

Pore Size & Pore Volume Determine Plant Available Water

Andreas Kalytta-Mewes, Kathrin Mattern, and Armin Reller

“3 Diatomaceous Earth Sources for Improving Turf Rootzones”

University of Augsburg, Georg Armbruster Soil Laboratory, Quantachrome

[http://www.axisplayball.com/Euro-Article_Mattern_2009_diatomous_earth\[1\].pdf](http://www.axisplayball.com/Euro-Article_Mattern_2009_diatomous_earth[1].pdf)

EnviroTech

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Pore Size that Determines Plant Available Water (PAW) is 0.2 - 10 Microns University of Augsburg

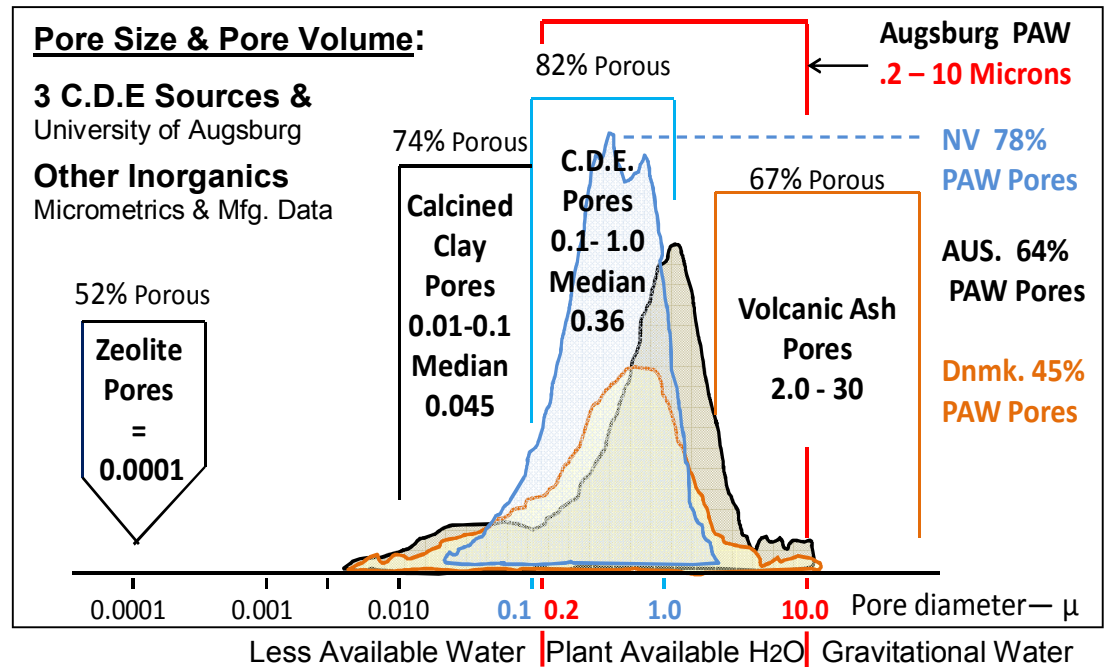
AXIS has 22% to 69% More PAW Pore Volume (0.2—10.0 microns) than other Diatomaceous Earth

Deposit site	PAW Pore Size	Pore volume
Nevada, USA	0.2 - 10 microns	0.78 cm ³ /g
Queensland, Australia	0.2 - 10 microns	0.64 cm ³ /g
Funen, Denmark	0.2 - 10 microns	0.45 cm ³ /g

“Water resources are increasing in economic and ecological importance. Methods to conserve water must be considered.”

“Adding 10% diatomaceous earth to the sand mixture would be a worthwhile supplement to existing water management Systems.”
University of Augsburg

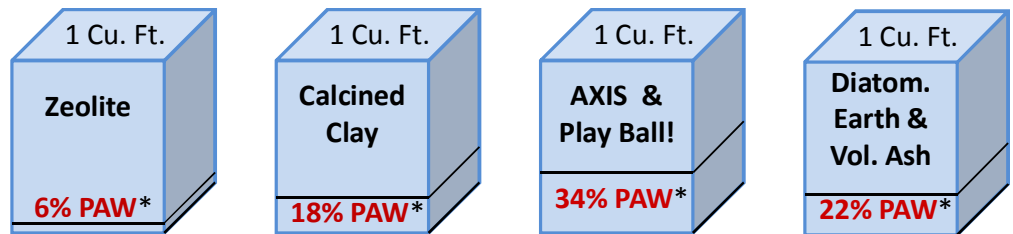
10% AXIS adds 34% More Available Water Capacity to USGA Sand.
Ohio State, 2002



PAW of Inorganics

CDE has 55% more PAW than D.E. & Vol. Ash, and 88% more than Calcined Clay.

Matthew Curtis, Vic Claassen; UC Davis 2008, Crop Science / Caltrans*



AXIS absorbs 26% to 34% More Water than Other D.E.

Diatom. Earth	Australia	Denmark	Nevada
Absorp. %/wt.	93.3%	98.8%	125%

Water absorption capacity in percent by weight.

AXIS Adds 60% More Fine & Medium Pores to Quartz Sand

Pore volume	pF	AXIS	100% Sand	90/10 AXIS
Fine pores	4.2 - 7	40.2%	6.2%	11.2%
Medium pores	2.5 - 4.2	14.2%	4.1%	5.1%

Fine and medium pores in percent by volume.

Moisture Tension and Pore Size Affect Water Release in Soils and Amendments

Lassenite / Hygromite (Diatom. Earth & Vol. Ash)

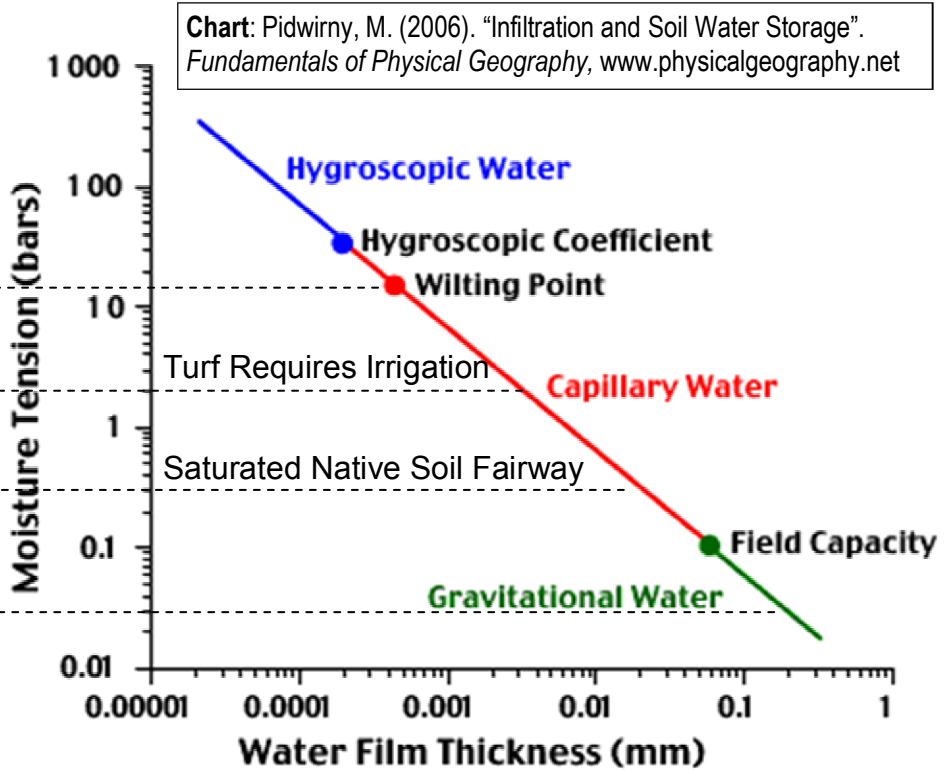
Tension	Moisture Content
15 Bars	0.8%

2.0 Bars	3.6%
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0.3 Bars	9.3%
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0.03 Bars	62.1%
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85% of Water is Released Above Native Soil Saturation
 Source: Lassenite Website



UC Davis Water Release Curve of Inorganics

Matthew J. Curtis & Vic Claassen, (2008)
 "An Alternative Method for Measuring Plant Available Water in Inorganic Amendments"
Crop Science

