

the calm influence of another person.

- Food and chemicals don't mix. Keep food, drinks and cigarettes *away* from areas where chemicals are used and don't bring your chemicals to places where you eat.

Table 3.5 summarizes the uses and hazards of chemicals used in the ham shack. It includes preventive measures that can minimize risk.

ERGONOMICS

Ergonomics is a term that loosely means

“fitting the work to the person.” If tools and equipment are designed about what people can accommodate, the results will be much more satisfactory. For example, in the 1930s research was done in telephone equipment manufacturing plants because use of long-nosed pliers for wiring switchboards required considerable force at the end of the hand's range of motion. A simple tool redesign resolved this issue. Considerable attention has been focused on ergonomics in recent years because we have come to realize that long

periods of time spent in unnatural positions can lead to repetitive-motion illness. Much of this attention has been focused on people whose job tasks have required them to operate video display terminals (VDTs). While most Amateur Radio operators do not devote as much time to their hobby as they might in a full-time job, it does make sense to consider comfort and flexibility when choosing furniture and arranging it in the shack or workshop. Adjustable height chairs are available with air cylinders to serve as a shock absorber.

Table 3.5
Properties and Hazards of Chemicals often used in the Shack or Workshop

<i>Generic Chemical Name</i>	<i>Purpose or Use</i>	<i>Hazards</i>	<i>Ways to Minimize Risks</i>
Lead-tin solder	Bonding electrical components	<ul style="list-style-type: none"> • Lead exposure (mostly from hand contact) • Flux exposure (inhalation) 	<ul style="list-style-type: none"> • Always wash hands after soldering or touching solder. • Use good ventilation.
Isopropyl alcohol	Flux remover	<ul style="list-style-type: none"> • Dermatitis (skin rash) • Vapor inhalation • Fire hazard 	<ul style="list-style-type: none"> • Wear molded gloves suitable for solvents. • Use good ventilation and avoid aerosol generation. • Use good ventilation, limit use to small amounts, keep ignition sources away, dispose of rags only in tightly sealed metal cans.
Freons	Circuit cooling and general solvent	<ul style="list-style-type: none"> • Vapor inhalation • Dermatitis 	<ul style="list-style-type: none"> • Use adequate ventilation. • Wear molded gloves suitable for solvents.
Phenols and	Enameled wire/methylene chloride	<ul style="list-style-type: none"> • Strong skin corrosive paint stripper 	<ul style="list-style-type: none"> • Avoid skin contact; wear suitable molded gloves; use adequate ventilation.
Beryllium oxide	Ceramic insulator which can conduct heat well	<ul style="list-style-type: none"> • Toxic when in fine dust form and inhaled 	<ul style="list-style-type: none"> • Avoid grinding, sawing or reducing to dust form.
Beryllium metal	Lightweight metal, alloyed with copper.	<ul style="list-style-type: none"> • Same as beryllium oxide 	<ul style="list-style-type: none"> • Avoid grinding, sawing, welding, or often reducing to dust. Contact supplier for special procedures.
Various paints	Finishing	<ul style="list-style-type: none"> • Exposures to solvents • Exposures to sensitizers (especially urethane paint) • Exposure to toxic metals (lead, cadmium, chrome, and so on) in pigments • Fire hazard (especially when spray painting) 	<ul style="list-style-type: none"> • Adequate ventilation; use respirator when spraying. • Adequate ventilation and use respirator. Contact supplier for more info. • Adequate ventilation and use respirator. Contact supplier for more info. • Adequate ventilation; control of residues; eliminate ignition sources.
Ferric chloride	Printed circuit board etchant	<ul style="list-style-type: none"> • Skin and eye contact 	<ul style="list-style-type: none"> • Use suitable containers; wear splash goggles and molded gloves suitable for acids.
Ammonium persulphate and mercuric chloride	Printed circuit board etchants	<ul style="list-style-type: none"> • Skin and eye contact 	<ul style="list-style-type: none"> • Use suitable containers; wear splash goggles and molded gloves suitable for acids.
Epoxy resins	General purpose cement or paint	<ul style="list-style-type: none"> • Dermatitis and possible sensitizer 	<ul style="list-style-type: none"> • Avoid skin contact. Mix only amount needed.
Sulfuric acid	Electrolyte in lead-acid batteries	<ul style="list-style-type: none"> • Strong corrosive when on skin or eyes. • Will release hydrogen when charging (fire, explosion hazard). 	<ul style="list-style-type: none"> • Always wear splash goggles and molded plastic gloves (PVC) when handling. Keep ignition sources away from battery when charging. Provide adequate ventilation.