

EAA Flight Advisor™

Submitted by Debra Sanderson

More quote stuff to consider for the newsletter....

"I think there is something exhilarating in flying amongst clouds, and always get a feeling of wanting to pit my aeroplane against them, charge at them, climb over them to show them you have them beat, circle round them, and generally play with them; but clouds can on occasion hold their own against the aviator, and many a pilot has found himself emerging from a cloud not on a level keel.

"Cloud-flying requires practice, even if you have every modern instrument, and unless you keep calm and collected you will get into trouble after you have been inside a really thick one for a few minutes. In the very early days of aviation, 1912 to be correct, I emerged from the clouds upside down, much to my discomfort, as I didn't know how to get right way up again. I found out somehow, or I wouldn't be writing this."
Charles Rumney Samson - "A Flight From Cairo to Cape Town and Back," 1931

The three worst things to hear in the cockpit:
The second officer says "Oh, shit!"
The first officer says "I have an idea!"
The captain says "Hey, watch this!"
Anon.

"The thing is, helicopters are different from planes. An airplane by its nature wants to fly, and if not interfered with too strongly by unusual events or by a deliberately incompetent pilot, it will fly. A helicopter does not want to fly. It is maintained in the air by a variety of forces and controls working in opposition to each other, and if there is any disturbance in this delicate balance the helicopter stops flying; immediately and disastrously. There is no such thing as a gliding helicopter.

"This is why being a helicopter pilot is so different from being an airplane pilot, and why in generality, airplane pilots are open, clear-eyed, buoyant extroverts and helicopter pilots are brooding introspective anticipators of trouble. They know if something bad has not happened it is about to."
Harry Reasoner, 1971

"If helicopters are so safe, how come there are no vintage/classic helicopter fly-ins?"
Jim Tavenner

"Eagles may soar, but weasels never get sucked into jet air intakes."
Anon.

"I confess that in 1901, I said to my brother Orville that man would not fly for 50 years... Ever since, I have distrusted myself and avoided all predictions."
Wilbur Wright, 1908



Skin And Hand Protection - Working with Epoxies

By Gary Hunter
GH334766@MSXSCC.shell.com
(Submitted by Randy Stein)

In actuality, any rubber glove type can have microscopic holes in them. When it comes mass produced, "cheap" and "thin" gloves, there is no guarantee they will not have holes in them unless they are tested like condoms. When it comes to

gloves there is a lot truth in the saying, "You get what you pay for."

Latex gloves were developed for the medical field. Main emphasis was "good feel" (sensitivity) and adequate protection from human body fluids, and "CHEAP." Never, were they intended to provide long term protection from industrial chemicals. But, because they are cheap, and have good "feel," people like you and I find them easy to work with. They do provide some level of chemical protection too. However, recently, the medical industry has discovered people are developing a sensitivity and in some cases deadly allergic reactions to latex gloves. This is not good.

As part of my job, I have attended training courses on gloves for worker safety. In short, NO glove is completely impervious to all chemicals. They are tested and rated for PERMEATION RATE for each different type chemical. Certain type rubber compounds (latex, nitrile, butyl) have lower permeation rates with certain chemicals than others. The thicker the rubber glove, the longer it takes for a chemical to permeate. In many cases, a rubber that is exceptionally good at resisting permeation of epoxy resins and curing agents, are really bad at other things you just happen to be working with at the same time - like solvents - Acetone, MEK, Lacquer Thinner, etc., (as is the case with nitrile) Gloves that provide many hours of protection (a full "worker shift") primarily what chemical companies are interested in) are relatively thick and designed for use in harsh environments (high abrasion) over long periods of time. And as such, they have poor feel and are relatively expensive.

Butyl rubber gloves are perhaps one of the best at providing good permeation resistance to a fairly broad spectrum of chemicals. But they are fairly expensive, and as such we have a tendency to reuse them over and over, and even perhaps beyond the point of their protective life span. Cleaning the glove off with a solvent to allow future use of the glove doesn't work either. Many times, the solvent will act as carrier, making the hazardous resin or curing agent permeate even further and faster into the rubber, shortening the protective life span of the glove in total.

From these training courses, one can easily conclude that ANY glove is adequate protection, provided you change them out frequently enough to keep ahead of the permeation rate.

In our scenario as homebuilders, we need a glove that will last a least an hour or two. Latex has proven quite adequate for many and is certainly better than no glove at all. If you are concerned about the adequacy of latex protection or the toxicity of the latex itself, you should consider alternatives.

CHEAP seems to be the primary denominator in the homebuilding world. In my opinion, nitrile rubber gloves are a good alternative although they do not resist solvents very well. I am not referencing the industrial or harsh environment grades that are thick and have poor feel. I am referring to the thinner versions packaged in boxes of 100 much like latex gloves. They have pretty good feel, maybe not as good as latex. They are more expensive than latex, but still cheap enough to be seriously considered - DISPOSABLE. I buy them from Harbor Freight, typically a box of 100 (50 pair) is \$12 and on sale they can be had \$10 / box. 20-24 cents / pair ain't bad. Other industrial supplies are located in major cities throughout the country. But expect the price to be double Harbor Freight.

Depending on what job I am about to do I will put on a double layer of gloves, i.e., If it's ten minute job, one pair is sufficient. If I have a job I think will either be long in duration, or has the potential to cause a tear, or may "gook" up the glove beyond the point of usefulness, I will put on a second pair over top the first pair - before starting any work with the resins.

What this does is:

- 1). Increases the life span of the "glove protection" considerably. What little gets through the first glove, will take much longer to get through the next layer.
- 2). Sweating hands inside the glove makes changing gloves "on the fly" a real challenge

(unless you are particularly adept at putting baby powder on). Personally, I have found it much easier and quicker for me to peel off the outer layer of glove and put on a new glove right pronto. This works really well for those instances when a glove is just too gunky to keep working with it. It is even handy when you accidentally cut a glove. Even if you cut both layers of glove - if you stop before any resin contacts your hand, you can peel off the outer layer glove and slip a new glove on in a matter of seconds. This is far better than continuing to work with a hole in your glove, and much quicker than removing gloves from both hands, re-powdering and placing new gloves on.

I never reuse my gloves. If I run out of gloves, I simply don't work until I get more.

DO NOT use Barrier Creams inside the gloves. Barrier creams work best when they are dry. Since our hands tend to sweat profusely inside the gloves, the barrier cream dissolves in the sweat and becomes less effect. In the event a glove tears after your hand has begun sweating, the barrier cream won't be of much benefit. Simply put, it is a waste of money under a glove. It would be cheaper and more effective to put on two layers of gloves.

HOWEVER, DO put the barrier cream on your forearms - from the wrist up to about your elbow or maybe beyond depending on how sloppy you are with epoxy resin.

Since nitrile gloves are not that good in solvents, avoid "deliberately" using them in solvents and acquire a thicker butyl glove specifically for that purpose. Solvents tend to come into play when we clean our tools after a lay-up. It is more difficult to avoid the use of cleanup solvents when it comes to scissors and expensive squeegees. But, we can avoid the use of solvents when it comes to brushes. Again, "cheap" is the common denominator here and Harbor Freight sells 2" wide "chip brushes" for about \$12 / box of 36. Use them once and throw it away. I know what many of you are going to say - "They tend to shed hairs into your lay-up." Yes, they do, and "you get what you pay for" pertains here too. BUT, I have found that if you cut off about half the length of the brush

hairs, the loose hairs will "fly out" out of the brush more easily and completely when you "flick" it over your hand, the corner of the bench top, or the sticky side of a piece duct tape.

This process gets the bulk of the loose hairs out of the brush, but you will still get few inclusions in your lay-up from time to time. Personally, I am not that concerned over "a few" camel hairs in my lay-up. And if I am not mistaken, I believe it is permissible by Rutan inspection criteria to have "a few" brush hair inclusions. Another good reason for cutting the brush hairs short is that it improves "stroking" and "stippling" performance of the brush considerably.

(Gary Hunter is Bruce Bohannon's composite man and Chief mechanic for "Pushy Galore")

What Our Members Are Doing

Here is a progress report

By Owen Smith

Since I moved my Stewart 51 project to the Camarillo EAA hangar a couple of months ago I keep getting cited by the project police for failure to file progress reports. Well, I certainly can't afford trouble with the cops, so here goes.

After 2.5 years, I'm now in what I optimistically refer to as the final assembly stage - you know, where most of the structure is completed and 80% of the work is still to be done. I finally got all the fuel valves, filters, pumps and pressure regulators installed in the wings and tested for leaks. As you can see in the attached pictures, I now have the wings mated to the fuselage. I'm currently adding the structure in wheel wells below the cockpit floor and fabricating and installing the duct work for the cockpit air and heat. I should have the landing gear installed a few days after I get it back from the powder coater, hopefully by the time you read this. Then I will remove the wings and install the hydraulic lines, cockpit environmental controls and engine coolant tubes.

The engine and mount came back from Oshkosh last week, where the builder(John Seymour of Precision Aero Engineering) had it on display. We recently put it on the airframe just to see how everything fit. As you can see from the enclosed