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Solvent washing PCB boards

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17th February 2004,
12:25 PM

#1

eeka chu
diyAudio Member

Join Date: Nov 2003
Location: England

Solvent washing PCB boards

Is there anywhere I can read about the possibilities of solvent washing PCB's after I've soldered them?

I mean, I would like to remove all the flux spatter and the flux on the terminals. It leaves a tacky residue, it looks horrible, it doesn't help the join, if anything it helps attack it, and it's going to help stick other muck onto the join. I'd clean it off the terminals by hand, but there are too many and they're too complex; any kind of cleaning implement, like a Q-Tip, just gets taken apart after cleaning a single terminal.

I read that the guys who use wave soldering and such also submerge their boards in some form of solvent to remove the flux afterwards.

Is anyone familiar with this? Or does it only work for surface mount technology? Is it going to annihilate all the axial caps and resistors on a board?

I would assume that whatever solvent they use is very volatile so that it

evaporates off all the surfaces quite quickly to prevent electrical failure. My main concern was that it would breach the seals of plastic encapsulated capacitors, clean the markings off components and so on.



17th February 2004,
01:11 PM

#2

Netlist
diyAudio Moderator



Join Date: Jan 2003



Flux removers do exist: <http://www.mgchemicals.com/products/413b.html> but I use methanol. Very cheap, not drinkable and effective. I wash the pcb with a brush doped in methanol, dry it with a hairdryer and polish it with another large stiff brush.

/Hugo 😊



17th February 2004,
01:29 PM

#3

eeka chu
diyAudio Member

Join Date: Nov 2003
Location: England

Thanks Hugo,

I have been used surgical spirit, ethanol denatured with methanol, to clean it off up until now. One thing that annoyed me about the surgical spirit was that it left a slightly greasy layer behind on the board. I only know that it was denatured using methanol, but it may have also contained some other trace chemicals. Whatever it is, it needs cleaning off as well, as it makes the board slippery and mucky.

The surgical spirit was from a store, not a chemical supplier's, so they may have just not gone to any great lengths in purifying it.

You don't get this layer with pure methanol do you?



17th February 2004,
02:05 PM

#4

Netlist
diyAudio Moderator



Join Date: Jan 2003



I use pure methanol.
Indeed the pcb becomes grey/white.
I rinse it with methanol after scrubbing it very well with the brush.
Polishing it with a hard brush makes it shine like new.
Left of picture unwashed, middle washed and right washed and polished with my favorite brush.
Some may have other tricks, I'd be happy to hear them.

/Hugo 😊

Attached Images

[mvc-625f.jpg](#) (86.7 KB, 699 views)



17th February 2004,
02:30 PM

#5

 **Hi Speed** 
diyAudio Member



Join Date: Sep 2002
Location: PR

hi all

I use low cost "lacquer thinner" and work perfect.

Hi Speed
Thanks



17th February 2004,
02:48 PM

#6

 **eeka chu** 
diyAudio Member

Join Date: Nov 2003
Location: England

The picture is a great help. The methanol sure does seem to work!

The white muck on your board isn't the same as the guck I was thinking of, but since it all wipes off, it isn't a problem anyway. The muck being left by the surgical spirits is more like a transparent, clear, oil. Soapy water cleans it off, but I'd rather not have to work round the terminals afterwards to clean muck off left by the solvent it's self. The board layout kind of prevents the brush cleaning method. 😞

However... I HAVE AN IDEA! 🧐

Isopropyl!

Edit - I found some information on it here

click me...

Scroll down to the bottom. Since iso-propyl alcohol isn't taxed, even in it's chemically pure form, I'll try it out. Even if it is slightly less effective at flux removal, compared to ethanol, so long as it doesn't leave a film behind it's great!

Edit x2 - Even better... RS sells it! Search their catalog for IPA



17th February 2004,
05:16 PM

#7

 **maylar** 
diyAudio Member

Join Date: Jun 2003
Location: Connecticut

I use isopropyl and it works OK. Leaves a bit of residue.

The stuff they used in pc board shops was some kind of Freon. Nowadays they use water soluble fluxes though, so there's no need for nasty chemicals.

1.1.1 Trichlor works well but it's hazardous. Same with MEK. Laquer thinner and carburettor cleaner work too. Be aware that some solvents will destroy electrolytic capacitors.

Alcohol is relatively safe.

dave



17th February 2004,
05:32 PM

#8

 **eeka chu** 
diyAudio Member

Join Date: Nov 2003
Location: England

Maylar,

That's kind of what was concerning me. I know that in commercial production the boards are either pressure washed with the solvents or submersed in it for a short period of time. But a lot of the components they use are also of the unmarked surface mount type.

I only want the solvents to dissolve the flux, but I'm sure all of them are probably going to dissolve the board's markings and component's seals as well. I'll keep reading and see what has been done.

I'm going to buy a roll of Multicore's 96SC Colophony Silver solder with my next order from RS. It uses Ecosol 105 flux. Is 105 water based?

Even still, while water may not strip the board of anything but the flux, it still takes forever to dry out of small pockets. I suppose deionised water would be a good idea, since it will be much less conductive should any be left behind.

Here's a note I found earlier -

"Cleaning: Multicore Ecosol 100 cored wires have been formulated to leave a pale flux residue and to resist spitting. Cleaning will not be required in most situations but if necessary this is best achieved using Multicore Prozone in a semi-aqueous process with a final rinse in deionised water. Other proprietary solvent or semi-aqueous processes including saponification may be suitable. Customers are advised to check the desired level of cleanliness is afforded by their chosen cleaning process."



17th February 2004,
05:42 PM

#9

 **pinkmouse** 
diyAudio Moderator



Join Date: Apr 2002
Location: Chatham, England

Just put them under a hot shower for a couple of minutes, rinse with de-ionised water, then dry in a warm place for a day or so. This is the way I have cleaned many PCBs of dust/beer/food/flux etc. whilst servicing kit. If you have any really stubborn marks, or dirty pots, you can use a little diluted vinegar as a presoak before the shower.

Don't use any detergents, it will go horribly wrong!

AI

There is science, logic, reason; there is thought verified by experience. And then there is California. Edward Abbey



17th February 2004,
05:46 PM

#10

 **jackinnj** 
diyAudio Member

Quote:

Originally posted by maylar

I use isopropyl and it works OK. Leaves a bit of residue.



Join Date: Apr 2002
Location: Llanddewi Brefi, NJ

The stuff they used in pc board shops was some kind of Freon. Nowadays they use water soluble fluxes though, so there's no need for nasty chemicals.

1.1.1 Trichlor works well but it's hazardous. Same with MEK. Laquer thinner and carburettor cleaner work too. Be aware that some solvents will destroy electrolytic capacitors.

Alcohol is relatively safe.

lacquer thinner is part methyl ethyl ketone -- and a whole bunch of other ketones.

everyone be mindful that all these organic solvents are very flammable -- i clean my pcb's in the garage. isopropyl alcohol is usually pretty dilute when sold in drugstores.

also -- if you use a cloth to apply the solvent, don't store it with a bunch of rags after finished -- spontaneous combustion can result from the heat of evaporation.

ethyl alcohol is safe in moderation! sante!



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