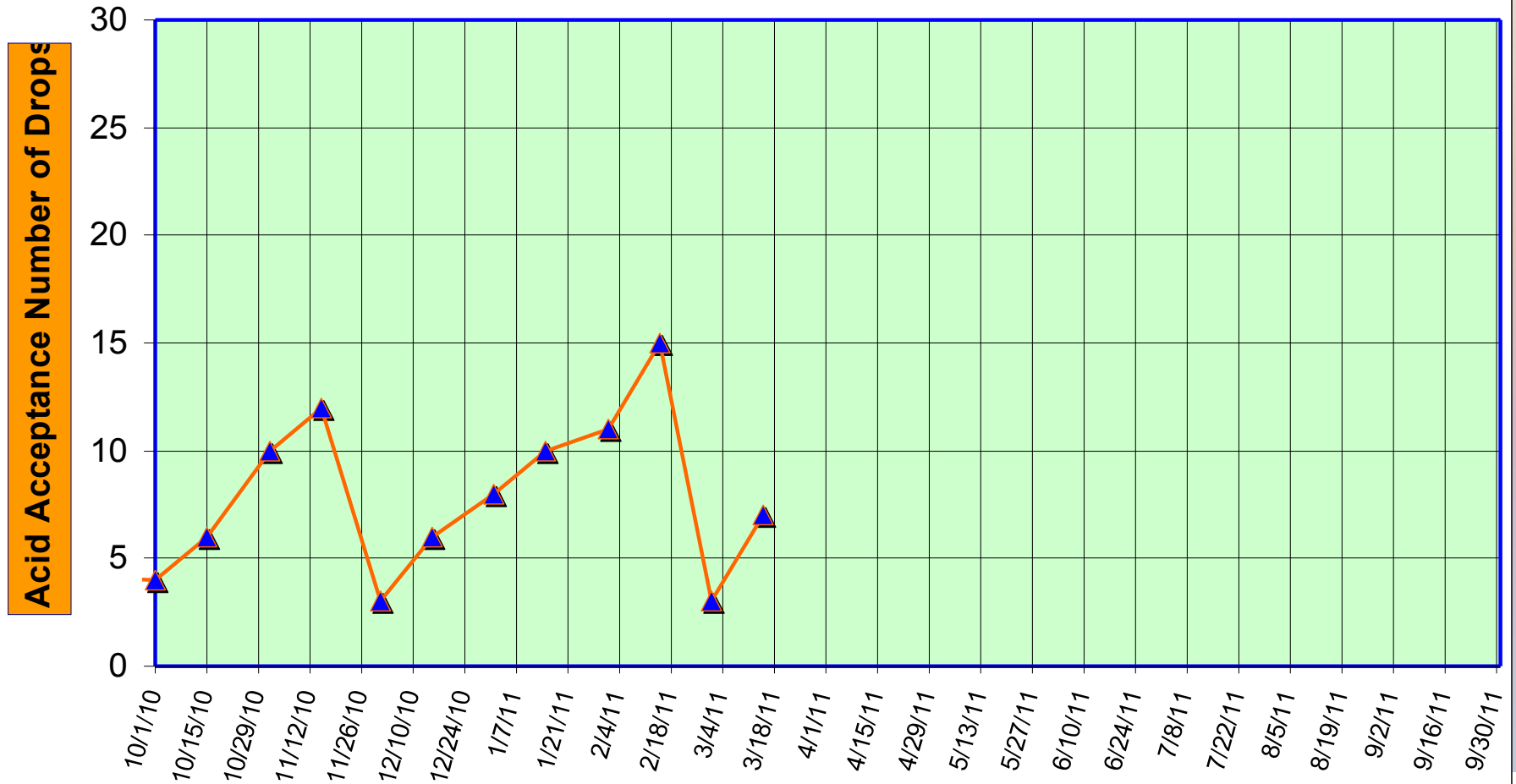
# Stabilizer Test

4. Generally, the result of the test SHOULD NOT require more than 25 drops. As new Solvent is added, more stabilizer is added. Contact me if this occurs.
5. If the number of drops is more than 35 to get to the Color Change, then you will need to buy Stabilizer, and add it to the Tank. (Contact me if this occurs.)
6. If you allow the solvent to “Go Acid”, it will eat the vapor degreaser and cause it to rust and it will eventually no longer be operational.



# Solvent Maintenance Example

Stabilizer Over Time



# Maintenance

- **Water Identification**

- A trick to identify whether there is water in the solvent is as follows:
  - Get a sample of the liquid from the top valve of the water separator
  - Drop 2 or 3 drops of Food Coloring into the sample
  - The Food Coloring will only dissolve into the Water, so if you only see “globbs” of Food Coloring there is no water. If the liquid changes color, then there is water in the water separator and it needs to be removed until there is no more water. You may want to consider draining it completely.

# Maintenance

- **When to Change Out Solvent**

- If the Boiling Temperature of the Solvent increases or decreases more than 5 F degrees than when it was clean

If the solvent on the Boiling Side is no longer transparent

- If the parts are not getting clean
- If the Stabilizer Test Results Fail
- Set a Regular Maintenance Schedule of every 3 months, for example



**Please Feel Free to Contact Me to Ask Questions About  
Absolutely Anything Related to Chemicals and Cleaning**

**Chemistry & Equipment for Production**

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**Agent for Reliance, Florachem, and NuGenTec solvents, Baron  
Blakeslee Equipment, Solvent Recycling Machines, and  
Water-based Cleaning Systems**

