

Note: The following glossary of cleaning alternatives is provided for reference and definitive purposes only and is not intended as a promotion of any specific chemistry, product or technology.

ALCOHOL BASED CLEANING (AL)

These alternatives have found use in the electronics industry as CFC alternatives and areas requiring high degrees of cleanliness. Limitations to use are explosive risks, toxicity and emissions concerns. Benefits are quick parts drying time and low residuals.

Examples of alcohols used include: ethanol, methanol, isopropanol, and glycol.

AQUEOUS BASED CHEMISTRIES (AQ)

A.k.a. Water Based Chemistries, these fall largely into the alkaline, and acid families with other groupings containing surfactants, emulsifiers and detergents. Changing over to a water based cleaning operation will of course result in some increase in water discharge. Many technologies exist to separate the water from the spent cleaners for reuse in make-up of new chemical baths. Drying time of parts may increase and therefore problematic for work that tends to rust quickly.

HYDROCARBON BLENDS(HB)

Hydrocarbon blends seek to fill the market of drop-in alternatives to chlorinated solvents and CFCs. Many offer a quick changeover using existing tanks and equipment. Caution should be exercised in choosing a blend to make sure the components are not scheduled to be phased out or banned. Many blends have excellent cleaning abilities with some reduced risk to workers. The SARA Title III list should be consulted to determine if the chemical is regulated.

NON-AQUEOUS CHEMISTRIES (NA)

This category distinguishes these alternatives from their water based counterparts, though many of these alternatives have water as a component. They often clean more aggressively than their water based counterparts. The toxicity of some of these alternatives has not been completely determined. Some are listed under the SARA Title III reporting.

NON-LIQUID ALTERNATIVES (NL)

This category covers all types of solid stripping media such as CO₂ pellets, plastic blast media, sponge pellets, and dry ice flakes, Also included are super critical fluids alternatives. The blast media are excellent for cleaning large parts and simple geometries. Delicate instruments and blind holes are not well suited to these applications. Super critical CO₂ has been used successfully on small to medium sized applications. Capital costs for installing the pumps and high pressure vessels has prohibited it's wide-spread usage.

TERPENE / SEMI AQUEOUS CHEMISTRIES (TP)

Terpenes have found a wide variety of uses in the electronics industry and cleaning parts with complex geometries. They are often coupled with ultrasonic or similar agitation devices. The long term toxicity of terpenes and other pine and citrus derivatives remains a matter of

study. Early varieties tended to have low flash points; a problem that has been well addressed by today's chemical vendors.

Examples of terpene include d-limonene, a terpineol derivative extracted from citrus fruit.

CIRCUIT BOARD CLEANING SYSTEMS (BC)

This category is important to high tech industries. Vendors sell these chemistries as low solid fluxes and no-clean fluxes.

CUSTOM DESIGNED SYSTEMS (DS)

These are large conveyORIZED or monorail cleaning systems. The entire system can be tailored to the facilities work centers and parts flow. Because of the substantial cost, a thorough survey of cleaning practices that establishes that there is a need to clean is urged. Process and chemical modifications may reduce or eliminate the need for cleaning, thereby saving capital.

IMMERSION TANKS (IT)

Immersion tanks come in a wide range of sizes and are often coupled with agitation or ultrasonics, which reduces the need for a highly aggressive solvent that might damage the work.

ROTARY PARTS WASHERS (RW)

These systems are designed to function similar to large washing machines and dish washers. Most are of the cabinet variety with a turntable in the center to spin the parts as cleaning jets direct the solvent onto the parts or baskets of parts. Rotary washers can also help dry parts by spinning the liquid off or blowing it off with compressed air.

SPRAY WASH SYSTEMS (SW)

Very similar to Rotary Washers, these may even contain a rotating basket within an immersion tank. Spray wash systems work by agitating parts and forcing solvents into blind holes and difficult geometries. They may not be useful for delicate instrumentation or sealed components where sprays might damage the parts.

ULTRASONICS (US)

Ultrasonic cleaning systems work through generating high frequency vibrations which cause the detergents to actively collide with the parts and soils. This impaction lifts the dirt and carries it away from the parts. Ultrasonic systems work well in most applications with two exceptions; part orientation with respect to the ultrasonic generating unit may cause shadowing, or zones of less aggressive cleaning; and electricity cost will be increased proportional to use. Therefore, large scale application may result in a significant increase in power demand.