WILDLIFE COMPUTERS

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MICRON ANTIFOULING PROTOCOL

Micron antifouling paint has been used successfully for decades to limit biofouling on sea turtle satellite tracking tags. However, in many cases its effectiveness has been compromised. We've seen two main reasons for this; paint being hastily applied after the tag is attached to the animal and critical parts of the tag not being painted. Argos whip antennas and Fastloc® GPS antennas **MUST** be painted.

The following instructions are based on recommendations from the technical department of International Paints, the manufacturer of Micron paint. The process involves one coat of Interprotect primer and three coats of Micron.

Although this process focuses on applying the paint to Wildlife Computers sea turtle tags, it is applicable for other species and tags.

Be careful not to paint any surface that will be in permanent contact with the skin of sharks or other species.

You can view the step-by-step video: https://wildlifecomputers.com/turtle-tagging/

Wildlife Computers recommends Micron66 or Micron77, however, other Micron paints will function well if applied properly. If Micron brand antifouling is not available then another brand of copper-based antifouling paint will suffice.

The entire process requires up to 48 hours to complete prior to the tags being attached to sea turtles.

Wildlife Computers tags should not be attached to sea turtles using epoxy over the top of the tag as this interferes with GPS antennas and antifouling paint. If attachment epoxy is tapered up the sides of the tags, then this, and the area of the epoxy footprint, should also be painted with Micron after attachment. Ideally, it should be allowed to dry as long as possible.

Micron66 is not suitable for use in fresh water. Other Micron paints are available for fresh water use.

MICRON ANTIFOULING PROTOCOL – CONTINUED

Personal Protective Equipment

The safety guidelines must be followed and the correct PPE must be worn for the application of both the primer and Micron paints.

Once painted, tags should only be handled with gloves due to the copper and biocide in the anti-fouling paint. They can be stored in a Ziploc® bag.

MSDS

Use the following link to access the safety data sheets for both the Interprotect primer and Micron66 antifouling paint: https://www.interlux.com/en/us/boat-paint/antifouling/micron-66
Check your paint can for the MSDS version number. For example, E5 for Micron66 Black.

Process Overview

- Mix the Micron with a battery drill and paint mixer tool—it is imperative to dislodge the copper off the bottom of the can. If you can't use a drill, mix it thoroughly with a wide paddle to ensure all the copper is mixed into the paint.
- After masking off the wet/dry sensors, communications port, depth sensor, battery isolator screw, and LED viewing port, prime the entire tag including the Fastloc GPS and Argos whip antennas.
- Only prime 2-3 tags at a time to ensure the first coat of Micron goes on while the primer is tacky and not dry (if the primer has hardened, apply another coat of primer and paint when tacky).
- Apply 3 coats of Micron—allow each coat to dry before painting the next (Micron is ablative so it needs several coats that will wear off over time in the water).
- Remove the masking tape from the sensors once the last coat is dry.
- Optionally, apply another coat of paint to the Fastloc GPS and Argos whip antennas after attachment to the turtle. Be sure to avoid the wet/dry sensor, etc. It isn't harmful to paint any attachment epoxy.

MICRON ANTIFOULING PROTOCOL – CONTINUED

Application Requirements

Accessories Required

- Six paint mixing cups or bowls
- Battery-powered drill and mixing tool or strong mixing stick for the paint
- Six mixing sticks for the primer
- Two 50 ml syringes or 100 ml cups for measuring the primer paint and hardener volume
- Six small disposable paint brushes
- One sheet of 80-100 grit sandpaper
- 500 ml of isopropyl alcohol or acetone
- Three clean rags
- 10 pairs of disposable gloves
- One roll of masking tape and scissors
- Appropriate respirator, fume cabinet, or well-ventilated area in which to work
- Optional: 3/8" (10 mm) and 1/4" (6 mm) hollow punches, hammer, and wooden or nylon board to punch out masking tape discs

Application Procedure

Ideally, you should allow 48 hours for the application of the primer, three coats of Micron, and curing time before immersion.

Tag Preparation

1. Sand the tag thoroughly to roughen the surface. Sand all areas (including the antennas) except the wet/dry sensors. Be careful not to damage any external sensors such as the temperature sensor probe.

Leave the Peel-Ply in place under the tag.

2. Clean with a rag and isopropyl alcohol or acetone.
3. Use masking tape to cover the wet/dry sensors. On depth-sensing SPLASH tags, cover the pressure sensor opening and mask a 10 mm (3/8") area above the light sensor—SPOT tags and Fastloc GPS sea turtle tags do not normally have light sensors. A hammer and suitable hollow punch on a wooden or nylon board are ideal for punching out discs of masking tape.

MICRON ANTIFOULING PROTOCOL – CONTINUED

3. Insert the communication's connector plug and cover with a rectangle of masking tape.
4. Cut or punch a 6 mm (1/4") circle of masking tape and place this over the LED area to enable viewing once the tag is painted (swipe a magnet over the communications port to determine the LED position).
5. A SPLASH tag's external temperature sensors does not need to be masked and can be painted with primer and Micron.
6. Clean the tag again with isopropyl alcohol or acetone, avoiding the masking tape. Do not handle the tag without gloves once cleaned.

Interprotect Primer Application

1. Mix thoroughly the 2000E primer base.
2. Measure three parts by volume of 2000E base and one-part 2001E hardener and mix thoroughly.
3. Allow to rest for 10 minutes to pre-cure.
4. Apply to the tag with a brush, painting all surfaces and antennas evenly—avoid drips and wet areas that will dry at a different rate.

Primer Drying Time

It is critically important that the first coat of Micron be applied when the primer is still tacky.

This is determined using a "thumb-print test." After the primer has dried for 10 minutes, use a gloved hand to touch the tag's surface to see if it leaves a print on the paint. If paint sticks to the glove, it needs to dry longer. If the primer feels tacky and leaves a mark without getting paint on your finger, then it is ready to overcoat with Micron.

Drying times vary with temperature and humidity; however, 10 minutes is typical in warmer climates.

If the primer is left too long and has cured hard, then another coat of primer will need to be applied and the process repeated for a tacky base.

MICRON ANTIFOULING PROTOCOL – CONTINUED

Micron Application and Drying Time

1. While the primer is drying, mix the can of Micron well using a drill with attached paint stirrer or strong mixing stick. Shaking the can is not effective as the copper will have settled to the bottom of the can.
2. Immediately brush a coat of antifouling paint onto the entire tag and all antennas once the primer is tacky.
3. The ideal drying time between coats is four hours at 35° Celsius (95° Fahrenheit), six hours at 23° Celsius (73° Fahrenheit), and eight hours at 10° Celsius (50° Fahrenheit). It is ideal to leave the tag overnight.
4. Apply a second coat of Micron and allow to dry as above.
5. Apply a third coat of Micron and allow to dry as above.

Masking Tape Removal

After the final coat is dry, use disposable gloves and remove the masking tape from the wet/dry sensors, pressure sensor opening, battery isolator screw, light sensors, and LED (these vary with tag types).

Tag Handling

Store the tags in a Ziploc® bag as Micron gives off a strong odor. Store the tags in a cool place. A refrigerator is good but ***NOT*** with food.

Tags must only be handled with gloves as Micron contains copper and biocides.

MICRON ANTIFOULING PROTOCOL – CONTINUED

Tag Deployment

The tag can be attached and deployed immediately; however, if more than 30 days have elapsed since the last coat, use a soft nylon brush to lightly wash and reactivate the top layer.

Resources

International Paints Micron Antifouling Paint

Micron66 is only available in 5-liter (one gallon) cans. Learn more here: https://www.interlux.com/en/us/boat-paint/antifouling/micron-66

Store Locator: https://www.interlux.com/en/us/paint-shops/stores-near-me#1,0,retailer,0,0,0,grid

Micron66 is available in the USA and Asia-Pacific regions from International Paints dealers and ship chandlers. Micron66 is not available in all countries.

Similar Micron products such as Micron Extra, Micron Extra2, MicronCSC, Micron77 and Micron99 are alternative solutions although Micron66, Micron77 and Micron99 are the most effective. Micron77 may only be available from licensed applicators.

International Paints Primer

Interprotect 2000E" or "Interprotect" or "Gelsheild 200" (These are the same product). Interprotect is a two-part epoxy primer and is available in 750ml, (one quart) cans.

If Interprotect primer is not available then "Primocon" primer can be used but it is not as effective. View more information here: https://www.interlux.com/en/us/boat-paint/primer/interprotect-2000e

Wildlife Computers AZ-ATTCHKIT-000

Wildlife Computers AZ-ATTCHKIT-000 takes the guesswork out of gathering your turtle tagging supplies.

MICRON ANTIFOULING PROTOCOL – CONTINUED

Appendix 1

We know companies change formulations so in November 2019 we initiated another round of antifouling testing. We looked at Micron66, Lightspeed, Propspeed, an unnamed competitive product, and a placebo. We painted the tags according to the manufacturer's recommendations and secured it to a floating wharf in Northland, New Zealand.

The blue tag, painted with Micron66, showed no evidence of fouling, with Propspeed coming in second. Micron66 has been used successfully for over two decades to limit biofouling on sea turtle satellite tracking tags.

MICRON ANTIFOULING PROTOCOL – CONTINUED

Contacting Wildlife Computers

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Members of the Wildlife Computers technical sales and support team are located in Redmond, WA, USA, and Havelock North, New Zealand, allowing us to cover promptly a wide range of time zones.

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For Asian Clients

While we welcome your direct correspondence, we recommend that you contact our colleague, Yong Huang, for assistance. Mr. Huang understands the special purchase processes for your countries, and will provide you with the best service for the best price. He also is fluent in Japanese, Chinese, and English.

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