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Included

Let's talk about GLUE...



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10-09-2003, 02:51 PM

#1



milkyspit
Flashaholic*

Join Date: Sep 2002
Location: New Jersey
Posts: 2,967



Lets talk about GLUE...

Can someone help me understand the universe of glues available to the aspiring electronics hobbyist and flashlight modder, and what each is good or not so good for? [img]/ubbthreads/images/graemlins/confused.gif[/img]

I'm particularly ignorant in this area! [img]/ubbthreads/images/graemlins/ooo.gif[/img]

Always been a superglue guy, and if that doesn't work, I don't really know where to turn. [img]/ubbthreads/images/graemlins/help.gif[/img]

Here are some glues I've at least heard of, but I still **don't have a clue** as to when to use them...

Elmer's glue ("plain old glue")
Rubber cement
Superglue
Model glue
Epoxy
Fabric glue
Wood glue
Spray adhesive

Maybe some of the above are a joke, but then it just proves my ignorance.

[img]/ubbthreads/images/graemlins/icon23.gif[/img] And I **know** there's a bunch more glues I don't even know about!

My bottom line goal in this thread is to understand which glue would be a good choice to join material A to material B, plus take into account special "features," such as dries fast, is waterproof, good for smooth materials, good for filling gaps, thermally conductive, soft, hard, doesn't require mixing, etc. [img]/ubbthreads/images/graemlins/thinking.gif[/img]

If we get a good response in this thread, maybe I'll compile the info into some sort of table and make it available to anyone who wants it... [img]/ubbthreads/images/graemlins/cool.gif[/img]

So, let the glue gods begin...

[img]/ubbthreads/images/graemlins/popcorn.gif[/img]

Last edited by milkyspit : Yesterday at 08:33 AM.



10-09-2003, 03:23 PM

#2

INRETECH
Flashaholic*

Join Date: Aug 2002
Location: HILLSBORO, OR
Posts: 1,337

Re: Let\'s talk about GLUE...

There are several things to consider

-) Cure time
-) Cure chemical (some are very nasty)
-) Temperature to breakdown
-) Shear Strength

Your best glues are the two-part, the resin and the hardener which starts a crystallation reaction in the resin, much better glue

Its all a "sticky subject" to discuss



10-09-2003, 03:43 PM

#3



sunspot
Flashaholic*

Join Date: Aug 2001
Location: Alabama, USA
Posts: 2,562

Re: Let\'s talk about GLUE...

There are also many different types of super glues.
Here are some of them.
[texas knife glues](#)
Go to the glue section. I could not link direct to there.



10-09-2003, 05:11 PM

#4



whiskypapa3
Flashaholic

Join Date: Nov 2002
Location: Western Maryland
Posts: 493

Re: Let\'s talk about GLUE...

Glue...

Elmer's---Polyvinyl alcohol based. White, dries transparent, not water-proof. Paper, wood, nothing that will get wet. Washes out of kids clothes. Cheap.

Rubber cement. Natural latex dissolved in naptha. Paper layups, crafts and sticking falsies on. Cleans up on paper with gum eraser. Vapors carcenogic. Cheap.

Superglue. Cyano-Methacrylic. Sticks almost anything to anything, even Teflon if it is pre-etched but not Polyethelene or P-vinyl. Gets all over everything and sticks fingers together. Slower Gel variety not as messy and can be set with "Kicker" sprays. Brittle, shelf life 3-6 mo. Not cheap.

Model glue. Various cellulose products dissolved in acetone or MethylEthylKetone. Balsa wood. Plastic Model glue similar except Styrene based. Dries fast. Fumes toxic. Cheap.

Epoxy. Epon resin. Set by heat or with a catalyst. Comes in a variety of cure times from seconds to hours. The thirty minute types are usually the strongest. Will glue most non-flexing parts satisfactorily, weakens at 200degF. Available with various fillers to add proprties like ridgity and heat transfer. Can also be used to cast parts and lay-up fiberglass and carbon fiber. Parts must be very clean and gixed while resin sets. Clean-up with Acetone before set. Softens in Methyl Chloride (Paint remover). Shelf life 6-9 mo. Moderate cost.

Fabric glue. PolyVinylAcrylic. Also sold as "Tacky Craft" glues, "The Miricle Glue from Canada" and "Mod Podge". Close reletive to Elmer's and the medium for artist's acrylic paints. Good for crafts light wood items and cloth. More water resistant than Elmer's. Easy clean-up before it sets. Cheap.

Wood glue. Aliphilic resin. Yellow glue. Quick grabing. fast setting and strong. Two types, one a lot more waterproof than the other. Parts can be moderatly worked after only a short clamping time, twenty minutes or so. Fully set in a couple of hours. Stains iron and steel parts (top of table saw!!). Shelf life 6-9 mo (gets stringy and thick). Cheap.

Spray adhesive. Rubber cement on Steriods. Synthetic rubber dissolved in various toxic solvents. Gluing cloth, veneer, leather and cardboard to each other. Non-spray version sold as contact cement. Toxic vapors. Clean-up difficult. Moderate cost.

Goop. Various flavors that except for the Marine grade appear to be the same. Synthetic rubber in various solvents. Good adhivise, especially where parts are moderatly flexed. Thick, dries fast holds well to most parts except Teflon and Polyethylene. Shelf life 6 mo. after opening. Moderate cost.

Silicone. Moisture setting Silicone rubber. Two varieties, one smells like vinigar, one doesn't, General purpose sealing and light gluing. Does not shrink while setting. Vinigary one causes copper to corode so avoid use in electrical devices. Best glue for glass (like aquariums). Moderate cost.

And WP3's favorite;

Urethane wood glue. Moisture setting urethane resin. Messyest glue ever made, just looking at the bottle makes my fingers stick together. Use by dampening one side of the work, spread glue on other side assemble and CLAMP. Glue foams up filling entire joint and oozeing out all over the work. After hardening the foamed out glue chips off readily. Strong and totally waterproof. Clean-up, let it harden then chip it off, glue on fingers wears off in a few days. On work clothes, forget it.

Moderate cost.



10-09-2003, 07:25 PM

#5

KC2IXE

Flashaholic*



Join Date: Apr 2001
Location: New York City
Posts: 1,060

Re: Let\'s talk about GLUE...

[QUOTE]

whiskypapa3 said:

Glue...

...snip...

Superglue. Cyano-Methacrylic. Sticks almost anything to anything, even Teflon if it is pre-etched but not Polyethelene or P-vinyl. Gets all over everything and sticks fingers together. Slower Gel variety not as messy and can be set with "Kicker" sprays. Brittle, shelf life 3-6 mo. Not cheap.

...snip...

[/ QUOTE]

And there are other "Kinds" of super glues - same general properties, but they can be gotten in things like Non fogging (great near anything that needs to stay optically clear - also tends NOT to cause CYA allergy) and toughened formulras (I like "Black Max"). Some of the toughened formuals are starting to get up there in shear and shock strength - BTW Most superglues are weakest in "peel"



10-09-2003, 09:46 PM

#6



mattheww50

Flashaholic*

Join Date: Jun 2003
Posts: 572

Re: Let\'s talk about GLUE...

Be very careful about using silicones on glass for aquariums, or where they may come in contact with eating utensils. Some

version (such as used in Bathrooms as sealers and caulking) contain arsenic compounds to prevent fungus and mildew growth, and the label makes very clear that they should NOT be used for aquariums or dishwashers. They can poison fish, and people have developed arsenic poisoning from using them to repair dishwashers. Always read the label!!



10-09-2003, 09:46 PM

#7

Eugene
Flashaholic*

Join Date: Jun 2003
Posts: 505

Re: Let\'s talk about GLUE...

To sum it up in one sentence

Glue = liquid duct tape [img]/ubbthreads/images/graemlins/smile.gif[/img]



10-09-2003, 11:10 PM

#8



whiskypapa3
Flashaholic

Join Date: Nov 2002
Location: Western Maryland
Posts: 493

Re: Let\'s talk about GLUE...

Mattheww50

Excellent reminder.

The list above is just the adhesive types found in Harry Homeowner stores. As with anything, read the lables in the store BEFORE you buy it. Anything stronger than KinderGarden Paste glue should be treated with respect...



10-09-2003, 11:28 PM

#9

PaulW
Flashaholic*

Join Date: Mar 2003
Location: Laurel, Maryland

Posts: 2,805

 **Re: Let\'s talk about GLUE...**

Whiskypapa3,

Thanks you for posting that useful summary. Maybe you're the one that can help me with a specific "glue" task.

I am about to install an electrical jack in the tailcap of a Mag 3D so that I can charge batteries in the light. I would like to apply some sort of material to make the light waterproof again after this surgery. I think I need the sealing agent to be flexible so that the jack will still be able to accept a plug. What would you recommend? Silicone? If you have a brand to suggest, I'd like that advice too. I think I'll want to avoid the "vinigary one." How do I avoid that?

I believe this question is not too far OT, since a lot of CPFers may also have this question.

Paul



 10-09-2003, 11:54 PM

#10 



whiskypapa3 
Flashaholic

Join Date: Nov 2002
Location: Western Maryland
Posts: 493

 **Re: Let\'s talk about GLUE...**

What kind of Jack is it??



 10-10-2003, 04:13 AM

#11 

billw 
Flashaholic

Join Date: Nov 2002
Location: SF Bay Area
Posts: 221



 **Re: Let\'s talk about GLUE...**

I can't believe that no-one has mentioned hot-melt glues.

BillW



10-10-2003, 08:32 AM

#12



whiskeypapa3
Flashaholic

Join Date: Nov 2002
Location: Western Maryland
Posts: 493

Re: Let\'s talk about GLUE...

Did I leave them off my list?? Major Brain F@rt (a symptom of precocious senility??)..



10-10-2003, 08:35 AM

#13



sunspot
Flashaholic*

Join Date: Aug 2001
Location: Alabama, USA
Posts: 2,562

Re: Let\'s talk about GLUE...

WP3. How can I look for the Urethane wood glue? Brand or what do I look for on the label?
TIA



10-10-2003, 09:16 AM

#14



whiskeypapa3
Flashaholic

Join Date: Nov 2002
Location: Western Maryland
Posts: 493

Re: Let\'s talk about GLUE...

Gorilla Glue is the most common. Home Depot and Lowes locally carry it and another brand. I don't remember the brand (again that Brain F@rt thing) but it may be Elmer's. It looks like well aged wild honey in the container. Buy the smallest size, a little goes a long way and the shelf life after opening is only about 4-6 mos.

I've also used it as emergency foam potting material, not MilSpec I'm sure but like Uncle Sugar sez "Don't ask' don't tell" ..



10-10-2003, 10:03 AM

#15

gyverpete

Flashaholic

Join Date: Jan 2003

Location: Rhode Island, USA

Posts: 420

Re: Let\'s talk about GLUE...

Some very good epoxy I can recommend is PC-7. It's a thick two part epoxy paste that is dark grey when mixed and cured. It also comes in white for marine applications.

It doesn't run or sag and it bridges gaps very well so your parts don't have to be perfectly mated. I found it at Ace hardware. It has a long cure time, about 18 hours, but it is the strongest and most effective epoxy I've ever used. Has worked on everything I tried and no failures yet.

OTOH, I rarely ever have had any success with superglue. And clear 1-hour epoxy has also failed on occasion.



10-10-2003, 11:06 AM

#16

PaulW

Flashaholic*

Join Date: Mar 2003

Location: Laurel, Maryland

Posts: 2,805

Re: Let\'s talk about GLUE...

[QUOTE]

whiskypapa3 said:

What kind of Jack is it??

[/ QUOTE]

Ah ha. You caught me. I haven't planned that far ahead. It could be any kind of jack, for I have a Maha 777+ charger that uses alligator clip leads. So, I could use a sub-miniature phone jack or a jack that mates with the little plugs that dangle from wall warts. I could even use just a feed-through. I need to go to my local electronics store and find something not too

obtrusive.

The limiting factor is that it needs to fit in the Mag 3 tailcap with the spring compressed. Since it's low current, I think I'll be looking for the smallest jack I can find.

Paul



10-10-2003, 11:27 AM

#17



sunspot
Flashaholic*

Join Date: Aug 2001
Location: Alabama, USA
Posts: 2,562

Re: Let\'s talk about GLUE...

Thanks WP3. I have seen the Gorilla glue at many stores. I'll give it a try on wood.

gyverpete, try some instacure on superglue. A warning: Cap and remove from the area, all superglues, before using instacure. The tiniest bit will react in your glues and it's hard to squeeze out a solid lump. Been there, done that.



10-10-2003, 09:20 PM

#18

gyverpete
Flashaholic

Join Date: Jan 2003
Location: Rhode Island, USA
Posts: 420

Re: Let\'s talk about GLUE...

sunspot,
what does instacure do? I've never heard of it and found only vague references to it online. Does it simply accelerate curing as the name implies, or does it also strengthen the bond? My problem with superglue is that things I glue with it won't stay glued when any strain is put on the joint, except my fingers, of course!
I've given up on superglue and as I said, the thick epoxy I use now works great on everything.



10-10-2003, 10:17 PM

#19

charliek 
Flashaholic*

Join Date: Aug 2003
Location: Bergen county NJ, USA
Posts: 747

 **Re: Let\'s talk about GLUE...**

Milky- I'm telling you- Loctite brand 2 part Epoxy is the BEST glue for all kinds of stuff- comes in 2 tubes- get a peice of cardboard and a few toothpicks- squeeze out a little gob of the resin, then an equal part of the hardener- mix them with the toothpick... now you've got about 5 minutes to apply it. After 5 minutes it's pretty hard- 3 hours it's like a rock, after 24 hours it's cured completely. Hold just about anything. And you NEVER get that "Stuck on cap" or a dried out tube like you get with stuff you don't mix- (it's well worth the trouble)



 10-10-2003, 10:21 PM

#20 

carbonsparky 
Flashaholic

Join Date: Aug 2002
Location: WI
Posts: 206

 **Re: Let\'s talk about GLUE...**

Cyanoacrylate accelerators do just that. You just spray a little on your joint and the glue will set instantly. You can also apply it to one surface and the glue to another before placing together. This stuff has changed the way model R/C planes are built. Place your parts together, apply glue, hold in place and spritz. Glue is set let go. No more clamping or trying to hold parts together.

The bond is not going to be any stronger, but you may get better results because the glue will stay in place better.

For best results with CA glues buy the stuff you get at hobby stores. Most of these are better than the stuff you buy for general consumer use.

When you store your CA, keep it in a dark cool place like your refridgerator. It will last almost forever.

CA work best with tight fit, epoxy works when you need more fill (poor fit).



 10-10-2003, 10:46 PM

#21 



tvodrd 

Join Date: Dec 2002
Location: Costa Mesa, CA
Posts: 4,868



Re: Let\'s talk about GLUE...

2-part epoxys usually have the highest strengths, the problem is, the best of them are sensitive to mix ratio- you need to mix them on a balance by weight. Commercial prod's like Devcon 5-minute are not that sensitive- you lay a pair of roughly-equal beads from the dual syringe package, stir them up and it works. With epoxys, ambient temperature plays a big part- on a hot day, they set-up quicker. They are also mass-sensitive- the more you mix, the quicker it will go-off/gel/start to set up. The epoxy family offers the best range of "final result" solutions IMO. JB Weld from an auto parts house is a pretty effective "glue!"

Larry



10-10-2003, 11:00 PM

#22

charliek
Flashaholic*

Join Date: Aug 2003
Location: Bergen county NJ, USA
Posts: 747

Re: Let\'s talk about GLUE...

I Love JB Weld!..... would be perfect if it was clear... [img]/ubbthreads/images/gaemlins/wink.gif[/img]



10-11-2003, 01:09 AM

#23

Steelwolf
Flashaholic*

Join Date: Feb 2001
Location: Perth, Western Australia
Posts: 1,207

Re: Let\'s talk about GLUE...

Superglue really takes quite a fair bit of skill to use. Got to have almost perfectly mated surfaces, use only a tiny bit, don't squeeze too tight and force it all out of the gap, don't leave it too loose which leaves too much of a gap and results in a bad join, make sure everything stays perfectly still and in place until the CA sets. Very very very hard to use properly.

Nowadays, I use CA as part of a composite system. It looks fugly but it is really strong. Composites consist of the resin/glue and a fibre (fiber for you Americans [img]/ubbthreads/images/graemlins/smile.gif[/img]) matrix. I've had good results with just a few layers of tissue paper and superglue as the "resin". I roughen the surface around the joint to make sure the composite patch stays on. A drop or two in to the mating surfaces and on to the roughened area. Wrap with nicely pre-cut layers of tissue paper and wet with superglue to keep in place. Put on several layers of glue and tissue paper. When the superglue dries, its like hard plastic (probably the acrylate part of cyanoacrylate) and very strong. And because it is superglue, it cures much faster than resin mixes, especially under humid conditions.

I think part of the reason why this works is that CA in itself dries to a really hard mass with incredible breaking strength, and the tissue paper helps keep it in place and allows enough mass to build up, instead of having the CA just drip off. I've also used cloth fibres with good results. The main criteria with choosing the fibre is to make sure that the superglue can wet it well. The strength of the fibre may play a part, but I've yet to build or repair something that would test that.



10-11-2003, 07:09 AM

#24



koala
Flashaholic*

Join Date: Mar 2003
Location: Australia
Posts: 1,342

Re: Let\'s talk about GLUE...

Steelwolf,
May I know what are you doing with your "tissue paper + superglue" composite system? Sounds interesting...

I don't know what is CA, but I do know what super glue with the elephant picture is. I find it quite brittle when set. It's strong on tight fit but the fumes and 'whites' really put off.

Vince.



10-11-2003, 07:55 AM

#25



whiskypapa3
Flashaholic

Join Date: Nov 2002
Location: Western Maryland
Posts: 493

 **Re: Let\'s talk about GLUE...**

Some woodturners use CA as a final coat on small items (pens, chess pieces, cups etc.). Coat item with gel CA, smooth down with piece of PolyEthylene foam, spritz with kicker, wet sand with progressively finer grit and polish off with plastic polishing rouge. Looks like glass, lasts far longer than waxes or varnish. You must wear a full face shield and use a fume filtering breathing mask while applying it in these quantities because it really stinks up the place, kinda like CS tear gas. Also good for filling small breakouts and cracks, a drop of the gel variety in the spot and a quick spritz, sand level and polish.

 10-11-2003, 12:38 PM#26 Join Date: Mar 2003
Location: Laurel, Maryland
Posts: 2,805 **Re: Let\'s talk about GLUE...**

Whiskeypapa3,

You may recall, I had a question about sealing a power jack that I'd like to install in the tail of a Mag 3. Specifically, my question was:

I would like to apply some sort of material to make the light waterproof again after this surgery. I think I need the sealing agent to be flexible so that the jack will still be able to accept a plug. What would you recommend? Silicone? If you have a brand to suggest, I'd like that advice too. I think I'll want to avoid the "vinigary one." How do I avoid that?

[QUOTE]

PaulW said:

[QUOTE]

whiskypapa3 said:

What kind of Jack is it??

[/ QUOTE]

Ah ha. You caught me. I haven't planned that far ahead. It could be any kind of jack, for I have a Maha 777+ charger that uses alligator clip leads. So, I could use a sub-miniature phone jack or a jack that mates with the little plugs that dangle from wall warts. I could even use just a feed-through. I need to go to my local electronics store and find something not too obtrusive.

The limiting factor is that it needs to fit in the Mag 3 tailcap with the spring compressed. Since it's low current, I think I'll be

looking for the smallest jack I can find.

Paul

[/ QUOTE]

Thanks,

Paul



10-11-2003, 12:40 PM

#27



milkyspit
Flashaholic*

Join Date: Sep 2002
Location: New Jersey
Posts: 2,967

Re: Let\'s talk about GLUE...

charliek, please say a little more about JB Weld if you could. What's so special about it? Is it an epoxy, or what? I'm not clear (no pun intended) on how it differs from the other glues that have been mentioned.
[img]/ubbthreads/images/graemlins/confused.gif[/img]

nukiez, I think CA stands for cyanoacrylate, which is essentially superglue.
[img]/ubbthreads/images/graemlins/smile.gif[/img]

whiskeypapa3, admittedly this has no direct relation to flashlights, but I used to make repairs to my foils (swords! as in the sport of fencing) with superglue. Foil fencing is electrically scored, with a delicate wire running along a groove up the full length of the blade to the tip. If the wire pops out it'll quickly break, and... well, you won't be scoring anymore.
[img]/ubbthreads/images/graemlins/icon15.gif[/img] The superglue had a sort of wicking action through the metal groove that worked nicely for a quick repair to a wire starting to pop out. Does this make any sense?

That said, I recently found that superglue did NOT do a good job in gluing a wire into a groove through PVC pipe. It didn't seem to stick to the PVC at all! [img]/ubbthreads/images/graemlins/crazy.gif[/img]



10-11-2003, 02:00 PM

#28





koala
Flashaholic*

Join Date: Mar 2003
Location: Australia
Posts: 1,342

 **Re: Let\'s talk about GLUE...**

PaulW,

If I were you I will grease up the internal of the socket to prevent rust. Then cover up the other side of the jack(inside the torch) with somesort of waterproof flexible sealant. Some might like to have epoxy but with sealant, you can remove the sealant mechanically and replace the plug if it wear out or fail.

Of course this is totally unprofessional and visually ugly on the insides.

I think I have seen some waterproof jacks with o rings but I can't remember where...

Vince.



 10-11-2003, 04:27 PM

#29 



charliek
Flashaholic*

Join Date: Aug 2003
Location: Bergen county NJ, USA
Posts: 747

 **Re: Let\'s talk about GLUE...**

JB weld- also known as "Liquid Steel"

<http://www.jbweld.net/coldweld.html>

Once it's hardened- it's just like steel- you can drill it, tap it (make screw threads).... It's really heat resistant.. I've used it on backpacking stoves- (see Pepsi can stove on the web) Great stuff. Two part Epoxy- smells a bit, but WOW! What a bond..



 10-11-2003, 04:46 PM

#30 



smokinbasser
Flashaholic*

Join Date: Sep 2003
Location: Tennessee plateau
Posts: 641

 **Re: Let\'s talk about GLUE...**

I will second the JB weld as a great product. It is fairly inexpensive and does set up solid. There is a product line that has an outstanding potential for use, they used it to replace the main bearing insert in a locomotive diesel and checked it after a long period of time (brain fart) I seem to remember it was like 10,000 hours but it was in better shape than the other cylinders mains that were installed at the same time as the epoxy. The name is BELZONA It isnt a Lowes or Home Depot type of product and it aint cheap but if a group buy was done the price might be tolerable. its a two parter and I just kept mine in two plastic snuff containers for 6 years with no degradation.

 10-11-2003, 09:07 PM#31 Join Date: Mar 2003
Location: Laurel, Maryland
Posts: 2,805 **Re: Let\'s talk about GLUE...**

Thanks Vince. Your suggestions are helpful. Yeah, I think some kind of flexible sealant is what I need.

Paul

 10-12-2003, 12:11 AM#32 Join Date: Nov 2002
Location: SF Bay Area
Posts: 221 **Re: Let\'s talk about GLUE...**

Oh, yeah, one other thing. Most epoxy "glues" are epoxy resins with assorted additives and fillers intended to alter either their wet or hardened properties (ie to make them stronger, or convert thick liquids to "putty" consistency.)

Serious epoxy users (people like boat and airplane makers) will buy their resins in purer form and adjust with additives separately on a case by case basis. Several of the epoxy manufacturers have excellant literature and/or sample kits that are big enough to last us small-scale users quite a long time, and come complete with a selection of additives (and the literature.) Websites:



10-12-2003, 12:18 AM

#33

billw
Flashaholic

Join Date: Nov 2002
Location: SF Bay Area
Posts: 221

Re: Let\'s talk about GLUE...

(oops)

Websites with epoxy info and/or sample kits:

- <http://www.westsystem.com>
- <http://www.systemthree.com>
- <http://www.raka.com>

Despite relatively mild owners, epoxy (and urethane) glues have an allergy sensitization problem, where if you're not careful you become more and more sensitive to the resin/harder, and eventually can't go anywhere near the stuff without risking a severe allergic reaction. (usually a problems for people doing large-scale work, but it doesn't hurt to be careful.)

Despite relatively strong odours, the CA (superglue) adhesives have been used for surgical closures in emergency situations (one history says they were originally developed for battlefield/MASH use. Can't say for sure about accuacy of that story, though.)

BillW



10-12-2003, 12:35 AM

#34



whiskypapa3
Flashaholic

Join Date: Nov 2002
Location: Western Maryland
Posts: 493

Re: Let\'s talk about GLUE...

PaulW

Mea Culpa... PM sent...



10-12-2003, 03:11 AM

#35



TheFire

Flashaholic*



Join Date: Feb 2003

Location: SFBA, CA

Posts: 716

Re: Let\'s talk about GLUE...

Actually, CA is THE thing for closing papercuts and even larger cuts and abrasions. I really can't live without it in that function. The "bonds skin instantly" is exactly what you want, and is exactly what it delivers. Also, as an aside, it tastes like artificial apple and makes your mouth tingle in an odd way if applied orally (not recommended). The thing about it (when applied to deeper cuts) is that your skin seems to absorb it as it grows back. I have closed gashes that would have normally required stitches with it and have had excellent results (little or no scar tissue).



10-12-2003, 04:43 AM

#36



Steelwolf

Flashaholic*

Join Date: Feb 2001

Location: Perth, Western Australia

Posts: 1,207

Re: Let\'s talk about GLUE...

Nukiez: Tissue paper + superglue composite. I typically use it to repair breaks. Similar to using glass fibre and epoxy resin. I'm not sure what I can add to that description. You just get the area wet with superglue, then put on layers of pre-cut tissue paper that are big enough to cover the area, plus a little bit extra. Add a little more glue to wet, add a few more layers of tissue paper, until you build up enough mass. If you can, try to totally enclose the broken area with the composite, and always make sure that the surface to which you are applying the composite has been roughened, or else you might find the patch sliding off.

PaulW, This just came to me. Have you considered an inductive charger? This is what they use when they don't want any openings to allow water ingress. It consists of a set of windings on the device and a set of windings at the charging station. The whole set up works like a transformer such that the windings at the charging station set up a pulsing magnetic field (alternating or not doesn't matter, so long as it is not constant strength). The windings in the device are placed as close as possible to the magnetic field. The device windings pick up the magnetic field and convert the energy back to electrical

power, which then goes to charging the battery.

Sorry if I'm just saying things you already know. I just figure this might be the best way to maintain water-tightness. Since the Mag body is aluminium, you might have to put the windings outside, run the wires in and seal up the opening with epoxy or something. But at least that way, the entire area is totally sealed and water tight.



10-12-2003, 07:00 AM

#37



Icebreak
Flashaholic*

Join Date: Aug 2002
Location: by the river
Posts: 4,051

Re: Let\'s talk about GLUE...

Can I try?

How about 3M Plastic and Emblem Adhesive 08061?

By whiskpapa3's definition I think this is goop?

This may be a good thread to post about it and hear returns because I wanted to tell PaulW about it in a different thread.

Elektrolumens 3toDs are made out of a black cylinder of rubbery plastic and two end caps of gray harder plastic. The negative cap has a habit of separating.

When it separates, it looks like some kind of CA was used originally. The tolerances between the end cap and the tube are loose. I wanted to repair one and thought 3M emblem glue would work better because I wanted some substance between the pieces.

When I tried it I was pleased that it very lightly melted both the end cap and the tube surfaces therefore creating a flexible fusing of the two materials. It seems to work well in the pressure/twisting environment it lives in.

It is not totally permanent. If you must pry the cap off to modify the 3toD this can be done (with some effort) without destroying the unit.

Since 3M plastic and emblem adhesive is made for sticking plastic or metal to metal in a weather challenged application; would it be a good contender for PaulW's flashlight recharge jack project?



10-12-2003, 10:02 AM

#38



doubleganger

Flashaholic

Join Date: Apr 2001
Location: northwest MS
Posts: 345

Re: Let\'s talk about GLUE...

[QUOTE]

billw said:

the CA (superglue) adhesives have been used for surgical closures in emergency situations

[/ QUOTE]

I have on good authority that a flexible 'superglue' is now commonly used medically and I know for a fact that it's used by veterinarians. Our dog fell 20 feet down through a manhole that some moron had left open and the vet patched him up with the 'superglue'. He was running in the dark in an area we thought was safe.



10-12-2003, 10:46 AM

#39



PaulW

Flashaholic*

Join Date: Mar 2003
Location: Laurel, Maryland
Posts: 2,805

Re: Let\'s talk about GLUE...

Whiskeypapa3 -- I got your e-mail. Many thanks. Your detailed discussion is exactly what someone like me, who knows little about the chemical and materials end of the flashlight scene, needs.

Steelwolf -- I hadn't thought about using that for my charging application until you mentioned it. For a smaller power configuration, this might just be the thing. But I have to store about 20 Amp hours in my battery configuration. (It's a very bright light.) Thanks for your response.

Icebreak -- The 3M Plastic and Emblem Adhesive approach sounds intriguing. It's a candidate. Regarding goop, I think that

is the name of a glue that I saw at Home Depot a few weeks ago.

Paul



10-12-2003, 11:46 AM

#40



milkyspit
Flashaholic*

Join Date: Sep 2002
Location: New Jersey
Posts: 2,967

Re: Let\'s talk about GLUE...

Are there any glues, or CATEGORIES of glues, that haven't been mentioned yet in this thread? Please share if you know of one!



10-12-2003, 02:25 PM

#41



whiskypapa3
Flashaholic

Join Date: Nov 2002
Location: Western Maryland
Posts: 493

Re: Let\'s talk about GLUE...

How about UV setting glues and resins. I used a UV acrylic to cement acromatic lenses and mount quartz caps on Opal.

My Dentist has put a couple of his kids through college filling my mouth with UV setting fillings and UV cemented caps.

And the Grand-daddy of them all---hide glue, kept in a hot pot by my Grandfather. Heat it up, brush it on, clamp the parts and go get a so-dey-pop while it cooled...



10-12-2003, 02:38 PM

#42



tvodrd 

Join Date: Dec 2002
 Location: Costa Mesa, CA
 Posts: 4,868

Re: Let\'s talk about GLUE...

The 2-part polyurethane systems offer very good strengths combined with flexibility, and adhere well to smooth or porous surfaces. They're messy and one of the 2 components is extremely sensitive to contamination by atmospheric moisture, which limits its shelf life. McMaster-Carr sells small, pre-measured "packets" in several application-specific types. The stuff is a great deal stronger than the silicone RTV types. One of the principal advantages of semi-/flexible bond joints is they typically withstand thermal cycling better when used to bond materials of differing thermal expansion. BTW, the adhesives section in <http://www.mcmaster.com> has a lot of useful information. (Type adhesives in the box and clk any one of the choices. From there you can scroll catalog pages for the section.)

Larry



10-12-2003, 02:44 PM

#43 AilSnail 
Flashaholic*

Join Date: Jul 2003
 Location: Bergen, No
 Posts: 1,266

Re: Let\'s talk about GLUE...

There is a polyurethane glue that is used to bond wood. It is black, sets in moisture from the air, and gives a flexible, and I think very strong, bond. It does not expand when setting, I think. It looks and feels a bit like silicon when wet, and also when it is set. Excess can be cut off with a knife or ground away.

I don't know if "contact glue" is mentioned. It is supposed to set for 15 minutes before you press the surfaces together. Mine is sticky and yellow and expands with bubbles like foam. Don't know how strong it is yet.



10-12-2003, 05:15 PM



#44 

tvodrd 



Join Date: Dec 2002
Location: Costa Mesa, CA
Posts: 4,868

 **Re: Let\'s talk about GLUE...**

There are also cohesives- they just stick to themself.  We use the stuff at work in the form of cohesive paper tape used to secure coils of IV set tubing. On the subject of adhesion, check into gecko toe pads. I've kept Tokays in years past, and it's interesting to watch a 10" lizard run up and down a plate glass window! They also bark and bite like a small dog.  Science only recently figured out how they *release* their grip.

Larry



 10-13-2003, 01:34 AM


#45 

Steelwolf 

Flashaholic*

Join Date: Feb 2001
Location: Perth, Western Australia
Posts: 1,207

 **Re: Let\'s talk about GLUE...**

PaulW: 20Ahrs can't be that much. Afterall, doesn't Darrel's EV need more juice than that?  And IIRC, it uses an inductive loop so that there is no exposed leads to accidentally electrocute their precious consumers. But I guess at the size of a hand held flashlight, it may not be possible to charge 20Ahrs within a reasonable time frame.

Back to topic: There is starch, which is often used in paper mache. I think that can be considered as a type of glue. And there is a variety of glue stick that works like the 3M post-it notes, so that you can stick and peel off the item many times over. These don't help the intended application any though.

I have had occassion to use the contact cement from Selleys. That one doesn't seem to foam up. But I've had a polyurethane-based space sealing foam. Comes from a can, starts to bubble like crazy once it is applied, hardens with moisture and is so sticky it is almost impossible to clean off.



10-14-2003, 06:24 AM

#46 **Moat** 
FlashaholicJoin Date: Sep 2001
Location: Mid Mitten
Posts: 345 **Re: Let\'s talk about GLUE...**

A tough, flexible, chemically resistant polysulfide sealant used in aerospace is Pro-Seal, or PRC -

<http://www.aircraftspruce.com/catalogs/proseal.php>

Smelly, sticky, messy, and the only thing that'll remove the cured goo from fingers is time. Oh yea..... and expensive! But it is durable and flexible - I'd think it would be great for sealing wires goin' in or out of something.

Two part mix, but I'm not sure if it's acceptable to open the containers, and then not use it all at once...?

Bob



10-14-2003, 10:11 AM

#47 **James S** 
ModeratorJoin Date: Aug 2002
Location: ph34r my l33t skillz
Posts: 4,576 **Re: Let\'s talk about GLUE...**

I had never seen a moisture cured glue before it was mentioned here the other day. Then last night I was watching Norm on the New Yankee Workshop and what did he use to glue his greenhouse frame together but this exact stuff. You wet one piece and put the glue on the other. When they touch it foams up quite a bit and oozes all over the place. He made quite a mess in one sequence with it [img]/ubbthreads/images/graemlins/smile.gif[/img]

I was using some elmers to hold glitter on paper with my daughter over the weekend.

And more fun I purchased one of those cans of pressurized latex caulk yesterday to fill in some holes. I always make such a mess with my caulking gun that I thought I would try it out. Well, don't, they are too much fun. If you make a small hole in the tip instead of a large one it will actually squirt latex for quite some distance

[img]/ubbthreads/images/graemlins/wink.gif[/img] There is one bush in the backyard that I have to go pick cured caulk off of sometime this afternoon [img]/ubbthreads/images/graemlins/grin.gif[/img] I was using it to fill some nail holes in the siding and it worked great to inject a bit into them. Very nice.



10-14-2003, 01:54 PM

#48



FNG

Flashaholic*

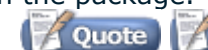
Join Date: Jan 2002

Location: Kansas City, MO

Posts: 945

Re: Let\'s talk about GLUE...

Does anyone know what is used for the water activated carton tapes? You just rub the back of it and put it on the package.



10-14-2003, 02:35 PM

#49



JSWrightOC

Flashaholic*

Join Date: Mar 2003

Location: Fort Mill, SC

Posts: 577

Re: Let\'s talk about GLUE...

I think the carton tape simply uses a water-soluble adhesive that gets sticky when wet, much like the seal on an envelope that you lick or otherwise moisten.



10-14-2003, 02:52 PM

#50



avusblue

Flashaholic*

Join Date: Nov 2002

Location: Saint Paul, Minnesota

Posts: 1,267

Re: Let\'s talk about GLUE...

One of my favorite glues is "Shoe Goo". I think it falls into the "goop" category. The stuff is intended to repair holes in the sole of your shoe and is tough as all get out, yet still flexible. It goes on thick and can fill gaps. I use it for many repairs of all types. FWIW.

Dave



10-15-2003, 02:27 AM

#51

billw
FlashaholicJoin Date: Nov 2002
Location: SF Bay Area
Posts: 221 **Re: Let\'s talk about GLUE...**

Things not mentioned yet:

Pastes of assorted sorts, including wallpaper paste. Don't forget paper mache' as a composite building material... Also dextrin and assorted other soluble gums (gum arabic, etc.) One of these is on the backs of stamps and water-based tapes.

Urea-formaldehyde glues, both water activated and solvent based (one may be slightly different. These are your pre-epoxy two-part waterproof woodworking glues, more or less)

Assorted plastics dissolved in assorted solvents. For plastics. Occasionally just a solvent that dissolves some of the plastics you're gluing together (plastic model cement and PVC pipe cement are in this category.) Nitrocellulose too (the basis of most nail polish.)

BillW



10-15-2003, 05:15 AM

#52

**milkyspit**
Flashaholic*Join Date: Sep 2002
Location: New Jersey
Posts: 2,967 **Re: Let\'s talk about GLUE...**

Out of curiosity, what do they use for things like ceramic floor tiles? /ubbthreads/images/gaemlins/confused.gif[/img]

Also, is there anything well suited to slate used outdoors? For example, I have a slate-covered back porch with a corner piece loose. Ordinary mortar doesn't seem to "grip" the slate very well due to the slate's smooth surface. Is there some sort of glue for this type of thing, attaching a smooth piece of slate to a rough concrete base?
[img]/ubbthreads/images/graemlins/help.gif[/img]

Yup... these glues aren't directly related to building flashlights, but if I fall off my porch due to the loose slate and get injured, I won't be able to do any mods for a while... [img]/ubbthreads/images/graemlins/icon15.gif[/img]



Yesterday, 08:33 AM

#53



milkyspit
Flashaholic*

Join Date: Sep 2002
Location: New Jersey
Posts: 2,967

Re: Let's talk about GLUE...

Resurrecting an old but useful thread, for benefit of some newer folks who might not have seen it...



--Scott



Milkyspit: Be Very Afraid.



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Old Threads Index.



Yesterday, 08:51 AM

#54

MrAl
Flashaholic*

Join Date: Sep 2001
Location: New Jersey
Posts: 2,385

Re: Let's talk about GLUE...

Hello there,

I've used various epoxy brands/types but my favorite now is PC-11 .
This stuff is great, although it takes about 24 hours for a full set.
It's thick so it doesnt run, and dries nice and hard. You wont regret buying this stuff.

Also not mentioned yet (i dont think) is the ProWeld glue for plastic.
It actually does sort of 'weld' the plastic together (like acylic and model plastic) so it makes a stong grip, but the pre-fitting has to be near perfect (no gaps, not even a little).

I got to test this stuff out when i broke the base to my zig zag arm lamp, that has one of those plastic bases that sort of 'clamps' the base of the lamp to a table or bench, so then you can swing the lamp head around and also adjust it's height from the top of the bench.

What happened is i tried to move the lamp head one time and applied way too much force and the base cracked into about 4 pieces (yikes). I almost threw the whole thing in the garbage, but instead got out the ProWeld stuff.

Wetting the surfaces where the cracks were, i was able to (quickly, as this stuff dries in about 10 seconds) fit the pieces back together like a puzzle.

Waited about an hour for full cure, then put the lamp back in service!

This is a good test because that base has to be strong to put up with the tugs and pulls on it by the metal piece that acts as the lead screw for the clamping action. If it didnt work too well it would have broke and fell right off the table (again).

Not good for much, but when you can use it it's really amazing how good it works.

Also used to glue clear acylic plastic together for various things like displays and show cases. Fit has to be tight though so pieces have to be cut with some precision.

Take care,
Al

LED's vs Bulbs, the battle is on.

My bumper sticker: "I Brake for LED's"



Yesterday, 08:54 AM

#55 

Rando 
Flashaholic

Join Date: Apr 2006
Location: Indianapolis, IN
Posts: 177

 **Re: Let's talk about GLUE...**

Here's a good website to determine the proper type of glue to use.

Hope it helps someone.



 Yesterday, 10:37 AM

#56



milkyspit 
Flashaholic*

Join Date: Sep 2002
Location: New Jersey
Posts: 2,967

 **Re: Lets talk about GLUE...**

Rando, that site is a great find! Looks like it hasn't been updated in a while, but still contains lots of good information.

Link (same as Rando's but with the URL shown):

<http://www.ThisToThat.com>

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--Scott



Milkyspit: Be Very Afraid.



Meet M180-KL2.



MC2 order NOW!



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Old Threads Index.



Yesterday, 02:23 PM

#57

lukus
Enlightened

Join Date: Jun 2006
Posts: 30

Re: Let's talk about GLUE...

Have to agree with the 2-part epoxies as probably the best overall end results.

As a general rule, the longer the setting time the stronger the joint. I.e. the 5 minute epoxies are mediocre and usually not waterproof. There are epoxies with a high stainless steel powder content that are high strength, high temperature, and machine well. You can find epoxies in a variety of colors, or get a coloring agent to add to the epoxy when mixing. A word of

warning with the coloring agents, a little goes a long way and too much will weaken the epoxy.

A good general purpose, high strength epoxy that I like is Micro-bed (J-B Weld is pretty good too, just a little ugly). It's used to bed the barrels and actions on custom rifles. It's a rich brown color. Has a setting time of about an hour (or longer, depending on temperature) and a full cure time around 24 hours. Conap is also a good choice and cures black.

Tips:

-After the epoxy sets (stiffens up) and before it cures too hard, you can take a sharp razor blade and trim or scrape off excess. Usually easier than trying to clean with acetone.

-Shelf life is pretty long (as in years) with most epoxies. If they start to crystalize and get lumpy in the tubes, you can heat it up in boiling water (or carefully microwave). That will liquify the epoxy and make it usable again with no compromise in strength.

-Roughening up the surfaces to be bonded gives the epoxy some teeth to grab onto and will give you a stronger joint.

-You can use an automotive wax on something you don't want the epoxy to bond to. Can be useful if you're making a mold or a tight fitting joint/mount for something you'll want to take back apart.

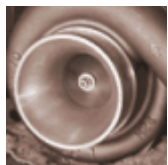
-Spring clamps, available in most hardware stores are great to hold things together while the epoxy sets. You can squeeze enough to squeeze out most of the epoxy from the joint and not get a very good bond. If you need to weaken the spring clamp, use a little butane torch to heat up the spring. A little careful playing around and you can get the spring tension just right.

Finally, look at knife making supply companies or gun repair companies for good epoxies. Brownells, Midway, Texas knifemaking, Arizona knife and gun, just a few I can think of off the top of my head. Brownells is particularly good and carry a variety of the better stuff. Also have A LOT of small hand tools you'll just have to have.



Today, 12:21 AM

#58



Handlobraesing

Flashaholic*

Join Date: Feb 2006
Location: On the driver's seat
Posts: 1,039

Re: Let\'s talk about GLUE...

What's the inorganic, porous gypsum like super high temperature glue made of if its not plain gypsum? The kind often used to secure porcelain socket onto projector bulbs.



Today, 01:25 AM

#59

Marlite

Enlightened

Join Date: Jan 2006

Location: Vancouver B.C. Canada

Posts: 64

Re: Let's talk about GLUE...

I have used 2 part epoxies for my golf club repair. A Canadian company Industrial Formulators of Canada a pioneer in epoxies, was a family business and the owner raised 3 smart knock-out daughters who handled the front end. In those days we had wood club heads and a favorite head that cracked was a catastrophe. I sold indus. supples and they were a customer so...I glued the cracked heads w/2 part 24hr epoxy. Bill said the 30 minute 2 part was good enough for shaft to head joining and I referred my golf customers to them and sold them 2" double coated tape for attaching grips. I did OK with this plan. There was also a "12 hour cure," "30 cure" and "5 cure." I still have a prototpe 10-1 (one min. cure.) No play time on this one. Marine epoxy was the 24 cure!

I still have epoxy thats 15 years old and it stiffens in the squeeze bottle. They said that to restore it warm under tap water or warm in your hands. Setting time in older stuff may be a bit longer as it cures thermally?

*Theres a quick strong accellerator, that helps to fill voids as well as for awkward joins, due to non close- mating breaks. Wet both surfaces with cyanocrylate glue and dust with Baking Soda right out of the kitchen. Wetting one surface and dusting the other works too!*I have used this for many permanent bonds particularly glass (figurine) and most plastic and metals. I have used this for many permanent bonds particularly glass (figurine) and most plastic and metals. Amount of Baking Soda non critical. You will be amazed. Try it!

I also love Shoe Goo also known a Plumbing Goop, Auto Goop see them at Home Depot, K Mart, and all supply type stores.

Cheers, Marlite

Last edited by Marlite : Today at 02:21 AM. Reason: additional info



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---- Silver

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