



Special High Energy Marine Anodes

Congratulations! You now own the *Salty Doggs Special Alloy Marine Anode*, which is designed to protect your powerboat, sailboat or marine equipment investment. Please read these instructions carefully. An understanding of how this product works will enable you to maximize the benefit that you will receive from using this powerful cathodic protection tool.

What is Corrosion?

Corrosion is an electrochemical process accompanied by the flow of electrical current. The process of corrosion will take place if the following four components are present:

1. An electrolyte – a medium which conducts current by ion flow (i.e. water)
2. An anode – a metal which corrodes to protect another metal (i.e. prop shaft, rudder, hull, etc.)
3. A cathode – a metal which is protected by another metal (i.e. bronze and stainless steel fittings)
4. A metallic pathway – a medium which conducts current by electron flow (i.e. boat hull, bonding and electrical systems)

Galvanic corrosion is the most common form of corrosion that attacks boats and marine equipment. This type of corrosion develops when different types of metals which are electrically common are submerged into water. For example, when a boat equipped with a steel rudder that is bonded to a bronze or stainless steel fitting is placed into the water, the steel rudder will corrode. In this example, the steel rudder becomes the anode and the more noble metals such as bronze or stainless steel become the cathodes. The water is the electrolyte and the metallic path is the boat's hull (if metal) or the boat's bonding system.

If this sounds confusing, **RELAX!** Corrosion is nothing more than a *Battery* that forms naturally between different types of metals in a boat when the boat is placed into the water. Batteries or corrosion cells also develop between different boats in a marina when they are connected to a common power source on the dock. When this situation occurs, people often refer to the marina as a "Hot Marina."

What is Cathodic Protection?

Cathodic protection is the process of reversing the corrosion current to stop the damaging corrosion process. One type of cathodic protection known as **Galvanic Cathodic Protection** is achieved by placing a type of metal into the water with the boat, and connecting it to the boat's metallic parts. Metals such as zinc or aluminum are less noble than the other metals on the boat, and therefore, will act as anodes when connected to the metal parts of the boat. All boats are equipped with zinc anodes that are typically mounted to the hull or prop shaft or rudder, etc. of the boat. These zinc anodes are designed to provide protection from galvanic corrosion on the boat.

However, when these zinc anodes corrode, they lose their ability to provide sufficient protection to the metal parts of the boat that are submerged into the water. Zinc anodes need to be replaced often to keep corrosion at bay. Oftentimes, however, when boat become older and paint on metal parts deteriorates, the zinc anodes are no longer sufficient to provide the degree of protection required. Also, when galvanic corrosion occurs between boats in marinas, the zinc anodes usually are not sufficient to counter this type of corrosion attack as well. A common symptom of these problems is when the zinc anodes on a boat corrode quickly.

What is a SALTY DOGGS anode?

The SALTY DOGGS anode is designed to counteract these galvanic corrosion problems by supplementing your boat's existing cathodic protection system (i.e. zinc anodes). The SALTY DOGGS anode will provide optimum performance and efficiency. The plastic bumpers are designed to protect the hull of the boat from damaging scrapes and dents that would occur if a metal anode were to bang into the hull of the boat due to wave action.

The SALTY DOGGS anode is designed for use on boats with steel, aluminum, and fiberglass hulls. **THESE ANODES ARE NOT TO BE USED ON BOATS WITH WOOD HULLS!** The current generated by the SALTY DOGGS anode is sufficient to cause alkali damage to the wood in wood hull boats.

Installation Instructions

1. Secure the anode wire to the stern of the boat or the dock structure such that the anode hangs 3-4 feet below the bottom of the boat but above the mud and weeds.
2. Attach the stainless steel clamp securely to an engine mount or to the bonding cable for the boat's through hull fittings. The clamp should be attached to an unpainted metal surface to ensure that a good connection is achieved.
3. Temporarily connect a DC ammeter between the clamp and the metal surface to which you are attaching it to and measure the current flow. Depending upon the size of the boat and the condition of the zinc anodes current flows in the range of 10 to 50 milliamperes are common. This test is done to ensure that your **SALTY DOGGS™** Anode will be properly attached to the boat's metallic parts with a solid connection.
4. Route the anode wire in such a manner to avoid being tripping hazard. If you are handy with running wires, it is advisable to run a permanent wire to your engine block or bonding cable for the through hull fittings to a location on the deck of the boat to a location where the anode can be attached without being in the way of normal deck traffic.

"That's it! You're finished! It's just that simple to install the SALTY DOGGS Anode."

Maintenance

1. Inspect the anode occasionally and clean it with a high-pressure water hose. Removing weeds algae, and other marine growth from the anode assembly to ensure that the anode continues to function at an optimum level. If you see significant marine buildup on the anode element itself, it is a good idea to remove the anode threaded cap from the casing, if your anode is provided with a casing, and sliding the anode from the casing. You may need to use pliers to separate the casing from the plastic end cap on the top. Once the anode is removed from the casing remove all loose material from the anode using a wire brush and a water hose. If approximately 3/4 or more of the anode is corroded away, it is time to replace the anode.
2. If the anode requires replacement in less than one year, one SALTY DOGGS I anode is not sufficient to provide complete protection for your boat. It is advisable in this case to use two anodes or the 2-foot long SALTYDOGGS II Anode Multiple anodes can be attached to the same fitting on the boat. IF two SALTY DOGGS Anodes are used, we suggest placing them on opposite sides of the stern of the boat in order to maximize their performance.

Anode Replacement

1. If approximately 3/4 or more of the anode is corroded away, it is time to replace the anode.
2. Replacement anodes can be purchased from our website at www.saltydoggs.com
3. Remove the threaded cap from the top of the anode casing and remove the anode. Using a 1/4 " nut driver. Loosen the nuts of the wire rope clip and slip out the depleted anode.
4. Reverse the process for installation of the new anodes.
5. Your SALTY DOGGS Anode is as good as new and ready for service for another few years!

The SALTY DOGGS Anode is a product manufactured by California Corrosion Concepts, Inc. located at 1100 Willow Pass Court, Concord, CA 94520 Tel # 800 644 6555 www.saltydoggs.com