Styrofoam and Orchids

by Sue Bottom, sbottom15@gmail.com

The woke may hate Styrofoam due to its persistence in the environment, but it can be repurposed by orchid growers in many different ways. Most commonly, Styrofoam packing peanuts are placed in the bottom third or quarter of the pot for drainage. It is sort of the opposite of semihydroponics, where the Styrofoam provides an air filled space in the bottom of the pot while the potting media holding water and nutrients is in the upper part of the pot. When you repot several years later, you find the happy orchid roots growing through and around these Styrofoam peanuts.

Styrofoam is the trade name used in the United States and Canada for expanded polystyrene foam, registered by Dow Chemical for its insulation and craft products. Styrofoam peanuts are widely available as packing materials. Some caution against using the colored peanuts although I have never suffered any ill effects from using them. The green ones indicate they have been made with recycled materials, the pink ones are treated to be anti-static, but sometimes the white and green ones are also treated to be antistatic. Do avoid the starch based biodegradable peanuts that dissolve in water. Styrofoam is often custom molded to be used as packing for electronics and other products, although this type of foam is sometimes too thick and rigid to be easily used when repotting. Better to find the sheets of softer polystyrene that can easily be broken up into chunks appropriate for the pot size you are using.

When using Styrofoam packing materials as drainage in the bottom of the pot, don't just put a big slab in the bottom of the pot. The bottom middle of the pot is the area of the pot that retains moisture for the longest period of time, and if you fill the entire pot with potting media, this is where the root rot will begin, particularly if you use organic components like bark in your potting mix. You want to break up the pieces into angular chunks to maximize the air space between them. The Styrofoam does facilitate water draining from the pot, but more importantly, it provides a reservoir of air at the bottom of the pot that orchid roots can tap into.

Styrofoam can be used in potting mixes in addition to or in lieu of sponge rock, providing porosity and airiness to the potting mix without worry about it decomposing like bark. It does not hold moisture or absorb salts, so Styrofoam is a good counterbalance to sphagnum and peat based mixtures that tend to be water and salt retentive. The major disadvantages are that the light particles are easily windblown and spent mixes cannot be easily reused in the garden.

Phil Spence wrote a letter to the AOS Orchids magazine editor in June of 2016 about his experience with Styrofoam. Of particular interest is how he uses it with small seedlings:

At first, I used to just rub pieces of a sheet of polystyrene over a 0.5-inch (1.25cm) sieve and use the particles that went through the sieve… I now use a byproduct of architectural mock-ups and formations that is kibbled into small beads and sold as packing. These small pieces are about 0.19–0.25 inch (5–6 mm) in size and have a rough surface from where the little beads were torn apart.

I sieve out the pieces larger than 0.25 inch (6 mm) and use them with New Zealand pine bark and a small amount of charcoal for my larger plants. The smaller polystyrene pieces are best for deflasking and my seedling losses are minimal.

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[1] Here very healthy roots are actively growing into the mixture of sphagnum moss and Styrofoam prepared as described, photo by Phil Spence.

[2] After only a short while, vigorous root systems can be established. Note the absence of any necrotic root tissue, photo by Phil Spence.

I mix it dry at the following ratio: sieve dry, compressed (not super-compressed) sphagnum moss (use a mask to prevent breathing the dust) through a 0.5-inch (12-mm) sieve and place this sieved sphagnum in a storage container. Then mix nine parts of the small polystyrene to one part of sphagnum moss…

[3] Here a mature Latouria Dendrobium is happily growing in a medium containing Styrofoam chunks, photo by Phil Spence.

[4] A compot of vigorous Cymbidium seedlings growing in a mixture of sphagnum moss, white Styrofoam particles and charcoal impregnated Styrofoam, photo by Phil Spence.

When I pot deflasked seedlings, I dip the seedlings in an antifungal mix with added iron chelates to help with the loss of chlorophyll, and then I allow the seedlings to dry on newsprint. Once dry, I pot them in flats with the above dry mix. Then I lightly mist spray with a rooting hormone. I place three labels in the seedling flat so as I can take one out to use as

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a copy for writing more labels when repotting. This flat is placed on a heating mat or a bed of jumbo-sized sponge rock. Roots do not venture into the sponge rock as they prefer the above mix. I mist the seedlings for 60 seconds twice a day, first misting around daybreak and then about an hour before dark. Feed the seedlings in the normal way.

Styrofoam is a recyclable material. If you flip over the Styrofoam from egg cartons, meat trays, etc., you will see the recycling symbol with the letter 6. You cannot add it to your curbside recycling, but Publix and presumably other grocery stores will accept the foam products in their recycle bins. Styrofoam peanuts can generally be brought to UPS or a pack and ship location where they will be reused as packing materials. Electronics and appliance packing Styrofoam is more difficult to recycle with few drop off locations, the closest to us being DART Container Corporation in Plant City. Friends bring me their Styrofoam, and I happily use it when repotting orchids.

Citations

Spence, Phil. 2016. Letter to the Editor, *Orchids.* 88:6, pp. 410-411.