Analysis of the Performance and Applicability of a Portable Probe Permeameter.

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Probe permeameters are very useful for making, fast and non-destructive permeability measurements. Experiments have shown that probe permeameters can effectively measure the permeability contrast between the different layers in a rock and also detect very thin flow barriers, making them useful for studing the effect of small-scale heterogeneities on permeability.

This study evaluated the accuracy and quality of the data generated using the portable "TinyPerm II" probe permeameter on core samples with known permeability (k) values. Small diameter core plugs with a wide range of k values (0.02md to about 700md) were selected to study the behavior of the probe permeameter. In all, about 120 readings were taken over a total of 30 different samples. Analysis of these data suggest that the TinyPerm II probe permeameter accurately measures permeabilities in the range of 10md to 600md, but does not effectively measure permeabilities < 1md.

This analysis suggests that this instrument can be used in environments wherein a high degree of accuracy is not really required, at the same time giving the user a fair approximation of the actual permeability.