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Australian Made NORGLASS Specialty Finishes Australian Owned

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INFORMATION GUIDE

THE "GOOD OIL" ON CLEAR COATINGS

INTRODUCTION

The most complex (and disappointing) area of all surface coatings is trying to sustain a nice clear finish on exterior timbers… especially in Australia. Because of the geographical isolation and arid, barren land mass, the intensity of ultra violet radiation is greater than most places on earth. On the European continent for example, the particulate matter concentration suspended over the land, and the cloud cover has a substantial filtering affect on U/V (Ultra violet radiation). As a consequence clear coatings last considerably longer. A varnished front door in the U.K. may give several years service, whereas the same application in Australia will break down in months. The incidence of skin cancers is a testimony to this intensity. To understand the process of clear coated timber degradation is **also** to understand **part of the solution.**

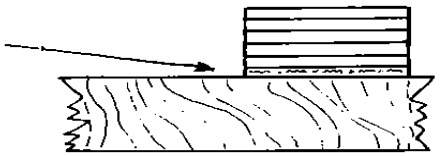
DESCRIPTION

Clear coatings have a variety of names such as varnish – clears – lacquers – oils etc and are fundamentally paints without the pigment… that is, the film is "CLEAR". As with a pane of glass, the transmission of light is close to 100%. Therefore there is nothing to impede or block the suns rays. Bare skin can still suffer from sunburn through glass….and that is what happens to timber. It gets sunburnt. Increase the heat and you increase the degradation. A white car reflects 97% of all light and absorbs 3%. A black car on the other end of the scale does the reverse, absorbs 97% and reflects 3%. Which paint job can you fry an egg on? No contest! Adding stain solutions to timber, does exactly the same as the "car" illustration, the darker the wood the **hotter** it will be, and therefore the faster the breakdown.

CAUSE and EFFECT

Under heat, the lignin/cellulose cement, that forms the cell walls of timber breaks down, and results in the delamination of the film of varnish – lacquer – clear that was attached to it. Added to this process, the clear film sticking to the timber is also being "**cooked**" and eventually becomes brittle, accelerating the break-down (see illustration 1) through a reduction in elasticity.

This coat is where all of the heat is accumulated, and eventually causes it to become brittle.



(1)

This is why **all clears** fail at the wood level. It is the coating **closest** to the timber that becomes the most brittle. Hence the delamination of the **entire** coating mass.

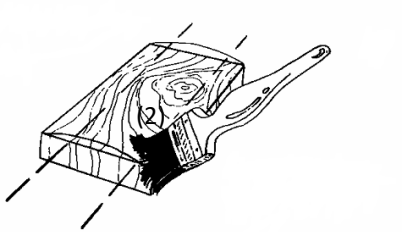
The darker the timber the faster this happens. Resinous timbers such as Teak are protected from decay, by the sun drawing up the liquefied natural resin to the surface where it oxidises. When this happens it leaves a grey powdery residue on top of the timber, which in turn screens out the u/v radiation. Remove the layer to expose the attractive yellow grain… and the same process begins again. To remove this Grey oxidised matter, can be quickly and easily achieved with Norglass GREY-AWAY grain restorer.

CLEAR COATING CHOICE

There are 2 basic options (a) Apply as many clear film coats as feasible within the original application plan: (b) Feed the timber with an oil on a continuous basis at regular intervals. If (a) is chosen (and usually is) then, it is essential to be acquainted with the obstacles that lie ahead.

- On doors – windows – floors that have hard 90° angles, it is impossible to get the **same** film build on the edges as the flat surfaces. (see illustration 2) Therefore extra coats are needed to compensate for this.

- Aggressive sanding between coats should also be avoided with most clears. The reason is that you are sanding off some of the U/V inhibitors, reducing the life span of the coating.



Where possible brush towards the edge as this will leave a thicker coating In these areas.

Applying 3 coats with intercoat sanding, effectively means reducing the film to 2 coats. Encapsulation of dust particles in prefinished layers of clear does **no harm** and – in fact **improves** the U/V filtering process. In the final layers, these particles are not visible if embedded **below** the finish coats, so don't over sand.

- Avoid conditions of high humidity or dampness, as clears are prone to moisture intake and will "bloom" by producing a milky appearance, which will necessitate removal
- Consider the exposure values. For instance – the top half of a panel door is more in shade by the eaves and therefore lasts longer. The bottom half will need more coats to compensate for the added exposure. Same values apply from North East to South West. Give the more exposed areas extra coats.
- Outdoor furniture should be covered in a colourful canvas or fabric cover when not in use. This will preserve the clear coating for **years** with little or no effort.
- When gloss finishes start to show a **dulling-off**, it is time to lightly sand and apply further top-up coats. Leaving this action **too long** will result in having to remove all the layers back to the bare wood.
- Clear coat **all** timber surfaces wherever possible. Uncoated timber can lead to wood rot, and excessive distortion. A door that has no treatment on the top and bottom (most) will soak up moisture in damp cold weather and swell making the door closing difficult. This aggravated expansion and contraction will cause the timber to split along the bottom edge initiating the breakdown of the clear coatings. Removing the door and coating the top and bottom edges will substantially lengthen the clear lifespan.

SCREENING COMPOUNDS

Many clear coatings have limited, or no U/V filtering additives because of cost. In NORGLASS CLEARS, the selection and use of premium U/V inhibitors and stabilisers adds in excess of 20% to the product cost. These additives act as microscopic filters to partially block U/V entering the timber while the u/v stabiliser scavenges the free radicals and converts them into harmless by- products within the film… as a continuous process.

The global problem caused by U/V attack on surface coatings is mind-boggling, and **especially** with clear coatings. In spite of cutting-edge technologies and years of ongoing exposure trials and evaluations, NORGLASS current research shows there is **no obvious solution available**, in spite of all the research.

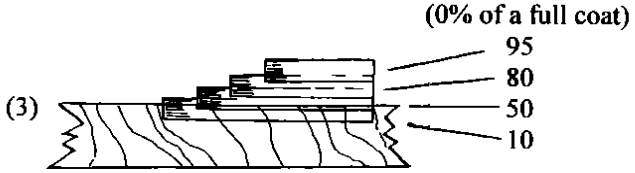
OTHER OPTIONS

Feeding the timber with a Timber oil solution, rather than coating it up with multiple layers of clear film is sometimes preferred, in an attempt to maintain a "natural" look. Where this is used internally or on areas screened away from direct sunlight the finish is not only practical but can provide good service. However, on exposed timber it becomes a very temporary solution and will oxidise and fade within a short time. Once the oil has oxidised it then has to be scrubbed off, using Norglass GREY-AWAY grain restorer, dried and re-oiled.

THE COATING PROCESS

Due to the wide range of timbers and grain densities it is difficult to generalise but consider what 4 coats on Cedar would look like compared to the same number on a dense hardwood like Jarrah. Obviously the Jarrah will not provide the same penetration because of grain density, therefore **more** of the clear film will be sitting on top of the surface

resulting in a higher gloss level than the Cedar. On most timbers a 4 coat application will look like the example (in illustration 3), due to the absorption into the previous coats,
and that is with little or no sanding between applications.



This is the point where most clear jobs are declared finished. In reality, this is the **start** of the finishing process. The first clear coat should be applied undiluted. Although it is possible to thin this down, there is normally no justification for it. However if the decision is made to thin, additional time has to be allowed for the solvent to evaporate before over coating.

Before applying the second coat a **very light** surface sanding should be done to remove the furriness. After sanding, the dust in the grain should be removed by wiping down with clean paper towel dampened with NORCLEAN - PLUS. Continue the coating process until a uniform gloss layer is achieved (4-5 coats with little or no sanding between coats). At this stage, if the surface is not in direct sunlight a Satin finish can be applied. With a uniform gloss value, the satin layers will likewise be **uniformly satin**. If the satin had been used on the previous build-up coats it is likely that variations in the finish will occur because of differing grain densities affecting different rates of absorption, of the clear coatings.

On areas of maximum exposure a further 4 coats should be considered and applied within 2 months. It is advisable to keep a diary on these applications to ensure the coats **do** happen. With NORGLASS single pot clears it is not necessary to sand between these coats provided no more than 3-4 weeks elapse between them. What **is** needed is a clean down with NORCLEAN-PLUS prior to coating. With NORTHANE clear a light sand is required if more than 48 hours elapses from the previous coat.

WHAT PRODUCT TO USE?
Selecting the right clear can be confusing so the following guide is presented to assist this choice.

MICROSHIELD PREMIUM VARNISH
Microshield Varnish combines the latest values in u/v inhibitors and stabilisers, with the best blend of premium resins to give the user maximum performance in a clear gloss finish. **How does this work?**
The u/v inhibitors soak up the suns rays, converting them into heat and then provide for their egress, through dissipation within the film. The stabilisers protect the coating by rendering the “free radicals” of u/v inert and neutralising them. Then they regenerate themselves and proceed to continue the protecting process throughout the coatings life. The balance of selected resins offers excellent flexibility (to reduce brittleness) and extends the lifespan of the coating, at the same time maintaining a tough abrasion resistant clear gloss. Microshield is also a low odour coating when used internally on doors and panelling. Application by brush, and/or roller (mohair/microfibre 4mm nap) provides superb gloss and flow characteristics.

WEATHERFAST POLY CLEAR GLOSS AND SATIN
This is a fast drying tough coating for general timber surfaces and will withstand traffic. Ideal on tables, handrails, seats, floors - as its durable enough to be walked on, and walls. Available in gloss (and satin for shaded areas).

NORTHANE CLEAR (2 pack polyurethane)
The toughest clear gloss finish. Ideal on bench tops, high traffic floors, racing skiffs, food service areas, fish ponds, terracotta pots and a multitude of other applications. Northane Clear is unlike all other single pot clears oils and varnishes which yellow with u/v exposure. It stays “water clear” for the life of the coating and can be applied over paint coatings to produce a tough “glasslike” waterproof film with graffiti barrier properties. It is waterproof and non-toxic in the cured film making it ideal for food service areas. Northane clear is available in gloss and satin finishes. Unlike most clears, as it has lower U/V inhibitors, Northane should be sanded between coats for better adhesion.

WEATHERFAST A1 and A2 TIMBER OIL
A1 Penetrating Timber oil contains biocides to eradicate organic growth deep inside timbers and will bring timber back to its natural state. A2 Finishing Timber Oil helps restore natural lustre to timbers and protects against degradation of the substrate. A1 & A2 can be used separately or together for the ultimate finish.

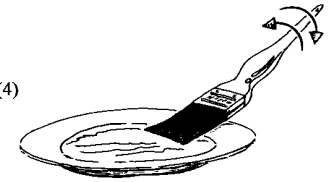
Note:
With the exception of NORTHANE CLEAR, all other clears will have a pale honey-coloured appearance. While this is not a problem when applied to timber, using these clears over a pigmented paint finish will result in patchy discolouration as the film ages. If a clear finish is desired over a painted surface NORTHANE CLEAR, which is water clear should be used. If compatibility is considered an issue, contact NORGLASS TECHNICAL ADVISORY SERVICE on (02) 9708 2200.

TIPS FOR A GOOD FINISH

NORCLEAN should be used to clean surfaces before and during the painting process

- Pour out a small quantity of clear into a shallow dish. Place the brush into the clear and then withdraw and tap the excess off both sides against the outer rim, by laying the brush at an angle. (see illustration 4)

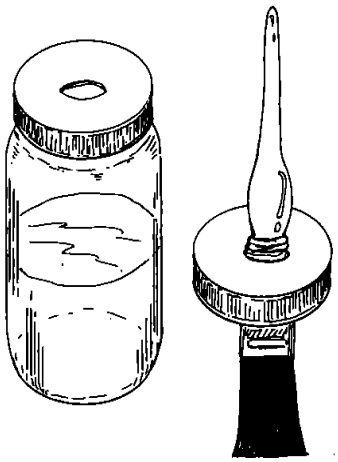
(4)



This eliminates the frothy aeration created by wiping the brush against the can rim. It also reduces dust particles being constantly returned to the can contents.

- Any residue left in the dish upon completion, should be discarded, **NOT** returned to remaining contents of the can because of contamination.

- To keep a varnish brush in mint condition, it should not be stored dry because of accumulating dust particles. Follow the 6 step recommendation in (illustration 5).



1. Rinse the brush out 2-3 times in clear solvent. Spin the brush inside a plastic bucket between the palms of your hands to remove solvent.
2. Use a clean plastic (or glass) jar with a large screw top lid.
3. Cut a hole in the lid and push the brush handle through.
4. Roll down a tight rubber band over the handle until it sits on top of the lid.
5. Place the brush into a jar and mark where the top of bristles are with a felt marker. The bristle tips should be clear of the base (suspended).
6. Pour in solvent to the mark and screw lid on tightly. Seal with cling wrap and store, until reuse.

- For re-use, remove and spin out the solvent into a plastic bucket.