



Using NMT's Visible Implant Alpha Tags

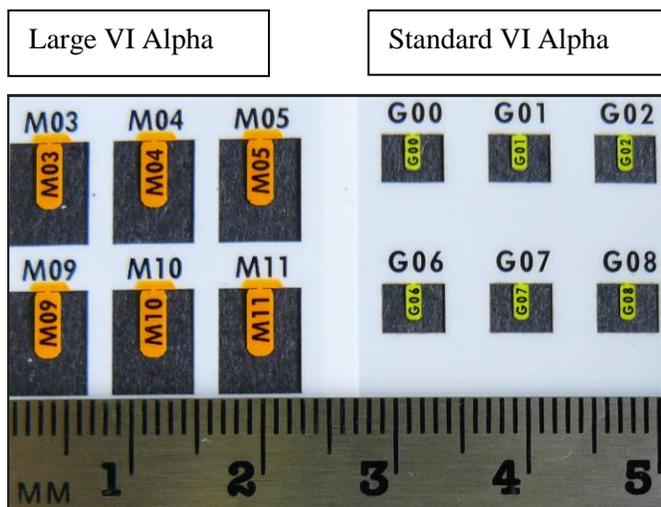
Visible Implant Alpha (VI Alpha) Tags are implanted beneath transparent or translucent tissue but are externally visible. They are used for individual identification of fish, crustaceans, reptiles, and amphibians.

Our VI Alpha Tags are:

- Easy to load and inject.
- Available in two sizes:
 - Standard (1.2 mm x 2.7 mm) with black letters on a fluorescent red, orange, yellow, or green background.
 - Large (2.0 mm x 5.5 mm) with black letters on a fluorescent orange background.
 - Each color has up to 2,500 different codes.
- Fluorescent under the VI Light for enhanced tag detection and readability.
- Stable for long-term storage.
- Backed by our 1 year guarantee and expert customer service.

Before using VI Alpha Tags, you may like to review available references for your species. Many can be found online and the NMT Biology staff is available to provide free tagging advice (email biology@nmt.us or call 360-468-3375). If references are lacking, you may need to evaluate suitable tag locations and retention.

Clear or translucent tissue may be a suitable target. The adipose eyelids of salmonids and some other fishes, as well as the spaces between fin rays, are examples of potential tagging sites. Other possible targets are along fin margins of flatfish, and the abdominal area of shrimps. In some cases, VI Alpha Tags can be placed under pigmented skin where they are difficult to see in ambient light, but quite visible when fluoresced.



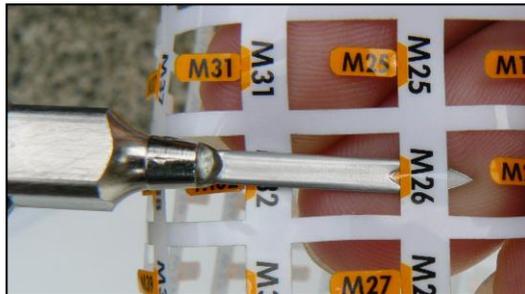
Loading VI Alpha Tags into the Injector



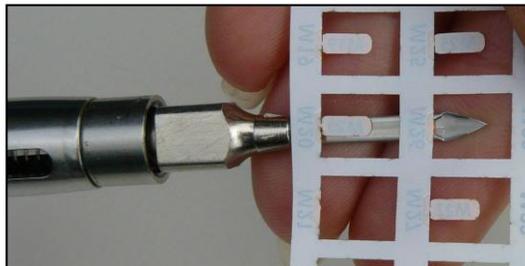
Single tags are loaded into the injector for insertion. The needle on this injector can be easily replaced. Large tags can only be used with a large needle on an injector that has “V2.0” written on the side, as shown above. Standard tags can be used with a standard needle and any of our VI Alpha Injectors.

1. Make sure you have installed the correct needle size. Large needles have “LV” marked on the hub and standard needles have “V” marked on the hub. Wet the needle. This helps prevent the tag from sticking to the needle.

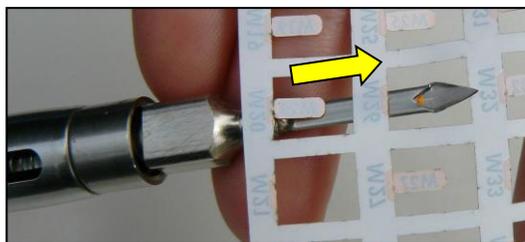
2. With the bevel up, push a tag into the injector so that the needle is all the way to the top of the rectangular cutout. For the large tags, it may be helpful to pinch the top of the tag and direct it into the needle.



3. Keeping the tag pushed into the needle, fold the tag sheet back until it is flush with the needle, and the tag sheet is upside down. This bends the joint between the tag and the tag sheet.



4. Push the injector forward to cut the tag. Do not twist the injector to remove the tag. Twisting will distort the tag material at the joint with the sheet. The tag will not load completely into the injector, and will not lay flat after injection.



The tag is ready to be injected. Detached tags can be difficult to load, particularly when they are wet. We recommend holding one end of the tag with tweezers and inserting it into the needle.

Tagging Tips

- Tag retention is often higher in larger animals – schedule tagging for when the study animals are as large as possible.
- Don’t tag animals that show signs of disease. Handling and stress from tagging can exacerbate the disease, increase mortality, and reduce retention.
- Tag in bright light.
- When possible, set up your tagging station on land rather than in a boat. Tagging with VI Alpha requires a steady hand, and is easier when you are still.
- The animal should be firmly restrained or anesthetized. Otherwise, it is likely to move when injected. This usually tears the target tissue, and increases tag loss or precludes further tagging attempts.
- If you are new to tagging, first practice with animals that are not part of the study. Start with larger specimens and work your way to smaller specimens.
- Place tags just below the skin. Deep tags may be obscured by pigmentation and tissue. Tags that stick out of the injection site are likely to be lost.
- When possible, retain a sample of tagged animals to evaluate tag loss and visibility.

Injecting VI Alpha Tags

VI Alpha Tags cannot be pushed into solid tissue without the injector needle. The sharp tip of the needle is used to cut a path for the tag. The procedure is:

1. Cut a path for the tag with the needle so that the tip is slightly in front of where the far edge of the tag is desired.



2. Advance the shim until the tag is just at or past the tip of the needle.



3. Leave the tag in place by withdrawing the needle with the shim still out. Release the shim.



Tag Detection

Although VI Alpha Tags can usually be seen with the naked eye under normal daylight or interior lighting, their visibility and readability are enhanced with the VI Light, particularly if it is used in the dark. When fluoresced, the tags can be seen (but not read) at considerable distance. Tags that are obscured by pigmentation and can't be seen in ambient light are often detected with the VI Light.

Storing VI Alpha Tags

When properly stored, VI Alpha Tags have a very long shelf life. To maximize shelf life, we recommend that VI Alpha Tags be stored in a cool, dark place. Excessive exposure to sunlight will fade the fluorescence.

VI Alpha Starter Kit Contents

- 100 VI Alpha Tags
- 1 VI Alpha Tag Injector
- 1 Replacement Needle & Shim
- 1 VI Light
- 1 VI Alpha Color Standard

Injectors and Needles

Your injector and needle have to match the tag size you are using.

For large tags:

- The injector body must have "V2.0" printed on it.
- Install a large needle – "LV" is marked on the needle hub.

For standard tags:

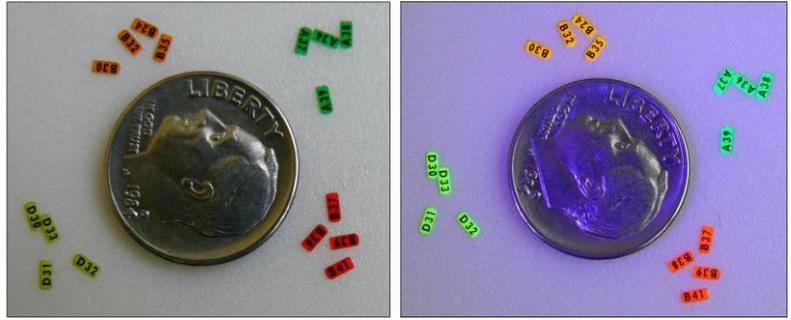
- Any of our VI Alpha injectors will work.
- Install a standard needle – "V" is marked on the needle hub.

Continuing Projects

When the supplies in your kit have been exhausted, NMT offers additional tags, needles, and shims.

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.
- Fluoresce poor or obscured tags with the VI Light.
- Compare tag colors with the VI Alpha Color Standard.



VI Alpha Tags in ambient light (left) and illuminated by the VI Light (right).

Using the VI Alpha Color Standard

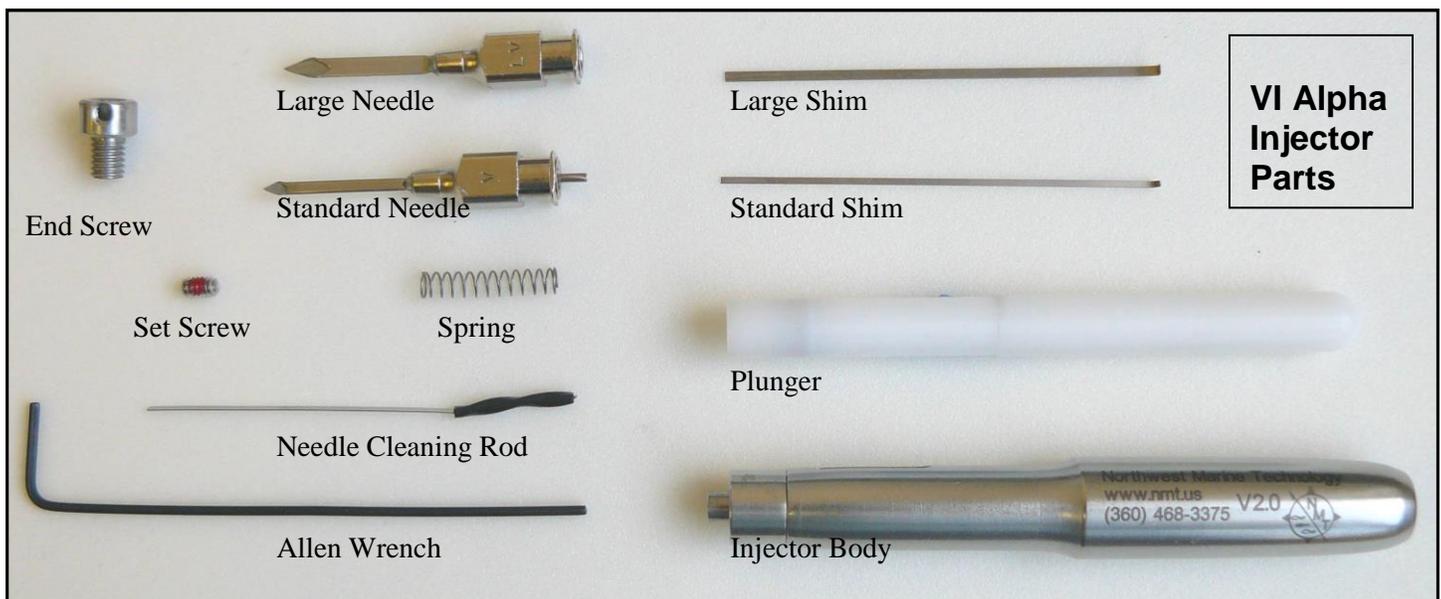
NMT's VI Alpha Color Standard presents the four VI Alpha colors on a clear card. This allows the sampler to place the color sample directly beside a tag for comparison, either under or over the tagged tissue.



Using the VI Light

Turn on the VI Light. The VI Light maintains constant light intensity throughout the life of the batteries. When the batteries are weak, the VI Light will flash to let you know it's time for a fresh set. Detailed instructions are included in its package.

Shine the light directly on the area where the tag is thought to be. If you are working in direct sunlight, you may need to fluoresce the tags in the shade – even the shade of your body may be enough. Small or faint tags are best seen when fluoresced in darkness.



Assembling the VI Alpha Injector

1. Insert the shim into the end screw with the bent end of the shim at the bottom of the screw.
2. Insert the end screw into the threaded end of the plunger and tighten it. The shim must rotate freely after tightening.
3. Slide the spring over the shim.
4. Hold the plunger with the shim up and insert it into the injector body. If the shim does not slide straight into the threaded end of the injector body, gently twist the plunger once the shim contacts the injector and the shim will guide itself into the injector. Be gentle to avoid bending the shim.

Put the set screw on the end of the allen wrench.

5. Rotate the plunger until the hole in the end screw aligns with the cutout in the side of the injector.

Insert the set screw and tighten it until it is flush with the outside of the injector body, or starts to bottom out on the spring.

6. Insert the shim into the round end of the needle hub. Slide the needle over the shim, being careful not to bend the shim.

Screw the hub of the needle into the injector body.



Cleaning and Disinfecting the Injector

We recommend that you clean the injector, especially the needle and shim, daily. The most common problem with the injector is damage to the shim when it sticks in the needle because it has been stored without cleaning. Disassemble the injector. Use freshwater and the cleaning rod to clean inside the needle (a squirt bottle is helpful for this). Gently wipe the other parts, and clean inside the injector body with a cotton swab or bottle brush. Dry all components before reassembling.

The possibility of spreading disease with tagging equipment concerns our customers and NMT. To disinfect, first disassemble and clean the injector. Place the equipment on a clean, disinfected surface and spray liberally with a chlorine solution, made from 1 part household bleach and 250 parts water (one ounce of bleach to 2 US gallons of water) or similar disinfecting solution. Let stand at least 10 minutes. Use distilled or other pathogen-free water to thoroughly rinse away the disinfectant. Dry all components before reassembling.

Replacing the Injector Needle and Shim

When the needle is dull, it should be replaced. The shim would usually be replaced at this time, and should be replaced any time it is bent.

How to Contact Us

www.nmt.us

Corporate Office

P.O. Box 427

Shaw Island, WA 98286, USA

Tel: (360) 468-3375

Fax: (360) 468-3844

E-mail: office@nmt.us

E-mail: biology@nmt.us