

FACT SHEET

VARNISHING BOATS

Varnishing may be viewed by some boat owners as an onerous task and yet with modern paint products now available the process can be simple, satisfying and successful, says the APMF.

As with all paint jobs preparation is the key to a successful result. If you are dealing with a new boat or bare wood then you have the chance to lay down a good foundation which will help to preserve and enhance the wood in the seasons ahead.

CHOOSING THE RIGHT VARNISH

There are several varnishes suitable for both interior and exterior use, each with their own unique characteristics.

Conventional Marine Varnishes

These products are based on alkyd resins somewhat similar to the types of resins used in enamel paints. For use in varnish, longer chain resins are chosen to give greater flexibility. The choice of vegetable oil from which they are manufactured is also critical in obtaining excellent exterior durability. They can be modified with polyurethane to speed the drying rate up and provide a slightly tougher product once cured. Satin or reduced gloss varnishes that are intended for interior application are usually polyurethane modified for these reasons to help produce a more uniform look from the reduced gloss finish. Many other modifications, too numerous to mention can be made to these types of varnishes and so they represent one of the largest groups of varnishes.

Two-Pack Polyurethane

These products utilise a chemical curing mechanism that imparts to the cured film very high film toughness and good chemical resistance. They are not quite so easy to use but do give exceptional performance and will long outlive a single pack product if the surface is subjected to hard knocks and dings. Like the single pack polyurethanes they give very good performance with UV absorbers added.

Oil Modified Varnishes

These products use a variety of natural oils to enhance water resistance, timber penetration and flexibility improving resistance to cracking and crazing.

In the marine area the oil of choice is tung oil, also known as China wood oil. This very expensive oil comes from various countries but is actually indigenous to China and comes from the aleurites cordata tree. The level of oil used is critical as small levels added could still enable the product to be claimed to contain tung oil, but at levels insufficient to achieve the desired end results. In high quality varnishes this oil is cooked into the main resin system furthering its already excellent properties.

Ensure that products used employ the addition of UV absorbers or antioxidants. UV absorbers and antioxidants absorb incoming light, which would otherwise break down the resin polymer network leading to rapid cracking and flaking.

Before making your choice consider these factors:

- Performance – On the whole polyurethane varnishes are more resistant to the onslaught of weather, wear and tear and noxious substances (fuel, alcohol, hot water, etc) than traditional varnishes. They dry quickly by the conditions for application are more critical.
- Type of Wood – Wood which ‘moves’ such as in carvel or clinker construction needs a flexible varnish. Oily wood (such as teak, iroko and some pines, etc) demands a particular product to ensure proper adhesion.
- Conditions – All varnishes perform at their best in the right weather conditions, but some are more ‘forgiving’ than others. If you are in a hurry, select the product that allows you less critical conditions.
- Finish – There are several types of finish available, such as the subtle sheen of satin varnish or the more deep rich lustre of traditional gloss varnishes.

PREPARATION

The first step is to prepare the timber well. Previously varnished areas, if in good condition, need a wash down to remove salt deposits and then a rub down with aluminium oxide or dri-lube serrated paper ranging from 80-320 grit. Clear off the dust with a clean cloth and apply at least three coats of varnish. Unsound coatings should be removed, using either a paint stripper, scraper or heat gun. Remember to sand with the grain only. Having removed all the old varnish, clean the area thoroughly. Take care not to gouge or mark the timber surface.

Black mould should be treated with a proprietary mould remover.

VARNISHING TECHNIQUE

The first coat should be thinned, see the label for details (normally 15%). Always

use a clean brush that has never been used for paint. Hold the brush at 90 degrees and use both vertical and horizontal strokes. Finally, lay off in one direction with the brush at an angle of 45 degrees, so as to leave fewer brush marks. Choose the right weather, cold weather retards drying and damp may spoil the gloss. Any stopping or filling should be done between coats of varnish. Sand and clean thoroughly between coats. With varnish work more is definitely better.

Avoid Common Mistakes

In 99% of cases of imperfect finish, it’s the application that is at fault. Here are some of the most common faults and how to avoid them.

- Blistering – Varnishes are surprisingly tough, normally blistering only if the temperature rises above 65°C. Most blistering is caused by moisture trapped under the varnish or natural oils and resins emerging from the wood. If moisture is the problem, make sure the wood is dry before varnishing. Either use a moisture meter, or weigh a chip of timber before and after heating. Moisture content should be less than 13%.
- Peeling – Most frequently caused by:
 - 1 Varnishing over a greasy or dusty surface. Use thinners appropriate to the finishing coat to remove all contamination.
 - 2 Using too fine a grade of sandpaper, thus producing a polished surface.
- Flaking – Symptomatic of:
 - 1 Varnish which has become old and brittle;
 - 2 Using a non-flexible varnish on a flexible surface.
- Crocodiling – Caused by applying a hard coat over a soft or flexible one. Don’t overcoat conventional varnish with 2-component polyurethane, and don’t varnish over tar or bitumen.

- Cracking – Found on desks of small ply-built boats where the ply is bent into a curve. Over a period of time, the ply surface splits, producing varnished cracks. Rub down, fill if necessary, and re-varnish.
- Loss of Gloss – If this occurs within a few hours of varnishing, it's probably due to fine rain, fog, dew or frost. If varnish is applied to an uneven surface, this will also give an apparent loss of gloss. Make sure you rub down the wood to a good degree of smoothness.

BRUSH CLEANING

Always clean the brush in the thinners recommended for the product you have used. Then wash in detergent and warm water, dry thoroughly and wrap in greaseproof paper in a fine chisel shape.

HEALTH AND SAFETY

The correct use of equipment and paint products cannot be over-emphasised.

- Read the Label - This will give you all the information you need to safely use these products. If in doubt, consult the manufacturer.

Regular maintenance of varnished timber will preserve and enhance your boat.