

Advanced Environmentally Friendly Restoratives Lubricants Drag Reducers Protectants & Water Shields For:	SAILS BOTTOMS & FOILS TOPSIDES HARDWARE HATCHES & WINDOWS WOOD SPRAY HOODS & COVERS SHOES & GARMENTS
---	---

APPLICATION GUIDE

Improve Through-The-Water Performance Of Hulls & Foils

GENERAL

Hull, bottom and foil surfaces are vital to boat speed. At any given moment the area of a boat's wetted surface is significant and the additive effects of an improper water interface can hinder performance. While much has been theorized and tested concerning ideal surface configurations there seems to be little doubt that the smoother the finish the better the boat's performance will be. **AQUA SPEED** is an ablative topcoat that thoroughly fills surface imperfections with billions of nano particles for short periods of time to create a much more uniform boat / water interface. It meets all Racing Rules of Sailing prescriptions, the dictates of numerous class organizations (not all have used it and none that have, have ruled against it) and has been approved for and used in Olympic and America's Cup competition.

This guide provides the basics of preparing and coating a boat hull and foils with **AQUA SPEED** and its companion products.



1000 ml **CLEANER 8 in 1**
25210

200 ml **WAX REMOVER**
24410

250 ml **SPORT POLISH**
25170

25 ml **SPORT POLISH** (Small Jobs)
25179

250 ml **AQUA SPEED**
25190

20 Pack **CARE FLEECE**
20450

100 Pack **CARE FLEECE**
20451

Product Description:

AQUA SPEED is a liquid coating that comes in a 250 ml plastic container and is designed to be applied by hand on hard surfaces that have thoroughly stripped of old polishes or other materials. **AQUA SPEED** should not be applied over soft paints or sloughing bottom paints. It can be applied over hard paints and base gelcoat or epoxy surfaces are recommended.

Companion products for insuring proper **AQUA SPEED** application include (in the order they should be used) **CLEANER**

8 in 1, WAX REMOVER and SPORT POLISH. Working in conjunction with these products **Holmenkol's CARE FLEECE** makes an ideal, lint free hand cleaning and polishing cloth.

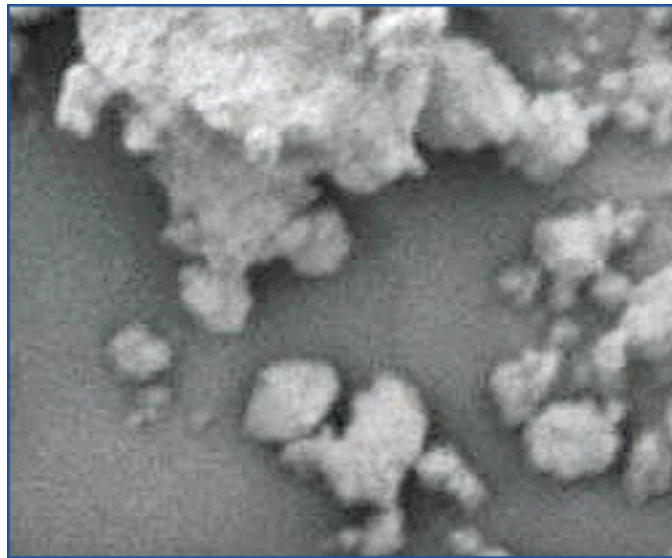
Intended Uses:

By helping minimize imperfections on a temporary basis **AQUA SPEED** serves to increase boat speed by reducing the coefficient of friction between hull surfaces and the surrounding water. It has been proved to reduce friction by as much as 45% in flow channel measurements conducted by the Technical Institute of Munich.

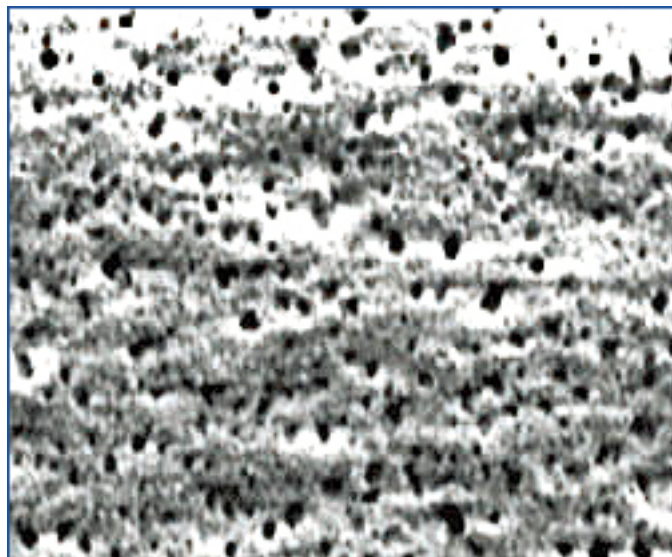
It is most effective when applied to all surfaces that will have contact with the water while the boat is in operation. The wetter **AQUA SPEED** is the better it performs.

How It Works:

AQUA SPEED utilizes its nano sized particles to fill imperfections in hull surfaces to create a more uniform hull / water interface. Because nano particles are uniform in size and shape and are highly attracted to each other the coating they form is much more uniform and complete than non-nano based coating materials. Following are micrographs of a hull surface prepared with standard polish only followed by an **AQUA SPEED** prepared surface:



Magnification of hull surface with non-nano polish applied.



Magnification of hull surface coated with **SPORT POLISH** and **AQUA SPEED**.

Previous thought held that "fast" was best achieved when water shears against water. This meant extending the boundary layer between a hull and the surrounding water for as long as possible. Such hydrophilic or water loving

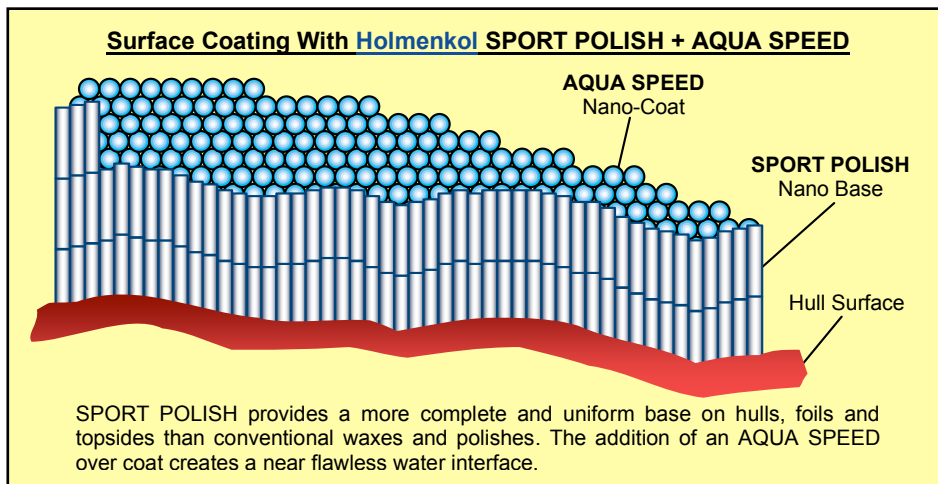
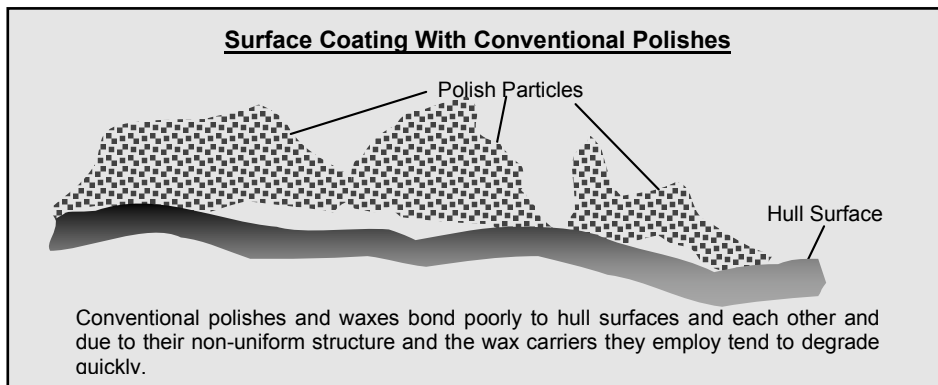
surfaces had lightly abraded or mat finishes.

Current research and theory turns the hydrophilic approach on its head and holds that boats go faster through the water if nothing – including water - sticks to hull surfaces. This hydrophobic or water fearing concept seeks to eliminate the boundary layer next to a hull by encouraging surfaces to repel water. This is best achieved with smooth outer skins on boat hulls - the smoother the better.

The nano particle chains that **AQUA SPEED** creates fill voids thoroughly and are very slippery thus causing water to break away from hull surfaces almost immediately. Bottoms, foils and topsides should be coated and **AQUA SPEED** works best when thoroughly wetted. This means that prior to racing surfaces should be soaked by heeling the boat while sailing or hosing down at the dock.

For dinghy use coating centerboards may cause problems when righting a capsized boat while standing on the board for leverage.

Key differences between a hull prepared with conventional polishes and a **SPORT POLISH / AQUA SPEED** prepared hull are as follows:



Because nano particles are so small – 20,000 times smaller than the diameter of a human hair – a nano-coated surface becomes much smoother than the base material or finish it is applied to.

AQUA SPEED is an abrasive coating and wears off over a period of about 5 – 7 days making one application ideal for a typical regatta. After this period **AQUA SPEED** should be re-applied. The **SPORT POLISH** nano-base will last for approximately 12 months. This means that coating with **AQUA SPEED** may be done as many times as needed during a roughly 12 month period without re-applying **SPORT POLISH**.

Precautions:

General:

When cleaning and polishing a boat, ventilation should be maximized. Breathing of fumes may be harmful and skin and

eyes may become irritated with excessive contact. For best results read all package labels completely before use, follow instructions and use outdoors in possible. If injury or irritation occurs follow label instructions for treatment.

Materials may be flammable and should be kept away from open flames. Again label instructions should be consulted before use and in the event problems or questions arise.

Tools:

CLEANER 8 in 1

Typical cleaning equipment will be useful:

- Bucket
- Water / Hose
- Disposable Work Gloves
- **CARE FLEECE** And / Or Lint-Free Cleaning Cloths Or Sponges

WAX REMOVER

- **CARE FLEECE** And / Or Lint-Free Cleaning Cloths
- Disposable Work Gloves
- Disposable Breathing Mask If Working Indoors

SPORT POLISH

- **CARE FLEECE** And / Or Lint-Free Cleaning Cloths
- Optional Power Buffer
- Disposable Work Gloves

AQUA SPEED

- **CARE FLEECE** And / Or Lint-Free Cleaning Cloths
- Disposable Work Gloves

Cleaning / Coating Process:

The steps required to provide nano protectiveness and slipperiness to your hull(s), foils and topsides are:

- Clean Hull(s), Foils And Topsides
- Insure That All Surfaces Are Dry
- Strip Off Old Polishes, Waxes And Coatings
- Polish All Surfaces
- Apply Drag Reducing Top Coat

The entire process is reasonably fast and easy to complete with the major time requirement being drying time. Two people can complete the cleaning, stripping and coating of a 24-foot (7.3 meter) keel sailboat in approximately 3 – 4 hours depending on weather conditions and application efficiencies.

1. Clean – Mix **CLEANER 8 in 1** to suit the amount of cleaning needed per label guidance. Once mixed apply liberally by hand using **CARE FLEECE** and rinse thoroughly. Allow to dry completely.

2. Strip – Stripping in roughly 3-foot x 3-foot (1 meter x 1 meter) sections is recommended. Lightly spray **WAX REMOVER** and let stand for approximately 3 – 5 minutes. Wipe off with **CARE FLEECE**. **WAX REMOVER** is a very effective surface stripper and light coating is recommended. On heavily coated or excessively dirty areas more than one application may be required. Again, insure that all surfaces have dried completely before moving to the polishing stage.

Note: **WAX REMOVER** is excellent for use with surfboards, snow skies, snowboards or any other waxed or coated marine or outdoor surface. Not intended for automotive or similar vehicular finishes.

3. Polish – Apply **SPORT POLISH** by hand or with a powered buffing motor. Once applied, let stand for approximately 30 minutes and then buff off with a clean, lint-free cloth or buffing pad. Complete coverage is necessary for best results.

4. Reduce Drag – Once the **SPORT POLISH** base coat has been completed **AQUA SPEED** may be applied. **AQUA SPEED** is a liquid coating that is best applied by hand. Application is simple and full coverage should be insured. As it goes on **AQUA SPEED** will appear to dull the surface very slightly. This assists in viewing coverage. Once applied **AQUA SPEED** should be allowed to dry for approximately 10 minutes and then buffed of by hand with **CARE FLEECE**. The brilliant shine will return and the boat may be launched as soon as the process is complete. The wetter (with water) that an **AQUA SPEED** prepared surface becomes the better it will perform.

Coverage Guide:

Note: *Coverage may vary based on base materials, cleanliness, age and thoroughness of application. The following*

information is a guide that will satisfy the majority of situations. Coverage may vary based on various environmental and usage factors.

CLEANER 8 in 1

Mix with water to suit cleaning needs. A 1000 ml / 34 quart container will provide the following volumes for cleaning:

Light Duty Cleaning			
Metric	50.0 ml	per	10.0 liters water
U.S.	1.7 fl. oz.	per	2.6 gallons water

Heavy Duty Cleaning			
Metric	100.0 ml	per	10.0 liters water
U.S.	3.4 fl. oz.	per	2.6 gallons water

Coverage will vary based upon how liberally **CLEANER 8 in 1** is applied.

WAX REMOVER

A 200 ml / 7 fluid ounce container will cover a great deal of area if used correctly. Light applications work best. Once applied and wiped clean the surface should be felt by hand to determine if a second application is necessary. As many applications as necessary to reach underlying base surfaces is recommended.

SPORT POLISH

Available in two sizes, volumes and coverage are as follows:

SPORT POLISH 25 ml / .85 fl.oz.	
Metric	5 – 7 sq. m.
U.S.	50 – 70 sq. ft.

SPORT POLISH 250 ml / 8.50 fl. oz.	
Metric	50 – 70 sq. m.
U.S.	550 – 750 sq. ft.

AQUA SPEED

Available in a 250 ml / .85 fl. oz. size coverage is as follows:

AQUA SPEED	
Metric	18 - 120 sq. m.
U.S.	194 – 1,292 sq.ft.

All coverage values are estimates. Individual results may vary based on numerous conditions. As with any finishing product surface preparation and cleanliness are vital to achieving a satisfactory result.