

## GENERAL RULES TO FOLLOW DURING THE ROLLING PROCESS (Cont.)

- 4.) Use very small increments of comp. and lightly mist them. KEEP AGITATING THE BOWL IN A CIRCULAR MOTION ALL THE WHILE YOU ARE SPRITZING AND ADDING comps.! They will tend to stick together at first. You need to keep them moving to help prevent this. The trick is to always keep the stars moving while spritzing and adding comp.!
5. Between each increment, pour the stars in another pan and wipe out any scum of wet comp. that forms in the bottom of the rolling pan. This scum will cause problems if you leave any amount of it to build up in the pan.
6. Return the stars to the rolling pan and using your 'utensils' (fork, knife, and spoon), break up any clumps of stuck together stars, and "peanuts" (doubled stars). Gently separate out anything that won't break up into separate stars with a tweezers.
7. Once the stars start gaining in size and weight, say roughly 1/8" to 3/16" in diameter, it is time to start screening out the larger stars—the 3/16" diameter stars, after every other increment or so, using your 3/16" sorting screen. This is necessary to let the smaller stars catch up in size. The aim is to get them all up to 3/16". Once they are all pretty much 3/16" in diameter, they can all be returned to one bowl to continue on to the next size—say 1/4" to 5/16" diameter. Use the same screening process again, with a 5/16" sorting screen.
8. Once the stars grow to 5/16" in diameter, it will be necessary to let them dry, using the drying screen(s). Dry them outside in the shade. You should not dry them in direct sun. This can pose problems.
9. Once the stars are thoroughly dry, you can start adding the next layer of comp. No more than a 1/16" thick layer of comp. (1/8" in outside diameter) should be rolled on in one session. If a thicker layer is applied, there is a tendency for the water/alcohol dampening solvent to penetrate into the already dried core too far, and this moisture can get trapped in when the new layer is applied and dries over the previous layer. This is known as the "driven in" syndrome, and the stars will never completely dry. So go easy at first. This problem lessens as the stars grow in size, and thicker increments can be added..
10. Next you can decide if you want a color-changing star. Say, if you used a red comp. for your starting cores, you can change to another comp. for the next layer. It can be another color or say, a glitter effect. The star ignites and burns from the outside into the center—hence glitter changing to red. The combinations are endless. But you need to pay attention to what comps. are compatible or not compatible with each other. This can get involved with chemistry and thermo aspects. (See the Composition Compatibility Warnings later in this hand out)
11. Once the cores are up to 5/16" in diameter and totally dry, you can enlarge them using my "two-pan" method of rolling. I've found this method to work very well, especially with small numbers of stars. You need two rolling pans of appropriate size—one layer of stars on the bottom. Put the stars in one pan, and an amount of dry comp in the other pan. You need to kind of guess how much comp. to put in. There should be enough that it will get picked up when the dampened stars are added to this pan and agitated. While keeping the stars agitated in a circular motion dampen them with the 50/50 solvent until they just start to get a little shiny with solvent. Quickly transfer them into the second pan with the comp. while continuing to agitate them. Keeping them moving is very important to prevent them sticking together and also, helping them to evenly pick up the comp. If all the comp. is picked up, add a little more until no more will pick up. If there was too much comp to start with, and the stars don't pick it all up, jockey the stars to the edge of the pan and dump them back into the first pan used for wetting them. Repeat this process, remembering to clean out any accumulating scum in each rolling pan, and screening the stars to keep their size uniform. Another important thing to do is to keep agitating the stars fairly briskly between increments to really keep them dense. They need to be hard enough to withstand the force of the break charge of the shell. Stars not hard enough will shatter in the break, and be blown out as a huge cloud of sparks. (Trust me! I know from experience.) Again, screen the stars often to keep their size uniform, and only add 1/8" in diameter increments between drying.

## COMPOSITION COMPATIBILITY WARNINGS!

When designing stars, you need to know which comps. are safe to use with each other. Failure to follow these guide lines could result in possible spontaneous combustion of the comps., or just a ruined batch. If you are not real familiar with some of the chemicals, it is best to avoid using them. Here are some general rules to abide by:

1. Potassium/Barium Chlorate-based stars are fairly sensitive. Be careful when using these formulas. Potassium Perchlorate - based stars are much safer.
2. Don't layer a Potassium Nitrate-based formula over a Chlorate-based star.
3. Magnesium metal is highly reactive with water, and can heat up and possibly combust. Comps. using it can only be bound with different wetting solutions—namely Nitrocellulose Laquer/Acetone. Magnesium stars are for the more advanced pyro.
4. Ammonium Perchlorate, the main oxidizer used in many strobe formulas, should NEVER be used in a star containing a Chlorate - based formula! The possibility of spontaneous combustion exists. Also, never add a Potassium Nitrate-based comp. over an Ammonium Perchlorate-based star. There will be a reaction that will result in the star being ruined, noticeable by the discrete smell of Ammonia.
5. Be careful with some of the Glitter-type comps. using aluminum. Some of them have been known to heat up during dampening. Use proven safe formulas from reliable sources. If you notice the stars starting to get warm, DESTROY them immediately by dousing them with water.

## GREAT INFORMATION SOURCES

1. I started learning how to roll stars many, many years ago. And the 'BIBLE' I learned from for rolling round stars, was Bleser/Round Stars and Shells! This book and the companion DVD are very highly recommended for anyone starting out trying to roll round stars. This is a wealth of information, showing hands-on methods. The 'Do's and Don'ts are explained, and many other details, that I didn't get into. If you're going to roll stars, ORDER IT! The combo is available at: <[www.fireworksnews.com](http://www.fireworksnews.com)>. Navigate to "Specials", and scroll down to Bleser/Round Stars and Shells—COMBO (C\_M4/D7).

Bleser/Round Stars and Shells—Book/DVD Combo # C\_M4/D7 ON SALE! as I wrote this, for \$29.00! CHEAP!!

2. Ned Gorski's "Fireworking.com"—<<https://fireworking.com>>. Ned's site has everything you want to know about making fireworks!
3. Kyle Kepley's "Passfire". <[Passfire.com](http://Passfire.com)>. Another great site with tons of information and how-to's.