

Porosity



Porosity is the overall measure of void space found in a soil media. Porosity is expressed as a percentage of the overall makeup of the soil volume and is inversely related to the bulk density of the material. Soils can have porosities ranging from extremely compact to very loose depending on the components in the soil media. Therefore a *lighter* soil, such as Canadian Peat, will have more total porosity than a *heavier* soil, such as Enviro-Peat. However, the more dense the soil, the higher percentage of pore space is devoted to water holding, rather than air pore space. Pore Space is measured as the radius of the capillary space found between soil particles. The larger the space, the more air it can hold, which facilitates drainage.

Hierarchy of Pore Spaces

In soil there are three different classifications of pore space, dependent upon the radius of the space and the corresponding purpose that the space performs. The pore space classifications, from largest to smallest, are: Macropores, Mesopores, and Micropores.

Macropores

These pores are larger than the maximum diameter allowable for capillary action, therefore Macropores lack the ability to hold water. As a result, these pores are filled with air. The pore spaces are formed through the size of the soil particles as well as cracks in the soil medium. Macropores are essential in plant growth for their draining capability. Macropore diameters are anything in excess of .08 mm.

Mesopores

Mesopores are known as storage pores, holding water that is useful to plant growth. Ideally these pores are always full of water for proper plant growth. These pores are sized between .08-.03 mm.

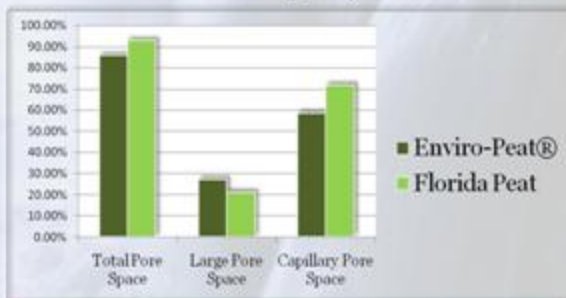
Micropores

These are pores similar to Mesopores, in that they hold water, but different in that the water is not available to plants—instead the water is important to microbial activity. While important, these pore sizes are very difficult to quantify and differentiate from Mesopore spaces. Typical Micropore sizes are less than .03 mm.

Porosity of C&C Peat Soil

The difference in overall pore space between C&C Peat's mined Florida Peat and Enviro-Peat is relatively indistinguishable. Our Florida Peat has a slightly higher percentage of capillary pore space (Mesopore), while Enviro-Peat has a slightly higher percentage of large pore space (Macropore).

The advantage to using Enviro-Peat is that we can formulate the product to increase or decrease either pore space to tailor the potting media mix to the needs of the grower.



Recommended Porosity Percentages

The University of Florida IFAS Department recommends that soil media mixes, for optimum plant growth and development, have porosity percentages of: 50-85% **Total Porosity** with 10-30% **Macropore** space and 45-65% **Mesopore** space. This data can be found in the 2006 Florida Container Nursery BMP Guide.

C&C Peat Potting Media meets these standards. Ensure that you are using soil that is engineered properly for your plant crop.



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