

Insider Tips

Specimen Size for Outdoor Tests

This is part of a series on how to make a more successful weathering or corrosion test with a commercial test service or laboratory. Take advantage of the system in ways such as how the specimens are made or exposed, or how to take advantage of the test site's pricing structure. The way the test is set up can greatly increase the chances of a positive outcome. What schedules, how many specimens, what types of evaluations to request all play an important role in success or failure. We will cover the best ways to request outdoor exposures, and laboratory accelerated tests for both corrosion and weathering.

Specimen Size

Smaller is not always cheaper, which seems odd since test services generally charge by specimen size. The rule is mostly true, but only down to a certain size, and then the price per specimen goes up again. Once the specimens go below a certain size, they are more difficult to handle, so the test services charge more for this disadvantage. It is best to ask the test service for their standard specimen size.

Generally speaking, keep your specimen size to about 4" x 12" or 6" x 12". This is the sweet spot for outdoor exposures generally known as the **standard size**. If the specimens are smaller the sites will expose them in non-standard frames which cost more. Larger specimens are charged in multiples of the "standard" size. A 12" x 12" specimen is generally double the price, and a 12" x 24" is quadruple.

Standard sized specimens are easy to handle, fit the outdoor exposure frame without modifications*, and give a large enough area for multiple evaluations. These specimens are large enough to have a washed and an unwashed section, or to have sections cut or clipped for partial returns. The standard size might be different for different types of specimens (panels, or plaques or swatches) so be sure to ask for the specific type of specimen you will send in.

If you send in panels, the top 20% of the panel will be under a mask area. This is a good thing, as it gives a permanent side by side comparison of the original condition of the specimen. For any other specimen, don't bother sending the test site an unexposed control and do not ask for any masking. That will cut down on the surface area being exposed and reduces the amount of material you might need for physical testing, such as tensile tests. You can retain your own control material.

As long as the specimen is big enough to perform all the tests you need, extra area is not needed. Color and gloss measurements only need about a 2" square, but other visual effects such as chalking, cracking, blistering all need much larger areas to be seen easily. Specimens for accelerated tests can be much smaller than for outdoors for several reasons (which is discussed in another Insider Tip), and there is no problem in using two different sizes if comparing outdoor to accelerated tests.

One last concern is specimen handling, and specimen custody. The standard specimen has a much greater chance of being treated correctly by the technicians, which means less chance of damage or loss. Even though the test sites try to be as careful as possible, a lot could happen in 5 years of exposure. In my experience, the most valuable part of an exposure test is the finished specimens. I want my specimens back after exposure. The interim results are great for tracking the tests, but I want my specimens back, please. Help the test lab by sending the best size of specimen.

* Test sites may charge extra for non-standard size mounting