

## How to Cast a Dancer's Foot On Point For Fun and Profit

by  
David E. Parvin, A.L.I.



Chandra who is a  
principal dancer with  
the Colorado Ballet  
and her cast foot

One of the most popular life castings is of a ballerina's foot on point in a ballet slipper. For years I have used alginate with very good results. However, recently I have started using fast curing skin safe platinum cured thixotropic silicone rubber and have developed a better mousetrap. This article will explain a few tricks that will make this particular type of casting a cinch. But "fast curing skin safe platinum cured thixotropic silicone rubber" is just too long a name. I'm approaching the age when I probably shouldn't buy any green bananas and if I have to type out an eight word name too many times, well, I just might not be around to finish this article. I'll use FCSSPCTSR instead.

Though I have been aware of FCSSPCTSR's for years and have had some experience with them but still much prefer alginate for most life castings. For one thing these rubbers had been so expensive costing far more than alginate or regular silicone rubbers. Another problem has been that FCSSPCTSR's cling to hair much more tenaciously than alginate. A "face" casting for me usually comes down to mid chest and back behind the ears capturing the hair. It is simple enough to protect the hair with a release that prevents alginate from sticking to it while capturing the detail of the hair, especially if one uses the right type of alginate. Of course, there are products specially made to release hair from FCSSPCTSR's, but I have found that so much is required that detail is lost. Many in the motion picture special effects

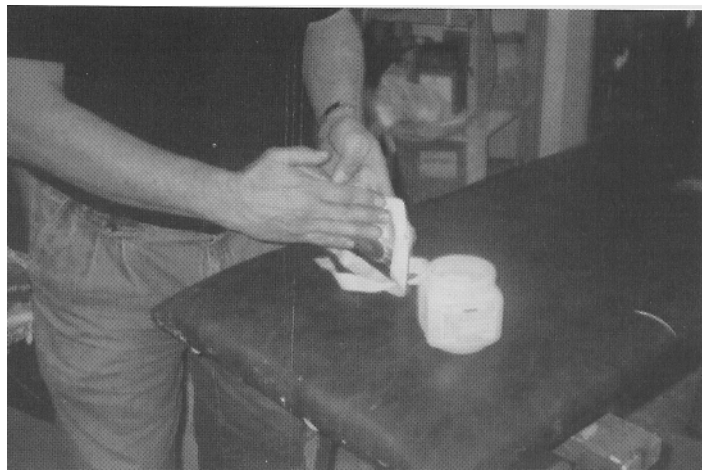
industry use FCSSPCTSRs but usually cover the hair with a skull cap.

So what's different now. Well, for one thing, hair isn't going to be a problem since I have yet to meet a ballerina with a hairy ankle and foot. Also, now there are FCSSPCTSRs that are much more economical. When you consider that you can make a mold directly from the model that can be used over and over and stored for years, FCSSPCTSRs can be quite reasonable. The particular brand that I used in this article is called "LifeRITE" which is available from ArtMolds ([artmolds.com](http://artmolds.com) or any of the suppliers who carry ArtMold products such as The Compleat Sculptor, Sculpture House, Ball Consulting, Walco Mfg. all of whom advertise in this magazine. There are also other brands available; Silicones, Inc. also found here is an excellent choice. I suspect that many readers have been confusing the acronym FCSSPCTSR for the common phrase, "For Charlie's Salvage Same, Please Criticize Tenaciously" Sculpture Review." so to end the confusion, I'll use the brand name LifeRITE for the rest of this article.

The first step was to cast a circle of LifeRITE about 4 inches in diameter and  $\frac{1}{2}$  inch thick. This would be the base on which the dancer would place the toe shoe on to make an end plate for the mold to keep the final casting material from running out the bottom. A lid the right size made an excellent mold for this.



Photograph 2, Lauren, my assistant measuring the LifeRITE



Photograph 3, Spreading petroleum jelly on the ballet slipper



Photograph 4, Chandra tying the ribbons

LifeRITE (as are other brands) is a cinch to mix. There are two components, an "A" which is white and a "B" which is blue. The ratio is 100 parts A to 10 parts "B" by weight. For the base, I mixed 8 ounces of A and 8 ounces of B. I used a clear plastic disposable cup because I could see through the sides and bottom that the components were uniformly mixed. For stirring, I used a "giant craft stick" which is not to be confused with a tongue depressor even though they appear to be exactly the same. Remember, one is a medical device and costs a lot while the other is available from any craft store for cheap. After about a minute of stirring, I poured the LifeRITE into the lid.

While the base was setting up, my assistant, Lauren, measured out eight, 8 ounce cups of LifeRITE along with 8 batches of the B (Photograph #2) since the B is 10% of the A, one might think that eight smaller cups of 8 ounce of catalyst would be just what is needed. But, alas, one would be wrong. Whenever one pours a liquid from a container, some of the liquid will be left behind. With small amounts, the percentage of left behind material can be significant. Fortunately silicone rubbers are not too critical; reducing the B component will only extend the curing time. But a fast cure is what we wanted for the dancer's comfort. The solution was to measure the 23 grams and pour it out. Weighing the cup again determined how much remained in the cup, in this case 4 grams. So Lauren weighted (4+23) or 27 grams of B in each of the 8 smaller cups. The 4 grams per cup were drained and collected later.

To the first two cups of A, I added two teaspoons of silicone oil as a thinner. This isn't essential but helps in capturing detail and preventing surface bubbles. Silicone oil has little or no (as far as I can tell) effect on the curing time and is available from same suppliers.

Silicone rubbers do not adhere but will tangle in the surface of anything that is porous such as a cloth slipper so a mold release was needed. But not just any release, some are not skin safe. Secondly platinum cured silicones are inhibited by sulfur, even very small amounts of sulfur which shows up in some surprising substances. If I had been doing this casting in alginate, plain old corn oil used in cooking would have worked just fine. It is harmless to skin but inhibits platinum cured silicones. Even aloe which is in many lotions contains sulfur. (Tin cured silicones are more inhibition resistant but are not skin safe.) Fortunately, petroleum jelly comes to the rescue. Dissolving 15 parts petroleum jelly into 100 parts naphtha makes a great all purpose, economical release. I painted the solution on the outside of the slipper soaking in into the cloth and leather sole. After a few minutes, the naphtha had evaporated leaving the PJ behind. As added insurance, I rubbed some PJ into the material as well. (Photograph #3) I did not apply any release to the ribbons until after the shoe was on the dancer. Chandra, had tied them (photograph #4) because the PJ would have made them difficult to tie.



Photograph 5, Applying the first layer of LifeRITE

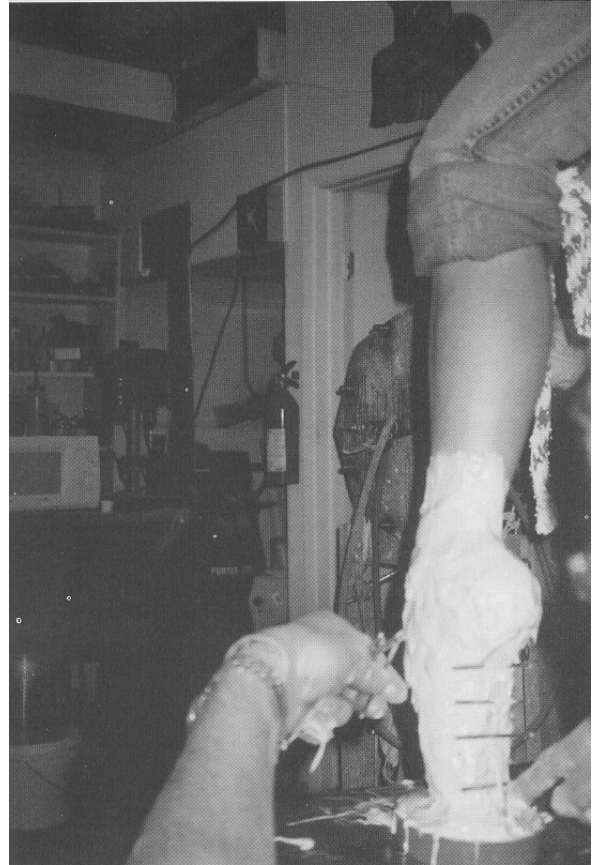
The next step was to apply the LifeRITE. As you can see in photograph #5, I had Chandra stand on a padded surface that was high enough for me to work comfortably. Though not visible in the photograph, the rope goes up to the ceiling, across to and down her left side allowing her to support herself with both arms. The idea was to build up the depth of the LifeRITE in layers until it was about 1/4 inch thick. At that thickness, no mother mold would be needed. But even though it is thixotropic, only a thin layer will stay in place. An assistant is essential to allow for the continuous application of the LifeRITE. It took about a minute to mix an 8 ounce batch using a craft stick. As soon as it was mixed, I began to apply it with the same stick. About two minutes later, I asked Lauren to start mixing the second batch. As I finished spreading on the first batch which covered the lower half of the intended area, Lauren handed me the second, and so on. By the time the second batch had been applied, the lower half was already set up and ready for another layer.

Now I am going to share a really neat trick, one of *Parvin's Perfectly Pertinent Procedures for Pleasure and Profit*. Notice photograph #6. Beginning with the third cup, I applied a thicker layer of LifeRITE about an inch wide along the center of the back of the mold from top to bottom. As the ridge began to cure and thicken, I pushed 3, 1/2" finishing nails into the LifeRITE about every inch. If the rubber isn't cured enough and they slide down out of place, just wait a little while. Conversely, if the rubber has become too firm to accept the nails, add some more LifeRITE. Remember Goldilocks, not too hard, not too soft, but just right. As you apply the remaining rubber (photograph #7), be sure to cover the center of the nails so that they are embedded into the

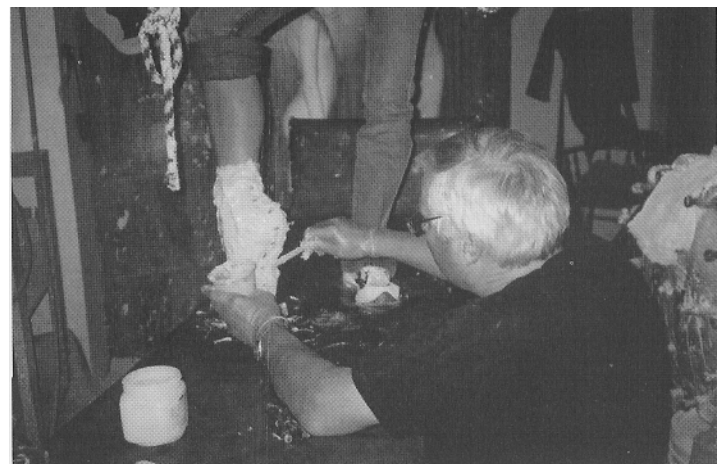
LifeRITE a good 1/2 inch. Do not cover the ends of the nails. (I realize that this nail trick may look like it's going nowhere; patience, Grasshoppers; there is more to it below.)

All silicone rubbers, but especially the platinum cured one can be accelerated with heat. A hair drier used as the batches are applied or at the end will significantly reduce the cure time. In this case, it took about 25 minutes to apply the LifeRITE and let it cure enough to remove the foot.

Once the rubber is no longer sticky, I pulled out the nails. (Photograph #8) I then made a cut down the center of the thick ridge. Notice in photograph #9 I was using a scalpel blade # 12 that is shaped like a bird's beak with the cutting edge on the inside of the curve which allowed me to cut outward from the flesh.. I pushed two fingers between the



Photograph 6, Pushing the nails into the LifeRITE



Photograph 7, Adding the last of the LifeRITE



Photograph 8, Pulling out the nails

LifeRITE and the Achilles tendon and pulled out the rubber before cutting. As an extra precaution, I inserted a craft stick between my fingers. Be very careful, **it is extremely easy to nick the model!** Where the LifeRITE touched the leg and shoe, I made as straight a cut as possible so as to minimize the seam. But as I cut outward, I made a zig zag cut to help register the seam. It was only necessary to cut about half way down the sole to allow Chandra to pull her foot and shoe free.

Once the foot was out of the mold, I reinserted the nails (photograph #10 and using rubber bands around the ends of the nails, "stitched" up the seam as if preparing a turkey. The nails made the sides of the seam register exactly and the rubber bands held them tightly together. In photograph #11, I was looking into the mold for any thin spots where the light shines through which could be thickened easily by spreading on a little more LifeRITE. All that was left was to pour the final casting which I had decided would be a cold cast bronze using a particular urethane. Easyflo Clear Liquid Plastic made by Polytek, Inc. I could have used Forton MG with excellent results as well. (For a thorough understanding of Forton MG, see "Mixing Forton MG Simplified," "Sculpture Journal, July, 2003) The biggest advantage was that this urethane would set up and be demoldable in less time. The easiest way to determine how

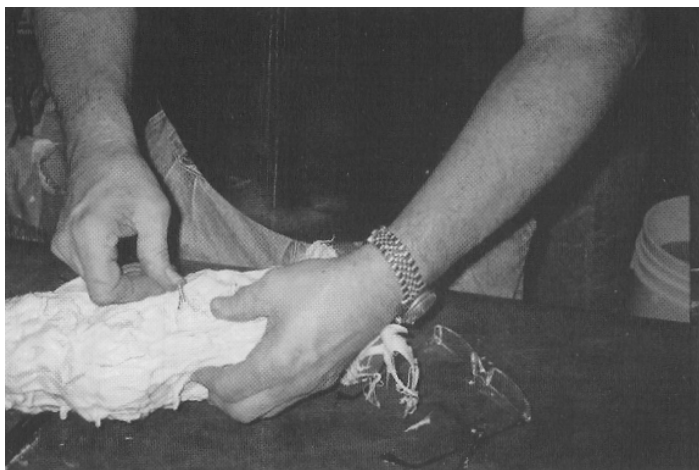
much urethane I needed was to weigh the mold empty and then fill it with water. Also any leaks would be apparent and could be stopped by more tightly securing the seam and /or smearing on more LifeRITE. It just so happens that one of the convenient miracles in the universe is that Urethane resins have almost exactly the same specific gravity as water. In this case, it took 1100 grams (2.4 pounds) of water and would require the same weight as resin.

Photograph #12 shows me pouring about an ounce of a 50/50 blend of copper and bronze poured into the mold. Tipping and shaking the mold caused a thin, even layer of the metal powders to coat the inside. Be sure to turn the mold upside down to dump out any excess powder. As I mixed the two components of the resin, stirred in a couple more ounces of metal powders for color. Easyflow Clear Liquid Plastic has a very short life of about three minutes which means one has to stir and pour quickly. Remember, this mold was strong enough to hold its shape without a mother mold. But to be sure that the weight of the urethane and metal powders didn't distort the mold, I cradled it in both my hands as Lauren gently poured in the resin. I continued to hold it for about five minutes until I was sure that it was solid.

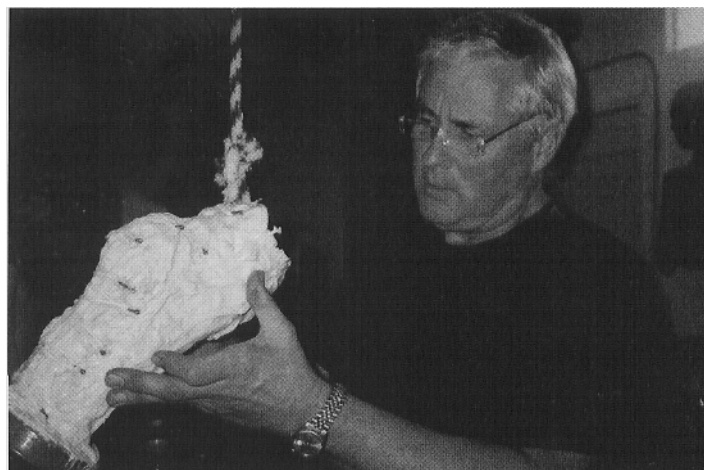


Photograph 9, Beginning to cut open the seam with a #12 scalpel blade





Photograph 10, Pushing the nails back in to assure alignment of the two sides of the seam



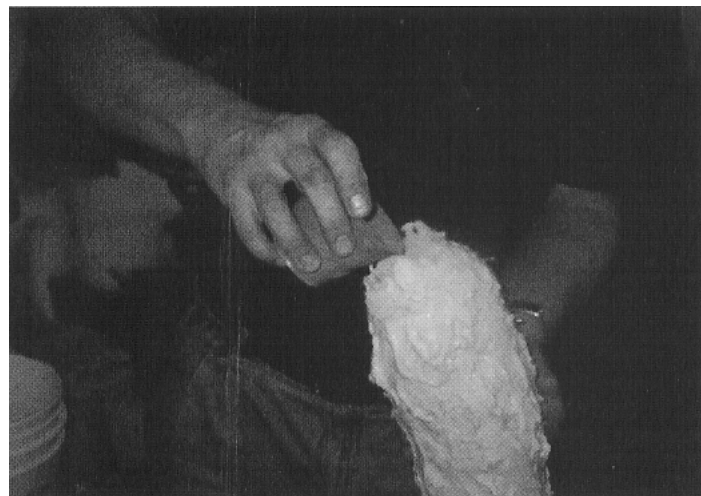
Photograph 11, Inspecting for thin spots in the LifeRITE



Photograph 13, Finished foot on a marble base

After 30 minutes I demolded it. It was almost flawless with only a couple of very small bubbles. I let it sit overnight, flattened the top on a belt grinder, painted it with a green patina solution, then dry buffed it with a cloth wheel and buffing compound, and attached it to a marble base. If I have to say so myself, it looked marvelous (photograph # 12). Photograph #14 shows a somewhat larger casting that was done almost the same way. But because of its size, it had to have a mother mold, was cast hollow, and was filled with a high density foam. Also a slower setting white urethane was used. The seam was done the same way with nails and was almost invisible. The detail was excellent with only a couple of minor flaws. All that was needed was a lamp shade and a 1953 Red Rider BB Gun and one could have a pretty darn good Christmas story.

The day I started this article began ominously. The sunrise was as bright red as the eyes of Satan. I could remember the voice of my saintly mother telling me that on such a morning, sailors take warning. I was standing in my studio next to a pile of clay that I was certain contained a masterpiece. But even after my second cup of black coffee tar, I couldn't jump start the muse. I was about to resign myself to the fact that today I wouldn't be taking a step toward even a footnote in art history when there was a knock at the door. "It's open," I yelled.



Photograph 12, Pouring in the metal powders



Photograph 14, A casting of a leg done in a similar way

"Mr. Parvin, my name is Gigget Mammiata and you are my last resort." Though I tried to concentrate on the statue hiding in the clay, I couldn't resist a voice that resonated softly as if from the cello of Yo Yo Ma to the melody and tempo of Mozart's Twenty-first Piano Concerto. Besides, anyone who had spent four years in a Catholic Seminary as I had would have instantly recognized "Mammiata" to be the plural of "boobs" in the accusative case. I looked up and remembered why I had left the seminary. Her dress was so tight that I could read clearly the raised letters spelling "Victoria's Secret" in two places. She had a face and body that reassured me that the human race wouldn't be dying out any time soon. She stood about 5 feet 9 and I was willing to bet the farm that she had to be about the same lying down.

I threw in the beginning of my new novel, "Dave Parvin, Sculptor and Private Eye" to see if anyone is still awake!

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This article describes how to cast a dancer's foot using fast setting skin safe thixotropic platinum cured silicone rubber. Another and perhaps easier way is to use alginate. I have described and demonstrated the alginate method in my DVD on casting hands and feet which is available through ArtMonds.

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