FOAM CONTROL EPS

Geofoam No. 5009

Subject: **Geofoam Friction**

Date: **March 2011**

Foam-Control EPS is manufactured in conformance to ASTM D6817, "Standard Specification for Rigid Cellular Polystyrene Geofoam." This standard covers the material properties of EPS Geofoam that are most often required for project design. However, Foam-Control EPS Geofoam is often used in applications which require additional information of the friction resistance between layers of EPS Geofoam blocks.

Various researchers have conducted tests following the general procedures of ASTM D5321, "Standard Test Method for Determining the Coefficient of Soil and Geosynthetic or Geosynthetic and Geosynthetic Friction by the Direct Shear Method" to determine the friction coefficient/friction angle for EPS Geofoam.

The range of friction coefficient values generally reported for EPS Geofoam to EPS Geofoam range from 0.7 to 1.0[1].

The range of friction angle values generally reported for EPS Geofoam to EPS Geofoam for peak and residual shear resistance range from 32 to 48 degrees and from 27 to 35 degrees respectivelly[2].

There is a large variability in results since there is no industry standard testing conditions for sample size, surface roughness, displacement rate, and normal stress levels.

Based upon these results, researchers generally recommend an EPS Geofoam/EPS Geofoam friction coefficient of approximately 0.6 or an equivalent friction angle of 31 degrees for preliminary design.

References

1. http://geofoam.syr.edu/GRC_i15.asp

2. NCHRP Report 529, "Guideline and Recommended Standard for Geofoam Applications in Highway Embankments", Transportation Research Board, 2004

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