PASSFIRE.COM

Log Out

Volume 2, Issue 5

Hand Rolling Match Pipe

by Kyle Kepley

Introduction:
Making your own quickmatch pipes may seem like just another tedious process for the obsessive pyro who is already making homemade charcoal, homemade BP and maybe even homemade chemicals. With high quality commercial quickmatch available from places like Precocious Pyrotechnics for as little as 11 cents a foot, why bother?

Well, not everyone has the option of being able to buy commercial quickmatch, due to shipping limitations, storage problems and availability. But all that aside, making your own quickmatch and shell leaders really isn't that hard and takes less time then you may think. Using the process shown here, you can manufacture the pipe at roughly three feet a minute, which includes the time spent cutting the paper (assuming you have an efficient means for cutting the strips). Using the black match procedure featured this month will allow you to make about 300 feet of black match in an hour. It is then possible for you to make piped match at a rate of about 75 ft per hour when accounting for the time spent transferring powder in and out of a ball mill, rolling the pipe and spinning the match.

Figure 1: Strips ready for rolling.

Figure 2: Rolling at an angle creates spiral wound pipes.

Rolling the Pipe:
The pipes are best rolled from a virgin type kraft paper in the 30 to 40 lb weight range. Using recycled kraft can create tearing problems when the match is folded up to make shell leaders. The width of the strips will be determined by the diameter pipe you are making. A 1/4" I.D. pipe should use a 3" wide strip, while a 3/8" I.D. pipe needs at least a 4" wide strip. The strips are easiest to cut from 36" rolls of paper fed over a slotted cutting board and cut with a utility knife.

The strips are rolled on a waxed dowel rod so that it is easy to remove the paper. The type of wax used should be the candle making variety, as bees wax is to tacky. A block of wax can be purchased in an arts and craft store, then simply rubbed across the dowel on all sides until it is coated in wax.

The trick to rolling such long strips of paper is to spiral wind them at an angle. The strip is placed at an angle to the rolling stick as shown in Figure 1, and a thin bead of white glue is run down the back edge. The paper is fed under the stick starting at the corner, then one hand is used to roll the stick while the other hand continues to feed the paper under the leading edge of the stick as shown in Figure 2. Once you get the feel for it, the rolling process will go quite fast.

Once the paper is fully rolled up, it is rolled a few times against the table to flatten down the edges and then removed from the stick as quickly as possible. Over rolling the tube and leaving it on the dowel too long will make it difficult to remove, as the glue works its

way through the paper into the inner layers in contact with the dowel rod after a short period of time. Speed is the key to removing the tube. If it does stick, alternate pulling from the top and pushing from the bottom to loosen it up. Otherwise you will either rip the pipe from pulling too much or crumple it from pushing to hard. As the pipe softens from the glue, your chances of saving a stuck pipe diminishes to the point that you eventually have to tear it off and throw it away.

More...

PASSFIRE.COM

Log Out

Volume 2, Issue 5

Hand Rolling Match Pipe...

Figure 3: Preparing strips of aluminum foil.

Making Fire Retardant Pipe:
One advantage to rolling your own match pipe is the ability to make specialized varieties of pipe. The type of pipe shown here is a fire retardant variety I developed for use in set pieces to prevent accidental ignition while sitting in the field during a show.

Because set pieces are often subjected to showers of sparks from mortar debris, shell fallout and other set pieces, they sometimes accidentally ignite when hot sparks burn through the thin quickmatch paper. Some set pieces also risk igniting portions of themselves out of sequence, such as when the horizontal drivers of a girandola burn through the match ring leading to the vertical drivers, sending it skyward before it is ready and possibly throwing off the timing of other effects.

Figure 4: Placement of the foil strip.

The pipe shown here, which I call Tard Match(tm), will greatly reduce the chances of accidental ignition. In tests with a blowtorch, this pipe provided flame resistance slightly less than pipe that is externally wrapped in foil tape, but much greater than standard match pipe. Note that it is much easier and cleaner to make and use this pipe rather than covering all your exposed pipe with expensive foil tape, and the heat from a blowtorch is much greater than a typical spark will create.

I make this type of pipe with a 3/8" I.D., which allows plenty of room for multiple strands of black match and other strands inserted at junctions. The strips should be 4" wide and 36" long.

Figure 5: Rolling Tard Match.

The foil strips are prepared by rolling out a length of foil equal to the length of the paper strips, as shown in Figure 3. A 12" wide roll of good quality foil such as Reynolds Wrap should be used as opposed to the thinner store brand types. The foil is folded along its length twice so as to form four sections that are 3" wide, which are then cut apart with scissors.

Each 3" wide strip of foil is now folded in half and centered on the paper strip that is to be rolled, as seen in Figure 4. A bead of white glue is applied along the top edge above the foil and rolled as previously described. It is important that the foil is centered on the paper, as this keeps the foil from being exposed on both the inside and outside of the match. While the foil could be aligned flush with the bottom of the strip and rolled up, this would result in a pipe with exposed foil on the inside. Exposed foil on the inside of the pipe presents problems when cutting, adding junctions and inserting the match, as any cuts will pinch the foil closed and block the passage of the match.

Figure 6 shows the finished match pipe, which has a double layer of foil sandwiched between the inner and outer paper layers of the pipe. With the protection completely hidden, your fellow pyros will wonder how you get your

Figure 6: Finished Tard Match pipes.

set pieces to survive down wind fire storms without accidental ignition!

Mail Passfire.com