

research on waterproof materials for boat cover

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1 Waterproofing options

1. Paint

2. Electronic Epoxy Adhesive Glue

- link: <https://medium.com/@epoxyglue/everything-you-need-to-know-about-electronic-epoxy-adhesive>
- Does not protect connectors from water.
- Shouldn't be used with high voltage boards.
- Shouldn't be used on pins, switches, buttons that have to be used.
- Components like power transistors, amplifiers etc. may become hot due to being insulated by Epoxy. Which would effect on them being less effective at dissipating heat, shortening the components life span.
- There are different kinds of Epoxy. Some have metal in them, other ones are thermally conductive.
- Epoxy is setting in about 5 min. Therefore, the applying procedure has to be fast.
- It is commonly used with silicon. Mostly silicon is put on mounting points or connectors where Epoxy is likely to crack. Also on the buttons.
- Its work process is that it is chemically bonding the two parts together.
- It adheres to a variety of material, like metals, plastics, ceramics, glass.
- It provides a bond that withstands stress, vibration and shock.
- It is resistant to chemicals, heat, moisture.
- It can be applied to small and large areas
- It has a long curing time, so it might take several hours to fully cure.
- It's not suitable for use on flexible materials.
- The two parts of the adhesive must be mixed in the correct ratio for optimal results.
- It cannot be undone.

3. Silicone

- link: <https://www.thomasnet.com/articles/chemicals/Silicon-Electronics-Casting-Applications/>
- It can withstand mechanical damage.
- It is messy and hard to use while applying.
- The heat transfer is all right.
- Hides the whole item that is covered by it.

4. Nail polish

- Easy to use.

- Work sufficient with small surfaces.
- Not good to use on elastic surfaces.
- Leaves the visibility of the items.
- Costs about 20 kroner for a bottle.

5. Polyurethane

- Moisture and solvent resistance.
- Class F temp. rating.
- Good dielectric properties.
- Abrasion resistant.
- Flexible.
- Fungicidal.
- It can be done in three ways: dip, spray, brush.
- Single-component urethane coatings are easy to apply; the trade-off, however, is that they have a long cure cycle (up to several days). Two-component urethane coatings have a shorter cure cycle (1-3 days) but are more difficult to apply.

6. Acrylic

- Quick-drying nature.
- Easy to remove.
- Hihly resistant to humidity.
- Does not give off a lot of heat while it dries and doesn't shrink as it cures.

7. Para-xylylene

8. Fluoropolymer

9. Waterproof container

10. Marine grease

11. How to? <https://www.nextpcb.com/blog/waterproof-pcb--nextpcb>