



Casting a torso during a Dave Parvin workshop

How To Extend The Setting Time of Alginate

Testing a New Product

by Dave Parvin

The setting time of alginate must follow the Goldilocks Syndrome. Too quick and one can not get the job done. Too slow and the subject becomes the victim. It has to be just right. There are dental alginates that set-up in as little as a minute. Great for infants' hands but far too fast for faces, bodies, or more complex hand casting. Most of the alginates that are formulated for artists that I have used have a setting time of about five minutes, enough time for a simple casting. But as my life-casting has become more and more complex, I have found that a few more minutes working time is essential.

Here is the problem. Imagine that you are casting a face. If a face to you is just from the top of the head down to part of the neck and back to part or all of the ears, then five

minutes is plenty of time to mix the alginate, apply it, and embed some sort of fuzzy material such as cotton or mock wool before it sets up. But a face to me means from the top of the head down to at least mid chest and back well behind the ears and including the shoulders and often one or both arms and hands; five minutes just isn't enough time.

The alginate that I prefer is Moldgel SloSet which is formulated for about eight minutes setting time. (More about this alginate later). But even if eight minutes were always adequate, there is another reason for any serious life caster to be prepared to slow down the setting time. I have been made privy to alginates' dirty little secret. Apparently, it is extremely difficult to precisely control the setting time. My source who has 40 years of experience in formulating and

manufacturing alginates tells me that all manufacturers struggle with this. This partially results from problems in blending the ingredients. Also, the relative humidity present in the air while the alginate is being manufactured has an effect; the more humidity, the faster the setting. Thinking that you have five or eight minutes to work and finding that you have only three or six minutes can seriously mess with your schedule unless you are prepared.

There are four ways to extend the setting time of any alginates: varying the water temperature, varying the water to alginate ratio, adding the standard powdered retarder, and the best way using a new liquid retarder, "Algislo."

The setting time of alginate is inversely proportional to the temperature of the water. The colder the water, the longer the setting time. Conversely, warmer results in faster. Aside from the possible intended affect of raising goose bumps and puckering nipples, cold alginate can shrink other parts and nobody wants to be called "Tiny." But the biggest disadvantage is uncomfortable for the subject.

Another factor is the alginate/water ratio; more water means a thinner, more runny mixture and a longer setting time. This sounds like the answer, however, this is the least desirable approach. Alginate should be about the consistency of oatmeal but without lumps; thick enough that it will remain in place from 1/8 or 1/4 of an inch thick on a vertical surface. Too thin and it will simply run off. Too much water will also weaken the impression.

The third solution is almost the answer. There is a retarding agent widely available that is in a fine white crystal form that looks like table salt but isn't. The first time I ordered some of this it came without any directions. I called the manufacture. Even though the technical representative was supposed to be the expert, he didn't seem to be real sure of the amount required for the several extra minutes that I needed to cast the front half of a torso. He suggested that I use about an ounce per pound of alginate. After 30 minutes, the alginate was just as liquid as when it had been applied. Another phone call and I realized that the expert was clueless (perhaps this explains why this particular manufacturer is no longer in business). Fortunately the model was a good sport and after getting her cleaned up, we tried again using a much smaller amount which worked. If you try this method, be sure to follow the directions exactly since a little goes a long way. But remember

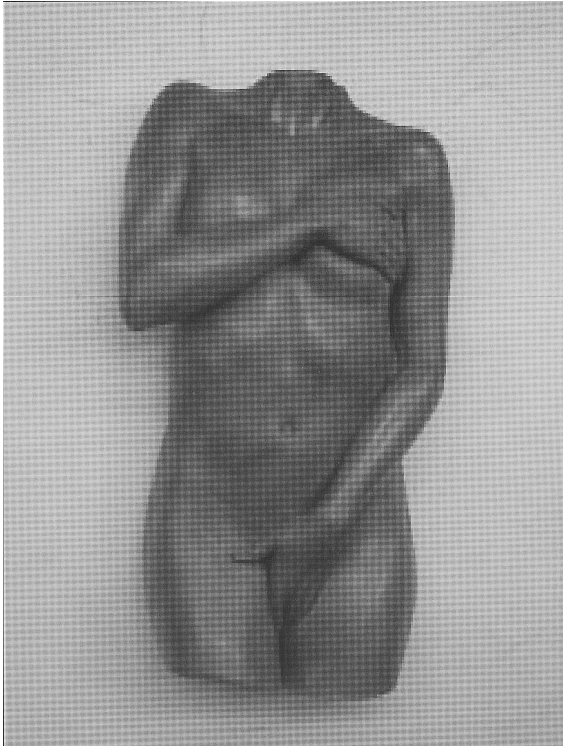
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that I said that this "solution is almost the answer." The problem is that often soft spots can occur in the mold. I had been directed to add the crystals to the alginate powder. It seemed to me that a more logical method would have been to add the crystals to the water so I tried it but with the same result. Some experimentation convinced me that the crystals do not dissolve quickly enough to allow for a uniform distribution throughout the mixture and were heavily concentrated, there will be soft areas of ungelled alginate.

Now we get to the fourth solution and the part where "they lived happily ever after." There is a new product that solves the problem; it is a liquid called "Algislo" made by ArtMolds. When I first got some of it, I experimented by mixing 5 ounces of ArtMolds Regular Set alginate to 16 ounces of water at 21 degree C. (70 degree F.). In the next batch, I substituted 1/2 ounce of Algislo for 1/2 ounce of water; then 1 ounce for 1 ounce, etc. (Note: I did not just add the Algislo without reducing the water or the extra liquid would have changed the viscosity of the mixture). The results are shown in the following table on the chart.

Chart

Alginate	Water	Algislo	Setting Time
5 oz	16 oz	0	3 min. + 00 sec.
5 oz	15 1/2 oz	1/2 oz	4 min + 05 sec
5 oz	15 oz	1 oz	4 min +45 sec
5 oz	14 1/2 oz	1 1/2 oz	5 min + 40 sec
5 oz	14 oz	2 oz	7 min + 10 sec
5 oz	13 1/2 oz	2 1/2 oz	9 min + 00 sec



"Modesty," the ins and outs around both arms and hands require special attention



"Nina" the area covered, the complete right arm, and the hair add to the complexity of this moderately difficult portrait casting.

I used to paint on the bonding agent with a brush; now I use a spray bottle. Not only is it much faster, but it will not damage the still liquid alginate as a brush would.

The really exciting thing to me was that! I got no soft spots either in the test samples or in actual castings. I suspect that this is because Algislo being a liquid blends uniformly into the water and the water/alginate mixture. While I intend to live apply ever after, I do have a caution. One can not take a fast setting dental alginate and simply add enough retarder to produce an adequate eight minute alginate. Specifically, additional alginic acid must be blended into maintain the desired characteristics or the alginate may only set up to about the consistency of a soft boiled egg, too fragile for a durable impression. The better manufacturers reformulate for the desired setting times. If you are using ^{high} quality alginate, you can easily get up to an additional 3 or 4 minutes working time without any problems.

There is another way to get longer working times using Algislo. But before I explain it, I would like to digress for a moment. As I said above, when casting a face or a body there are two steps that must be accomplished prior to the alginate's setting LIP. The desired area must be coated with alginate and then something fuzzy such as cotton, mock wool, etc. must be embedded into the alginate which will in turn bond the outer mold to the alginate. If one runs out of time, why not just mix a new batch, apply it over the first, and continue? While this does not change the setting time, the result is the same since one would have twice as long to accomplish the first two steps. This works as long as the first layer of alginate has not gelled. Unfortunately, one of alginate's snore peculiar characteristics is that new will not bond to old once the old has set up unless a bonding agent is used.

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Once upon a time many years ago, I discovered that a solution of baking soda and water makes an effective though not the best bonding agent. Prior to discovering 8 minute MoldGel and when I was still using 5 minute alginates, I had pretty good results with this method. But there are two disadvantages, two layers takes more material than one and adds another step taking more time resulting in more discomfort for the subject. However, this can be used to build a thick layer of alginate when needed for a particularly difficult mold. Also, if after applying the alginate, you discover that there are places where the alginate is too thin or where the fuzz wasn't embedded, they can be repaired this way. As it turns out, after testing both, I am convinced that Algislo will bond alginate layers more securely than baking soda.

While experimenting for this article, I discovered a technique that I am finding to be very helpful. Using a spray bottle, misting a thin application of Algislo to a layer of alginate just before the alginate sets up will allow all but the surface to gel. You then have several additional minutes to embed the fuzz. Anyone who has some experience with life casting will probably see the advantage of this. Using this method, one can concentrate on a more perfect application of alginate without being rushed to get the fuzz in place. The torso in the accompanying photograph titled "Modesty" is an example of how useful this can be. The problem is that the ins and outs and undercuts involved with the two arms make it very difficult to apply the alginate and embed the fuzz in one layer. What I would have done in the past was apply the alginate and carefully tweak it so that the application was as perfect as possible as it gelled. Then I would have painted on baking soda/water, applied a second layer of alginate; and added the fuzz. Now what I do is just before the alginate sets up spray on the Algislo and apply the fuzz eliminating time and alginate. I am finding this works so well that I am using this system with all but the simplest of castings.

Another advantage of Algislo is that even if you are too slow in its application and the alginate has gelled, Algislo will soften the surface allowing you to embed the fuzz. Baking soda will not do this.

Note: I used to paint on the bonding agent with a brush; now I use a -spray bottle. Not only is it much faster, but it will not damage the still liquid alginate as a brush would.

One last point that I would like to make is that all alginates are not alike. I have had people in my lifecasting workshops proudly produce some alginates that they had purchased "over the

consistency mentioned above without even adding any retarding agent. I can only assume that the low price is the result of skimping on materials. The two alginates that I currently use almost exclusively now are ArtMolds Regular Set and SlowSet. The regular set will gel in as little as three minutes with very warm water. I use it when I need speed such as for infant's hands. The SlowSet's 8 minutes is ideal for more complex castings. Stick with quality and your castings and your frustrations will be the better for it.

About the author

Art Review has called him "...the premier life casting expert in Colorado, maybe in all the West." Dave Parvin was honored by being one of the first artists given life membership in the almost four-year old Association of Lifecasters International. Though principally known for his classical, figurative bronzes, Dave has also worked in wood, pewter, cast marble, urethane, concrete, polyester resin, raku, glass, and most recently acrylic. About sixteen years ago, Dave became interested in life casting. He has become recognized as one of the innovators in life casting having developed many new techniques.

Dave enjoys sharing his experience and expertise and routinely offers workshops in life casting, art marketing, and sculpting.

Presently showing in seven galleries from California to Indiana, Dave has a long list of commissions, juried show participation, and media recognition. He may be reached at parvinstudio@attbi.com.

However, he would much prefer to talk than type and would prefer to be called at 303-321-1074.

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Internet at a bargain price. Well, I'm always looking for a bargain too so I have suggested mixing up a sample and testing it. While there may very well be some bargains out there that I have not found, what I have seen so far is that you get what you pay for. The usual problem is the sot t boiled egg