

Coppercoat® Airless application Instructions UPDATED APRIL 2014

Please read all instructions regarding mixing and working times.

Health & safety Equipment

Full face breathing mask

Goggles for mixers and air hose assistant

Latex gloves for mixers

Full Overalls

Water supply for any accidents (e.g. copper powder accidentally in the eye)

Airless Spray Equipment required

3x Reversible Spray tip nozzle: Coppercoat® is best applied with a **.023-.027 thousandth reversible tip**. Make sure there are no fingers when sprayed. Increase pressure until fingers disappear. Keep as short lines as possible.

2x Mixing buckets (A&B)

1x Iso propanol & bucket (to clean lines at the beginning and end)

1x mixing stick (If Mixing drill is used it has to be as set up below to ensure all copper powder is mixed and fully suspended during application)

1x 1000ml measuring jug,

2x clean dry cloths

2x Airless Sprayer (Having a back up Airless sprayer in case of mechanical faults so Coppercoat® job can be completed is always wise if it is a big job) Having enough air pressure at the spray tip is never an issue with Airless, as a guide the incoming pressure from the air inlet before the piston is normally around 3.5 bar/ 50psi and this seems to work fine. Most airless equipment has an increase pressure ratio of 1:33 for atomization of the paint so at the tip end the pressure is a lot higher.

2x Airless spray guns (Again have a back up for the application)

ONLY USE 1 AIRLESS SPRAY MACHINE WITH 1 AIRLESS GUN. As Coppercoat® is very heavy for airless spray to run multiple guns off one machine is not advisable.

Airless Application Summary

Read and follow all Coppercoat® application and mixing directions before starting application. Decide how much area/kits you will mix up at a time- Refer to data sheet on application times concerning temperature & humidity.

Keep airlines as short as possible to avoid drops in pressure where you can. Thin Coppercoat® with up to 20% Iso-Propanol alcohol maximum (up to 200ml per litre/Coppercoat® kit).

Use Isopropanol alcohol to clean lines and spray guns after you have finished spraying or when the spray gun is not being used. This is to help prevent blockages - suggested 5 litres minimum to flush lines

Always keep Coppercoat[®] in suspension while in the mixing bucket

First coat should be very thin, to avoid runs. Apply Coppercoat[®] at 3 to 4 mils/75-100microns per coat, heavier applications will result in runs. Apply 5 or more coats. Total DFT should be approximately 250μ

Apply 2nd, 3rd and 4th, 5th etc. coats of Coppercoat[®] wet on tacky –in accordance with data sheet. After the 2nd coat you can apply Coppercoat[®] slightly thicker as the paint will stick better to the previous coats.

Allow Coppercoat[®] to dry fully before moving boat support stands, and apply Coppercoat[®] to these areas with the same number of coats as the hull. Refer to data sheet times.

An airless sprayer moves a lot of paint in a short amount of time; make sure you have enough people to mix and spray Coppercoat[®] to comply with the standard application times. Depending on heat & humidity, size of boat and number of sprayers & mixers available will depend on how many kits you mix up at a time.

Suggested Spray Team organisation & timings- Per Airless sprayer x 4 people

1x Airless sprayer unit & 1x spray gun & hose

3x mixing persons

1x air hose assistant if required (helps with moving of the air hose and spotting spray areas missed)

2x Mixing buckets (A&B) for Coppercoat[®] new and old mix

1x Iso propanol cleaning bucket

1x mixing stick/drill on support bracket

1x flour sieve (very small hole diameter, this should be as small as possible so spray tip cannot be blocked by copper powder particles)

DO NOT ATTEMPT TO RUN MORE THAN ONE SPRAYER PER AIRLESS MACHINE

Steps:

- 1) All Spraying equipment should be thoroughly flushed through and properly cleaned with Iso Propanol to rid of any traces of previous epoxy or antifoul paints. Use at least 5 litres of Iso propanol to do this. **This includes the Airless filter & spray guns**
- 2) **1st Mixer** Mix 5 litres/kits of Coppercoat[®] (Pack A & B then Copper powder through a sieve, see Picture 1) into **Mixing Bucket A** – Add 200ml x 5. of kits (**in this case 20% of 5 litres is 1000ml**) of Iso propanol and mix well with stick. **Picture 1**



- 3) Sprayer then test sprays to get correct pressure and spray pattern. Spray a thinner coat for the 1st coat to avoid sagging on chines and to form a good key for subsequent coats. A mixer should be constantly mixing the feed

bucket with the mixing stick scraping the bottom to keep all the Coppercoat® suspended and suction hose off the bottom. (see picture 2) When the bucket is down to a 1/2 the Mixing team should start mixing the next 5 kits of Coppercoat® in bucket B to keep the process flowing.

Picture 2 – Mixing by hand or Drill suspended on bracket to keep copper fully suspended



Picture 3 of spray angle and distance minimizing over spray



- 4) The 2nd Mixer then mixes more 5 kits in **Mixing Bucket B- (add 200ml x no. of kits) in this case 5 = 1000ml). To keep a continuous spraying cycle.**
- 5) Once Mixing Bucket A is low on Coppercoat® you can swap over to the new Mixing Bucket B. The 2nd Mixer then pours the remaining Bucket A in to Bucket B and cleans Bucket A to start the cycle again. This way there is no build up of sediment at the bottom of any Bucket and all Coppercoat® is sprayed onto the boat.
- 6) At the end of the job or spraying session clean the Airless spray filter as well with iso propanol

NOTE: Should there be a smaller boat and the need to wait for drying times OR any period the sprayer is not being used, the lines should be cleaned with ISO PROPANOL. This ensures no risk of blockages from dried product.

TIPS ON AVOIDING BLOCKAGES

Due to the heaviness of Coppercoat® and the high pressure of airless machines, the guns have to be used constantly to avoid blockages. Sprayers should regularly spray (every 10 seconds or so) to avoid potential build up and blockage of the spray nozzle. They should spray this onto the hull and NOT on to the floor to minimize this extra wastage. If there is a period of inactivity e.g 2-3mins there is high potential of a small blockage at the nozzle which will have to be cleared. This is why it is so important to keep the mixing process going to avoid any lack of supply of paint to the high rate of spraying.

TIPS ON AVOIDING WASTAGE

On a large vessel the accuracy of sprayer and the process of keeping the spray gun clear can seriously affect the final amount of paint on the boat and cost of project to achieve 250 microns DFT.

The following steps can save many valuable litres on a large project

- 1) Finishing each coat using all the mixed paint onto the boat (unused mixed paint in the bucket has a short pot life and will just go to waste)
- 2) Keeping the spray guns clear by spraying on to the hull and NOT onto the floor while sprayers are walking into position. Over a 60+ m boat this is lot of product on the floor instead of on the boat.
- 3) Sprayers need to be careful on their angle of spray on corners and block areas not to miss the boat. A large amount of Coppercoat[®] is often visible on the floor or wooden blocks due to the angle of spray being just out.
- 4) Keeping the spray guns constantly spraying on the hull will minimize blockages and wastage

EXAMPLE PHOTO'S

Example of 1st coat thickness (grey primer should still be visible in places, any thicker the Coppercoat[®] will run meaning the timing of the subsequent coats will be affected and aesthetics of the coating will suffer

1st coat- grey substrate visible

2nd coat – very small grey left if any

3rd coat – No grey left at all

