

电阻率CPTU在某农药厂污染场地评价中的应用

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APPLICATION OF RESISTIVITY CPTU IN EVALUATION OF CONTAMINATION SITE FOR PESTICIDE FACTORY

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摘要 电阻率孔压静力触探(RCPTU)除了包含常规的孔压静力触探测试功能之外,还可以提供连续的电阻率变化曲线,因而在环境岩土工程领域具有广阔的应用前景。电阻率是表征土体导电性的基本参数,是土的固有物性之一,每种类型的土都有固有的电阻率,其变异可能意味着受到污染。本文根据某农药厂污染场地的RCPTU试验结果,分析了不同污染物类型对电阻率的影响,并初步研究了基于电阻率指标的污染物分布与污染程度的鉴别。考虑到孔隙比或相对密实度对土体积电阻率也会产生较大影响,利用RCPTU可测相对密实度的优点,本文提出可将实测电阻率值等效至某一特定的相对密实度下,再将等效电阻率值与相应的背景值进行对比分析,根据等效电阻率值与背景值的偏差量与偏差率进行污染范围与污染程度的确定。结果表明电阻率指标能够精确反应污染物的存在与受污染的程度。

关键词: 电阻率孔压静力触探 农药 污染场地 有机物污染

Abstract: Resistivity piezocone tests (RCPTU) is not only include the conventional piezocone tests, the continuous profile of electrical resistivity can also be obtained through this test. Therefore, the RCPTU has a wide application prospect in the environmental geotechnics. Electrical resistivity is a fundamental parameter to characterize the conductivity of soil, it is one of the inherent physical properties of soil. Each type of soil has an inherent resistivity, and its variation probably means that the soil is contaminated. Based on resistivity piezocone test results on a contaminated pesticide factory site, the influences of different pollutants on resistivity are analyzed in this paper. The identification of pollutants distribution and the contamination degree based on the resistivity index is also preliminary studied. Considering that the soil bulk resistivity can also be influenced by void ratio or relative density, and it is advised measured resistivity should be equivalent to a specified relative density which can be measured by RCPTU. Comparative analysis between the equivalent and inherent resistivity is conducted, and the deviation and rate of deviation are used to determine the pollutants distribution and degree of pollution. The results show that the change of resistivity can reflect the presence and degree of pollutions well.

Key words: Resistivity piezocone(RCPTU) Pesticide Contamination site Organic contamination

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