



<b>Advanced Environmentally Friendly Restoratives Lubricants Drag Reducers Protectants &amp; Water Shields For:</b>	SAILS BOTTOMS & FOILS TOPSIDES HARDWARE HATCHES & WINDOWS WOOD SPRAY HOODS & COVERS SHOES & GARMENTS
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## APPLICATION GUIDE

### *Teak Treatment & Protection*

#### GENERAL

Teak displays excellent resistance to fungal decay, bacteria and various acids. Its high oil content protects against excessive moisture and dirt. However, once exposed to the environment some of this oil leaves the surface resulting in teak's gray "patina" which provides limited UV protection for the underlying wood.

In order for the wood's natural protective mechanism to work two conditions must be met:

- The wood must be in regular contact with salt water so as not to be a potential target for fresh water algae and moss – rinsing with fresh water after contact with salt water can be detrimental.
- Decks should be cleaned thoroughly and frequently to ensure loose fibers, organic waste (bird droppings, etc.) and other debris are removed.

In fresh water no salt water wets the deck and even in salty estuaries the entire deck rarely comes into contact with salt. Compounding this is the fact that salt is harmful to gelcoat and painted surfaces necessitating fresh water rinsing and cleaning.

Thus, silver-gray teak may be rare and natural protection non-existent. For these reasons fresh water algae and moss routinely attack the wood causing it to dry slowly and become green to black-brown in color. Plus, this allows dirt to penetrate deeper into the wood resulting in heavy stress factors and loss of natural resistance to damage.

#### Cleaning Teak

There are few materials for which more cleaning methods are recommended than teak. From simple salt water to soft soap, vinegar / water blends, aggressive toilet cleaners containing chlorine and more, it seems as if anything and everything promises a miracle fix.

If the cleaner is too mild or the tool too soft, only loose dirt is removed from the wood's surface resulting in a cleaner but still ineffective and unprotected finish. On the other hand aggressive cleaners and tools while cleaning deeply reduce the adhesion of joint compounds, remove natural oils and tear away the soft fibers found between the harder structures of the wood. The result is an uneven, open pore surface that requires sanding in order to restore the wood's natural beauty and effectiveness.

The treatment of teak to enhance resistance complicates things further. Once the natural oil contained in the wood is washed off, it cannot be replaced using superficially applied materials.

Manmade teak treatments provide extremely short-term protection from moisture, attract dirt, feed bacteria and algae and make decks slippery. Also, the wood is not protected from UV radiation and is fully exposed to weathering. Instead of the natural gray-silver patina, a dirty black-grayish surface is produced. Removal of these materials usually requires a thorough sanding by professionals.

Additionally, most available treatments offer no UV protection and contain color pigments that may give the wood a short-term new look but generally do not match the natural color of teak and tend to look worse with age as the natural color of the wood beneath begins to reappear. Plus, the high level of moisture protection contained in these products may be an issue as well since teak must maintain a natural moisture level to avoid splitting, cracking and tearing.

## THE HOLMENKOL ANSWER

Working with a panel of experts on teak decking, the experts at **HOLMENKOL** created a series of products to meet the special needs of teak decks in harsh marine environments. The result is a series of products that, when applied in a systematic manner on a routine basis, will keep decks or other naturally finished hardwood items looking like new and functioning as nature intended.



### o **WOOD CLEANER + BRIGHTENER**

#### Product Description:

**WOOD CLEANER + BRIGHTENER** is a mild, yet effective teak cleaner. It is safe for joint compounds and gelcoat as well as other materials and fabrics.

Unlike conventional teak cleaners, **WOOD CLEANER + BRIGHTENER** works with high quality surfactants and a mild oxygen-bleaching agent. With a neutral pH value it will not harm the skin and its surfactants are biodegradable.

The **WOOD CLEANER + BRIGHTENER** set contains a liquid cleaner and a powder additive. Liquid and powder are dissolved in 2.5 gallons (10 liters) of warm water. The mixture remains active for at least 1 hour after which the oxygen / bleaching agent slowly degrades.



### Intended Uses:

**WOOD CLEANER + BRIGHTENER** is designed for cleaning teak or other hardwood decks, furniture or other items. It works best on surfaces that do not have a hard finish top coating (such as varnish, shellac or heavy, penetrating oils) so that it can work deeply into the wood's pores for deep cleaning.

### How It Works:

**WOOD CLEANER + BRIGHTENER** is a water-like substance that works best when applied liberally to decks in sections. Its cleaning / bleaching agents, when worked deeply into wood surfaces with a scrubbing brush, lower the surface tension of the water which makes it easier to lift dirt and oils off of the wood to help keep them suspended in the water. The hydrophilic (water-loving) foam head remains in the water to pull dirt and debris away from the wood. Surfactant molecules then surround debris particles, break them up and suspend them in the **WOOD CLEANER + BRIGHTENER** solution for removal with a fresh water rinse.

### Solubilization:

Through interaction with the submicroscopic molecules of the surfactant in **WOOD CLEANER + BRIGHTENER**, dirt and debris spontaneously dissolve to form a stable and clear solution thus allowing the bleach included in **WOOD CLEANER + BRIGHTENER** to penetrate scrubbed areas and further brighten wood. Through this process and because **WOOD CLEANER + BRIGHTENER** contains no detrimental components (unlike some products that contain acids or other harmful ingredients), the longer it is left to work on wood surfaces the more thorough the cleaning process. Once the **WOOD CLEANER + BRIGHTENER** solution remains relatively clear during scrubbing it has completed its work.

### Precautions:

**WOOD CLEANER + BRIGHTENER** should be used for cleaning hardwoods such as teak only. While it does not contain acids like many other cleaning agents it is an irritant to eyes and harmful if ingested. If contact with eyes occurs thorough rinsing with clean water should be performed and medical advice sought. If swallowed, medical advice / attention should be obtained immediately.

Adequate ventilation is advisable when using **WOOD CLEANER + BRIGHTENER**.

### Tools:

A bucket, water supply, hose and **PAD-SET** or **BASE BRUSHES** are required for applying and utilizing **WOOD CLEANER + BRIGHTENER**. Space for rinsing **WOOD CLEANER + BRIGHTENER** off of wood surfaces is also required. Due to its acid-free nature **WOOD CLEANER + BRIGHTENER** is environmentally friendly.

### Usage Guide:

The basic steps for cleaning teak with **WOOD CLEANER + BRIGHTENER** are as follows:

1. Perform a light general cleaning of all areas to be treated with **CLEANER 8 in 1**.
2. Apply **WOOD CLEANER + BRIGHTENER** in sections with the **PAD-SET** or appropriate **BASE BRUSH**.
3. Leave **WOOD CLEANER + BRIGHTENER** on for several minutes – generally the longer the better.
4. Rinse scrubbed areas with fresh running water.

5. Repeat the steps 1 – 4 as often as necessary for rinse water to appear clean after hosing scrubbed areas.

Do not clean teak in hot / sunny conditions as the wood will dry too fast and limit the beneficial effects it is intended to provide. An ambient temperature between 50°F and 75°F (10°C and 25°C) is ideal.

Pre-clean surfaces with a sponge and **CLEANER 8 IN 1**. Mix the two components of **WOOD CLEANER + BRIGHTENER** (liquid and powder) in the 2.5 gallons (10 liters) of warm water and apply to the damp teak using a sponge.

During cleaning insure that the entire surface remains wet with **WOOD CLEANER + BRIGHTENER**.

- Nearly new surfaces (1-3 months old) can be cleaned using the **HOLMENKOL PAD-SET** (detailed below). Clean with a rotary motion moving across the wood grain in order not to remove the soft fibers found between harder structures.
- Clean older, graying, dirty surfaces using the **HOLMENKOL BASE BRUSH – Steel Microfinish** or the **BASE BRUSH – Horse Hair** (detailed below). The extremely fine, very short bristles of these brushes prevent soft wood fibers from being torn away while providing highly effective cleaning. Avoid brushing in the direction of the wood grain as much as possible.
- Areas displaying major weathering and open pores should be sanded.

When the **WOOD CLEANER + BRIGHTENER** foam remains white as clean the process is completed. At this stage wash the surface thoroughly with fresh water and a sponge.

Repeat cleaning as needed. And remember that as a natural material wood absorbs and releases dirt and debris in varying degrees. Clean enough but not too much.



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#### o **PAD-SET**

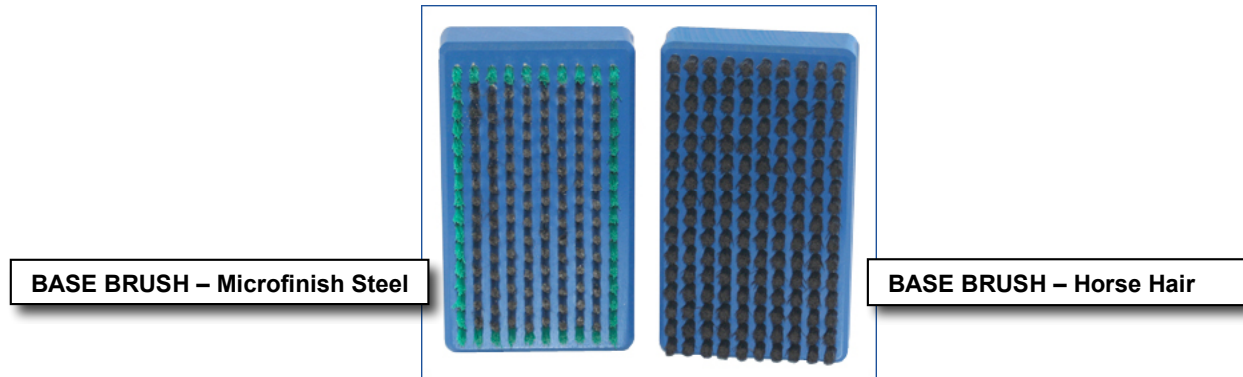
Created for cleaning newer or well-maintained surfaces the **PAD-SET** consists of three fiber sheets that are ideal for situations when a sponge or cloth is not aggressive enough and scrubbing brushes or sand paper are overly aggressive. They provide ideal cleaning and polishing tools for a great number of needs around the water or at home.



#### o **BASE BRUSHES**

The **Steel Microfinish** brush is ideally suited for deep yet gentle cleaning of wood surfaces. Thanks to the extreme density of the razor-thin stainless steel bristles, only damaged gray teak fibers are removed from decks. Single bristles cannot penetrate deep into the grain which preserves the softer wood fibers thus preventing surfaces from becoming rough and open-pored.

The Horse Hair brush is essentially the same configuration as the Steel brush but is intended for use on newer wood or wood that has been properly restored and are maintained on a regular and frequent basis.



- **WOOD PROTECTOR**

**Product Description:**

**WOOD PROTECTOR** is a water-like liquid protectant that works into the clean surfaces of teak decks to provide a very thin highly organized and very durable shield against environmental degradation. It is not a stain, varnish or other coating / coloring agent. It enhances the natural characteristics of teak and protects with a nano structure that is durable and provides very thorough coverage of the surfaces it's applied to.

Currently **WOOD PROTECTOR** is the only product available that offers extremely thorough and long-lasting UV protection thanks to its nano substructure. This protects wood from color fading.

In addition, **WOOD PROTECTOR** offers moisture protection while keeping decks skid-proof. The wood remains open for diffusion and can take up the required amount of moisture in order to prevent problems associated with excessive drying.

The milky, water-based liquid penetrates deep into the wood fibers and gives invisible protection from the inside. It does not leave an unpleasant film on the surface and most importantly the natural wood color remains unchanged resulting in decks that look as fresh as the day they were applied.

Extensive testing has shown that after more than 10 months sun exposure in the southern hemisphere, UV protection is still active with the only change being that wood surfaces become slightly lighter in color.

Decks are easily cleaned with fresh water, as dirt, algae and moss cannot adhere to **WOOD PROTECTOR**'s nano surface.

**WOOD PROTECTOR** is highly recommended for new teak as it allows maximum surface protection to be built right from the start so as to preserve the wood's natural color before environmental degradation begins.



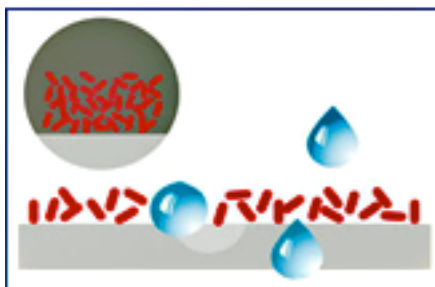
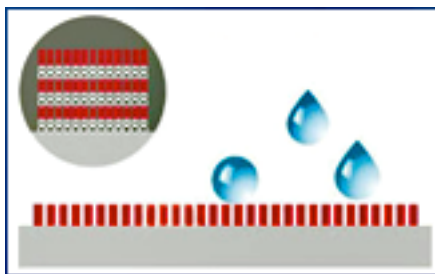
**Intended Uses:**

**WOOD PROTECTOR** is intended for use on teak and other hardwoods. It is effective for wood surfaces inside or out but particularly effective for outdoor use. It may be used on decking – boat, home, office, etc. – walls, flooring, furniture or other wood items where the natural appearance of wood is desired.

**How It Works:**

Once applied **WOOD PROTECTOR** penetrates into wood surfaces to form a tough, thin protective layer over wood surfaces. This outer shell is comprised of highly organized and uniformly shaped nano particles that are attracted to each other. Their shape, size and attraction to each other creates a surface that is extremely protective and highly durable when compared to non-nano based coatings.

**HOLMENKOL**'s nano particles self organize in ultra thin layers to provide extremely stable and comprehensive layers.



With other products, particles are randomly arranged resulting in unstable and incomplete protection.

### Precautions:

As a water-based material **WOOD PROTECTOR** is quite safe. However, as with any coating or chemical product common sense should be employed when using **WOOD PROTECTOR**. If eye contact occurs flood affected areas with fresh water and seek medical advice. If ingested seek medical advice.

**WOOD PROTECTOR** should be protected from either extremely hot or extremely cold conditions.

### Tools:

**WOOD PROTECTOR** is applied to wood surfaces directly from its container – no mixing, thinning, etc. is required and it may be brushed on, rolled or rubbed on with lint-free cloth or foam applicators.

### Usage Guide:

Prior to applying loose, superficial dirt must be removed from wood surfaces by using **CLEANER 8 in 1**.

For light to medium soiling, thoroughly clean the deck using **WOOD CLEANER + BRIGHTENER**. If this treatment does not restore the natural teak color and / or if the teak displays major open pores, it should be sanded.

Apply **WOOD PROTECTOR** to dry surfaces only since surface moisture will dilute **WOOD PROTECTOR** thereby leading to an uneven application of this water-based liquid.

Avoid overly warm weather conditions and direct exposure to the Sun as **WOOD PROTECTOR** will set on the surface before it can penetrate. An ambient temperature between 50° F and 75° F (10° C and 25° C) is ideal. Shake well before use.

**WOOD PROTECTOR** may be applied using a flat glaze brush in various widths, paint pads, lint-free cloth, foam applicators, rollers, etc.

When applying using a foam roller re-work in the direction of the wood grain using a brush in order to allow the liquid to better penetrate the wood and avoid only superficial penetration.

Plan to use roughly .3 - .4 fluid ounces (100 - 120 ml) **WOOD PROTECTOR** per square foot (square meter). It is highly recommended that you work with a paint pad or a paint roller in combination with a brush, as this is the only way to ensure that sufficient product is applied.

When the coating appears as a semi-gloss, milky surface you have applied sufficient product. Thin white residue indicates that the wood is saturated. If this film is not too thick it need not be spread further as it disappears after drying. Excessively applied material may give a slightly glossy finish. This however will dissolve automatically. Likewise, **WOOD PROTECTOR** only appears on joint compounds for a short time and need not be removed from them.

If **WOOD PROTECTOR** comes in contact with gelcoat or other smooth or painted surfaces remove the liquid with a damp cloth. Dried material may be removed using alcohol (acetone is too aggressive).

When first treating with **WOOD PROTECTOR** apply two coats. Between applications, allow the surface to dry for roughly two hours although decks may already be accessed after about an hour. Second coats can be applied the next day, however, it is better to apply both coats one after another on the same day. Make sure that during the drying time after application no water gets onto the surface.

The wood will be a little darker after drying than it was before cleaning. Therefore heavily exposed areas (i.e., seats, running deck, sun deck, etc.) may be treated separately. To learn more, please refer to the "Maintenance & Care" section below.



## MAINTENANCE & CARE

While **WOOD PROTECTOR** shields superbly from all kinds of dirt and debris, brightly colored liquids (red wine, juice, coffee etc.) should be removed immediately after spilling if possible.

Fuel (gas or diesel) should also be removed immediately using a mild soap.

General, routine cleaning of treated surfaces with **HOLMENKOL CLEANER 8 in 1** in a highly dilute concentration (.85 fl. oz. (25 ml) per 2.5 gallons of water (9.5 liters)) is highly recommended. Do not use aggressive cleaners as these may partially dissolve **WOOD PROTECTOR**.

**WOOD PROTECTOR**'s high level of UV protection preserves natural wood colors for several months. During this time wood will lighten slightly (100% UV protection could only be achieved using a black coating).

Areas experiencing greater abrasion and wear through heavy use or environmental exposure or where the wood density / structure is uneven will lighten faster than protected or lightly used areas. Areas with excessively thin **WOOD PROTECTOR** layers will also tend to fade faster. In order to avoid color fade in these areas, surfaces should be checked at intervals of 3-4 weeks and coated with an additional **WOOD PROTECTOR** layer if needed.

Areas with less protection can be identified by a higher water uptake. To check, generously wet the surface with water. If some areas become darker than others, this suggests that more water penetrates and the protective layer has become too thin. In this case, a new layer should be applied throughout.

To apply a fresh layer of **WOOD PROTECTOR**, first clean the deck with a mild cleaner (**HOLMENKOL CLEANER 8 in 1**) and a sponge. Then apply one or two layers of **WOOD PROTECTOR**.

If the last treatment was so long ago that some areas have turned gray, use **HOLMENKOL WOOD CLEANER + BRIGHTENER** and a **PAD-SET** or a **HOLMENKOL BASE BRUSH** to clean these areas until they once again display the natural color of the teak. In these areas apply two new coats of **WOOD PROTECTOR** as previous layers have become inadequate to protect the underlying wood through use and frequent cleaning and scrubbing.

This sort of periodic cleaning and recoating is highly effective as it allows the original application of **WOOD PROTECTOR** to more effectively protect deep within the wood and help eliminate the negative effects of ground-in dirt and debris. This means that less material is removed from the teak through normal wear, the environment, cleaning, scrubbing, sanding, etc. causing decks to last much longer, look better and perform more effectively as non-skid surfaces.

With the cost of new or replacement teak decks running to several thousand dollars per square foot it pays to properly maintain decks and other teak items.

#### FIELD OF APPLICATION

**HOLMENKOL WOOD CLEANER + BRIGHTENER** and **WOOD PROTECTOR** are suitable for various woods and treatment needs. Aside from aquatic or marine applications these products may be used for garden furniture, wood facades and decking. Basically all buoyant types of wood, in particular larch, pine, fir and cedar, may be treated with both products. Extremely hard and dense species of wood (typically exotic varieties other than teak or similar) absorb little water and thus may or may not benefit from these products. However, it should be noted that use of either **WOOD CLEANER + BRIGHTENER** or **WOOD PROTECTOR** (or both in combination) will not harm any wood (**CLEANER 8 in 1** is also safe for use on all woods).