



## Instructions for Visible Implant Elastomer (VIE) Tags



Need help? If you have questions, problems or comments about using VIE, please call +1 (360) 764-8850 or email [biology@nmt.us](mailto:biology@nmt.us). Visit [www.nmt.us](http://www.nmt.us) for more detailed tagging information.

### Storing VIE

When properly stored, the shelf life of unmixed elastomer is at least 12 months from the date of purchase. Store unmixed VIE at room temperature (~70 °F) away from direct sunlight. Do not freeze unmixed VIE. Store the VIE Color Standard away from direct sunlight.

Test older elastomer before using by mixing a small quantity and observing whether it cures properly. If it has cured to a rubbery solid within 24 hours, the material is useable. Otherwise, discard it. We offer refills containing elastomer, mixing supplies and injection needles.

### Mixing VIE

For complete curing to occur, thoroughly mix the two elastomer components (colored part and clear curing agent) in a 10:1 ratio.

#### Step 1:

Remove the cap from the syringe containing the colored component. Use the calibrations on the syringe to dispense the desired amount into the bottom of a mixing cup. Pull the plunger back slightly and replace the cap.



#### Step 2:

Remove the cap from the syringe containing the clear curing agent. Use the calibrations on the syringe to dispense 1/10 of the amount of the colored part into the cup. Pull the plunger back slightly and replace the cap.



The curing agent will dispense with much less pressure than the colored component. Be careful not to dispense too much!

Avoid contaminating the curing agent syringe with the colored component, as this will make it unusable. If any colored material is on the syringe tip, immediately dispense enough of the clear material to clean out the colored portion and wipe the tip clean.

#### Step 3

Mix thoroughly! Stir and scrape the mixing cup for one full minute, but no longer, to ensure complete mixing.



## **Step 4**

Use a new 1 ml syringe to slowly draw up the mixed elastomer. Remove the white cap and plunger from a 0.3 cc injection syringe.



The tip of the 1 ml syringe fits tightly into the opening of the 0.3 cc injection syringe. Fill the injection syringe about 1/3 full. If you fill the syringe more than this, it becomes difficult to push out the elastomer and may result in a broken plunger.

You can load more than one injection syringe in a single mixing. After mixing, you will have about 1 hour of working time (depending on temperature) during which the tags can be injected. Put any mixed elastomer that you aren't using immediately into the freezer to delay curing by 24 hours or more, depending on conditions.

## **Step 5**

Replace the plunger in the injection syringe and remove the orange cap. Push the plunger forward until a small bead of elastomer appears at the needle tip.

Install the injection syringe into the body of the Manual Elastomer Injector, then put the back piece of the Manual Elastomer Injector in place. You can hold the injector with your thumb on the bevel, or with the bevel down to allow a shallow angle of approach for tagging. You are now ready to tag.



## **Step 6**

Verify that your elastomer cured properly by retaining the mixing cup at room temperature. If the elastomer does not fully cure within 24 hours, please contact NMT.

## **Mixing Small Quantities of VIE**

We suggest 0.1 mL as the minimum quantity of material that can be sensibly handled and mixed.

### **Step 1**

To accurately measure the curing agent, dispense slightly more curing agent than you will need into a 0.3 cc injection syringe. Remove any air bubbles that appear after you replace the plunger. Do not leave the curing agent in this syringe for more than a day as the rubber stopper will react with the curing agent and keep the elastomer from curing. VIE kits include more curing agent than required for the 6 ml of colored portion.

### **Step 2**

Remove the cap and plunger from a clean 0.3 cc injection syringe. Dispense 0.1-0.3 ml of the colored portion into the barrel of the injection syringe.

### **Step 3**

Drip the corresponding amount of curing agent from the injection syringe on top.

### **Step 4**

Use a flat toothpick to thoroughly mix the components for one full minute in the barrel of the syringe. Continue with Step 5 above.

## **Tagging with VIE**

A sponge or paper towel is useful to clear the needle of excess elastomer before each injection. Insert the needle to the farthest point where you would like the elastomer to be, then begin injecting elastomer as you pull the needle back.

Stop dispensing the elastomer before the needle is completely withdrawn to avoid material trailing

from the tagging wound. Trailing material will prevent healing and should be gently wiped off towards the tag.



The tag should be easily visible and should not create a bulge in the skin. If you are unable to see the tag, try to insert it closer to the surface, use a different tag location, or use the VI Light to fluoresce the tag. If the skin is bulging, the tag is too big and may increase tag loss.

Dispose of used syringes properly in a sharps collection container.

Handling tagged animals affects retention. Place fish gently into water containers after tagging. They should be handled gently and as little as possible for at least 10 days after tagging.

To disinfect the Manual Elastomer Injector and Color Standard, VI Light and tool box, first clean them with soap and water. Then, place them on a clean, disinfected surface and spray liberally with a chlorine solution, made from 1 part household bleach and 250 parts water or similar disinfecting solution. Use pathogen-free water to thoroughly rinse away disinfectant.

## Tag Detection

To maximize tag identification:

- Choose distinct colors for tagging.
- Tag in clear tissue whenever possible.
- Train your samplers – let them practice with the tag colors they will encounter before they start collecting data.
- Use the VIE Color Standard to correctly identify colors.
- Fluoresce poor or obscured tags with the VI Light.

## Using the VI Light

Although you can usually see VIE tags with the naked eye, the VI Light greatly enhances their visibility. The VI Light fluoresces green, yellow, orange, red, pink, and blue tags. When fluoresced, you can see tags at considerable distance, at night, and detect tags obscured by pigmentation in ambient light.

Turn on the VI Light by tightening the black cover. The VI Light has a built-in regulator to insure the beam intensity remains constant throughout the life of the batteries. When the batteries become weak, the VI Light will flash to let you know it's time for a fresh set.

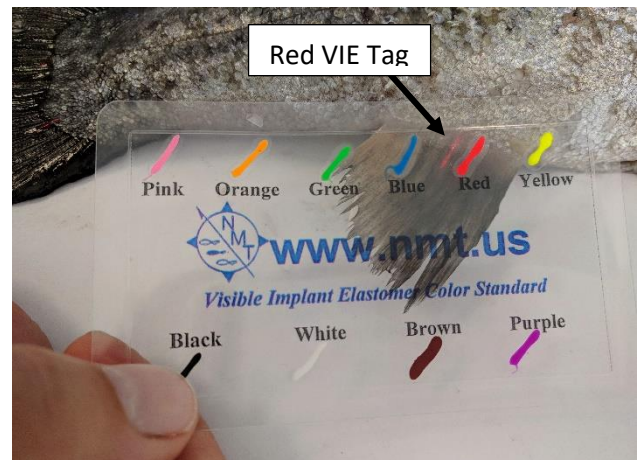
Shine the light directly on the area where the tag is thought to be. If you are working in direct sunlight, you will need to fluoresce the tags in the shade – even the shade of your body is probably enough. You can see very faint tags best when they are fluoresced in darkness.



- Never look directly into the VI Light.
- Keep the VI Light out of the reach of children.

## Using the VIE Color Standard

NMT's VIE Color Standard allows the user to place the color sample directly beside a tag for comparison.



1. PRODUCT AND COMPANY IDENTIFICATION							
Northwest Marine Technology, Inc. 4003 Airport Road, Anacortes, WA, 98221	Emergency Telephone: (360) 764-8850 Customer Service: (360) 764-8850						
Trade Name: Visible Implant Elastomer Tag      Chemical Family: Silicone Other Product Information: The base (Part A) is not a hazardous material as defined in the OSHA Hazard Communication Standard. The base contains a very small amount (less than 0.1%) of a potentially hazardous compound, formaldehyde. The maximum possible level of formaldehyde that could be released into the environment is far below the level allowed by OSHA. The information below applies to the curing agent (Part B) of the two-part kit. Handle freshly mixed elastomer material as recommended for the curing agent. After curing, the product is not hazardous. Visible Implant Elastomer Tags are available in various colors. All colors are equally non-hazardous. National Fire Protection Association Profile: Health 0 Flammability 1 Instability/Reactivity 1							
2. HAZARDS IDENTIFICATION							
POTENTIAL HEALTH EFFECTS							
<b>Acute Effects</b> Eye: Direct contact may cause temporary redness and discomfort. Skin: No significant irritation expected from a single short-term exposure. Inhalation: No significant effects expected from a single short-term exposure. Oral: Low ingestion hazard in normal use. <b>Prolonged/Repeated Exposure Effects:</b> Skin, inhalation, oral: No known applicable information. <b>Signs and Symptoms of Overexposure:</b> No known applicable information. <b>Medical Conditions Aggravated by Exposure:</b> No known applicable information.							
3. COMPOSITION/INFORMATION ON INGREDIENTS	4. FIRST AID MEASURES						
<table border="1"> <thead> <tr> <th>CAS Number</th> <th>Wt %</th> <th>Component Name</th> </tr> </thead> <tbody> <tr> <td>68037-59-2</td> <td>10.0 - 30.0</td> <td>Dimethyl, methylhydrogen siloxane</td> </tr> </tbody> </table> <p>The above component is hazardous as defined in 29 CFR 1910.1200.</p>	CAS Number	Wt %	Component Name	68037-59-2	10.0 - 30.0	Dimethyl, methylhydrogen siloxane	<p>Eye: Immediately flush with water. Skin, inhalation, oral: No first aid should be needed. Notes to physician: Treat symptomatically.</p>
CAS Number	Wt %	Component Name					
68037-59-2	10.0 - 30.0	Dimethyl, methylhydrogen siloxane					
5. FIRE FIGHTING MEASURES							
Flash point: > 214 °F / > 101.1 °C (Closed Cup) Autoignition temperature: Not determined. Flammability limits in air: Not determined. <u>Extinguishing media:</u> On large fires use AFFF alcohol compatible foam or water spray (fog). On small fires use AFFF alcohol compatible foam, CO2 or water sprays (fog). Water can be used to cool fire exposed containers. Do not allow extinguishing medium to contact container contents. Most fire extinguishing media will cause hydrogen evolution. When the fire is put out, hydrogen may accumulate in poorly ventilated or confined areas and result in flash fire or explosion if ignited. Foam blankets may also trap hydrogen or flammable vapors, with the possibility of subsurface explosion. <u>Unsuitable Extinguishing Media:</u> Dry chemical. <u>Fire Fighting Measures:</u> Self-contained breathing apparatus and protective clothing should be worn in fighting large fires involving chemicals. Use water spray to keep fire exposed containers cool. Determine the need to evacuate or isolate the area according to your local emergency plan. <u>Unusual Fire Hazards:</u> None.							
6. ACCIDENTAL RELEASE MEASURES	7. HANDLING AND STORAGE						
Use absorbent material to collect and contain for salvage or disposal. Waste disposal method: All local, state and federal regulations concerning health and pollution should be reviewed to determine approved disposal procedures.	Use with adequate ventilation. Avoid eye contact. Product evolves minute quantities of flammable hydrogen gas which can accumulate. Adequately ventilate to maintain vapors well below flammability limits and exposure guidelines. Do not repackage. Do not store in glass containers which may shatter due to pressure build up. Clogged container vents may increase pressure build up. Keep container closed and store away from water or moisture.						

8. EXPOSURE CONTROLS / PERSONAL PROTECTION	
<p><b>Component Exposure Limits:</b> There are no components with workplace exposure limits.</p> <p><b>Engineering Controls:</b> Local and general ventilation are recommended.</p> <p><b>Personal Protective Equipment for Routine Handling and Spills</b></p> <p>Eyes: Use proper protection - safety glasses as a minimum. Skin: Washing at mealtime and end of shift is adequate. Suitable Gloves: No special protection needed. Inhalation: No respiratory protection should be needed.</p> <p>Precautionary Measures: Avoid eye contact. Use reasonable care.</p> <p>Comments: When heated above 150°C (300°F) in the presence of air, product can form formaldehyde vapors. Formaldehyde is a potential cancer hazard and a known skin and respiratory sensitizer. Vapors irritate eyes, nose, and throat. Safe handling conditions may be maintained by keeping vapor conditions within the OSHA permissible exposure limit for formaldehyde.</p>	
9. PHYSICAL AND CHEMICAL PROPERTIES	
Odor, appearance, color: little odor, liquid, some color	Percent volatile by weight (%): less than 5
Specific gravity (at 77 °F): 0.972	Solubility in water (%): less than 0.1
Vapor pressure: less than 5 mm	
10. STABILITY AND REACTIVITY	
<p>Chemical Stability: Stable.</p> <p>Hazardous Polymerization: Hazardous polymerization will not occur.</p> <p>Conditions to Avoid: None.</p> <p><u>Materials to Avoid:</u> Oxidizing material can cause a reaction. Water, alcohols, acidic or basic materials, and many metals or metallic compounds, when in contact with product, liberate flammable hydrogen gas, which can form explosive mixtures in air.</p> <p><u>Hazardous Decomposition Products:</u> Thermal breakdown of this product during fire or very high heat conditions may evolve the following decomposition products: Carbon oxides and traces of incompletely burned carbon compounds. Silicon dioxide. Formaldehyde. Hydrogen.</p>	
11. TOXICOLOGICAL INFORMATION/ ECOLOGICAL INFORMATION	12. TRANSPORT INFORMATION
No known applicable information.	<p><b>DOT Road Shipment Information (49 CFR 172.101):</b> Not subject to DOT.</p> <p><b>Ocean Shipment (IMDG):</b> Not subject to IMDG code.</p> <p><b>Air Shipment (IATA):</b> Not subject to IATA regulations.</p>
13. REGULATORY INFORMATION	
<p>Contents of this MSDS comply with the OSHA Hazard Communication Standard 29 CFR 1910.1200.</p> <p>TSCA Status: All chemical substances in this material are included on or exempted from listing on the TSCA Inventory of Chemical Substances.</p> <p><b>EPA SARA Title III Chemical Listings</b></p> <p><b>Section 302 Extremely Hazardous Substances (40 CFR 355):</b> None.</p> <p><b>Section 304 CERCLA Hazardous Substances (40 CFR 302):</b> None.</p> <p><b>Section 311/312 Hazard Class (40 CFR 370):</b> Acute - No; Chronic - No; Fire - No; Pressure - No; Reactive - Yes</p> <p><b>Section 313 Toxic Chemicals (40 CFR 372):</b></p> <p>None present or none present in regulated quantities.</p>	
14. OTHER INFORMATION	
<p>These data are offered in good faith as typical values and not as a product specification. No warranty, expressed or implied, is hereby made. The recommended industrial hygiene and safe handling procedures are believed to be generally applicable in the context of the intended use.</p>	