Chapter 5: How To Make Flying-Fish-Fuse Mines (Make 10 Mines)

What Is a Fish-Fuse Mine?

That’s really two questions: What is a mine, and what is flying fish fuse?

A mine is a fireworks device, which fires a visual and/or audible effect that burns from the ground up. This is unlike an aerial shell, which is fired high into the air, and does its thing way up high.

Flying fish fuse is a type of fuse, which, when cut in short lengths, appears to “swim” around in the air after it is ignited.

Mines can be large or small. The mines you make in this project are small, quiet, and suitable for use almost anywhere.

Instructions for Making Flying-Fish Mines

The Structure of a Mine

Here’s a cross-section of one of the mines you are about to make.
Assembling the Mortar Tubes and Bases

Spread glue into the tube-recess hole in a plastic base. Push a paper tube all the way into the recess. The tube should stand up nice and straight when the base is flat on your workbench. Two of the little tubes of super glue are enough to glue all 10 mortars together. Super-Glue dries very quickly while the next assembly steps are being accomplished. If you use Elmer's glue, allow the assembled mortar to dry 4 hours or more before use.
Cutting the Visco Ignition Fuse into 3-Inch Lengths

It easiest if you make all 10 mines at one time. Cut off ten 3-inch pieces of green Visco ignition fuse (the 3/32-inch diameter stuff). Make a mark 3 inches in from the end of your “cutting board.” Then, use a single-edge razor blade to cut the fuse into the ten 3-inch pieces.

Cutting Visco Fuse into 3-Inch Lengths

It’s easier to use scissors, right? Do not use scissors to cut the fuse. It is much safer to use a razor blade or anvil cutters. Scissors have been known to accidentally ignite fuse.

Also, remove any black powder or fish fuse from your workbench while cutting the Visco fuse.

A good question to always have in the front of your mind is, “If what I’m working on catches fire, is there anything else the fire can spread to?”

If there is any flammable material around, seal it tightly in a container, such as a cooler, to prevent any accidental ignition. Assume that you WILL have an unpredictable, accidental ignition, and always operate that way. In fireworks making, forming this habit can be the difference between life and death.

Cutting the Flying-Fish Fuse into 4-inch Lengths

The flying-fish fuse is packaged either as 39-inch (one meter) lengths, or rolls of 100 feet. You will need to cut these into little, ½-inch long pieces to use in the mines.

Working with pieces of fuse that small can be a pain. Here’s the easy way to do it.

First, mark the cutting board every 4 inches with your Sharpie. Then, use your razor blade or anvil cutters to cut enough 4-inch lengths of the fuse to snugly fill
one of the paper mortar tubes. This bunch of fuse can be all one color, or any combination of colors.

Cutting Fish Fuse into 4-Inch Lengths, Bundling the Pieces in a Mortar

Use string or rubber bands to tie the bundles of fuse every ¾-inch. With the bundle all the way in the mortar, put a tie around the bundle right above the top of the mortar.

Bundling and Marking Bunches of Flying Fish Fuse

Then pull the bundle out about ¾-inch, and put on another tie. Repeat this two more times. Then remove the bundle from the mortar tube.

On the cutting board, divide the space between two of the 4-inch marks into ½-inch spaces using your Sharpie. Then line each bundle of fuse up on this section. Use your Sharpie to make ½-inch marks on the bundles. This is where they’ll eventually be cut into individual “loads” for the mines.
Cutting 2-Inch Diameter Tissue-Paper Disks

One final preparatory step is necessary before a mine is actually loaded for firing. Cut some 2-inch diameter tissue-paper disks.

Assembling a Flying-Fish-Fuse Mine

Now all the materials have been prepared, and the tools are ready. It takes about a minute-and-a-half to actually load a single mine.

Use a pick or an awl to make a Visco fuse hole in the paper mortar tube right at the top of the plastic base. Insert one of the 3-inch pieces of Visco fuse into this hole. It should be small enough to hold the fuse securely in place.
Piercing Hole in Paper Mortar Tube, Inserting Visco Fuse

Now load the black powder lift charge. The lift charge will propel the pieces of fish fuse into the air once the Visco fuse burns in to the point where the powder is ignited.

Use three level ¼-teaspoons (3.5 grams) of Hodgdon 777 black-powder substitute. Or use a level ¼-teaspoon (1.5 grams) of Goex FFg black powder.

Warning: The black powder used in this step is the most powerful component of this device. When you finish loading a mine, put the excess powder back in its original container, and put that container in a day box or other safe, sealed storage. Keep the work area clear of all flammables that are not actually being used. Minimizing exposure to unused explosive materials is absolutely the best way to reduce the risk and consequences of a serious accident.

Loading Black Powder Lift Charge in a Mine

To load the flying fish fuse into the mortar, wrap one end of a fuse bundle with the disk of tissue paper. Then carefully insert that end of the bundle into the mortar up to the first Sharpie mark on the bundle.
Using the anvil cutter carefully cut the bundle at that point.

Then push the tissue-wrapped fuse bundle all the way to the bottom of the mortar. A magic-marker or a 5/8-inch wooden dowel both work well.

To load another mortar tube using this same long bundle of fuse, simply remove one of the rubber-band ties, and repeat the process.

To finish the mine, one of the little 1.5-inch-square pieces of paper is placed over the end of the paper tube and pushed evenly down to the top of the fish-fuse bundle to secure it in place. The paper will keep the fuse from falling out of your mine, and protect it from stray sparks from other fireworks.
Pushing 1.5-Inch Paper Square Down on Top of Fish Fuse, Marking Mines for Future Identification

Mark the mine with the effect it contains so you can identify it in the future.

And that’s it: flying-fish-fuse mines. Light carefully and retire. Store all finished devices and pyrotechnic materials in a safe location.

How to Make a 10 Shot Flying-Fish Mine Barrage

What Is a Flying-Fish Fuse Mine Barrage?

10 Shot Flying-Fish-Fuse Mine Barrage

Traditional fireworks mines propel burning stars from the ground up into the air, and look something like this:
A Barrage of Mines Made from Colored Stars

With this project, you can make your own version of the same thing, using flying fish fuse. Not only will the pieces of fuse be propelled skyward, producing their unique effects, but they will also zip around like swarming bees.

The whole project should take you no more than an hour to assemble. It makes a beautiful fireworks display.

And after you tackle barrages made with flying fish mines, you can reuse the same mortars and reload them with different flying fish fuse or small stars.

Flying fish fuse is available in a wide variety of colors and effects. So when you've used up the kind you originally got, you can order more and experiment with the different types.

All of these materials will be assembled into a bank of mines.

If you are working with “young assistants,” you may want to let them decorate the paper mortar tubes before they are glued into the bases, and before any flammable materials are present. Kids' washable markers can be used to create cool designs, or a 3.25-inch by 3.25-inch piece of gift-wrapping paper can be glued on the tube to decorate it.
Decorating Paper Mortar Tubes

You’ll notice that the 3.25-inch-wide decorative-paper wrapping leaves ¼-inch of the tube exposed. This end will be glued securely into a plastic base.

Making the Mine Barrage

You know how it is: if one mine is good, 10 have got to be so much better.

So, here’s what to do. Join a line of mines on a board, all linked together with one fuse, so that they fire one after another right down the line, sort of like a multi-tube repeating firework device.

First, drill a hole in one corner of each plastic mortar base, and screw the mortars to a scrap piece of 2x4 board. Pierce the bottom of each paper tube, and insert a piece of Visco fuse into each mortar.
Next, slice each piece of Visco fuse with a razor blade. Make sure each fuse is the same length, and cut the end on an angle to expose as much fuse powder as possible for good ignition.

Use masking tape to tie the angled-cut end of each Visco fuse to a length of the flying-fish fuse, or yellow fast Visco fuse, being used as a “barrage chain fuse.”
Tape End of Visco So It Touches Barrage Chain Fuse

Masking Taped & Fused Flying Fish Mortars

Load each mortar with the black powder lift charge, ½-inch fish fuse bundles, and paper plug as you did with the single mines. Try alternating the different colored/effects fish fuse loads.
Chapter 5: Flying Fish Mines

10-Shot Fish Fuse Mine Cake, Loaded and Ready to Light

10-Shot Flying Fish Fuse Mine Barrage

(Click Image to Play Video 🎈)