

HEC和AAM添加剂对提高黄土集流效率的试验研究

Effect of the Additives HEC and AAM on the Efficiency and Capability of Rainwater Catchment Materials

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作者	单位
冯浩	西北农林科技大学、中国科学院水利部水土保持研究所国家节水灌溉杨凌工程技术研究中心, 杨凌 712100
吴普特	西北农林科技大学、中国科学院水利部水土保持研究所国家节水灌溉杨凌工程技术研究中心, 杨凌 712100
彭红涛	中国农业大学水利与土木工程学院, 北京 100083
雷廷武	西北农林科技大学、中国科学院水利部水土保持研究所国家节水灌溉杨凌工程技术研究中心, 杨凌 712100; 中国农业大学水利与土木工程学院, 北京 100083

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中文摘要:

基于西北地区黄土资源丰富、地形复杂、外源材料运输困难的实际状况, 提出将HEC(High Strength and Water Stability Earth Consolidator)和AAM(Active Aluminate Mixture)材料添加剂与黄土混掺, 以期提高其集流效率。通过室内人工降雨模拟试验, 探讨了典型黄土与HEC和AAM材料添加剂分别混掺后集流效率和性能的变化过程。同时, 对照其它几种集雨材料, 对不同雨强、雨量及坡度下的起流历时、集流效率和材料性能进行了比较。结果表明: 黄土与HEC和AAM添加剂混掺后形成的黄土复合集流材料具有较强的抗拉、抗压能力, 不同雨强和雨量等级范围均具有较高的集流效率(>78%), 已达到混凝土的集流效果, 其成本仅为混凝土的1/3~1/2。

英文摘要:

The design of mixing new additives with loess to promote the efficiency of rainwater catchments materials was put forward. By the rain-simulated experiment, the effect of additive HEC(High Strength and Water Stability Earth Consolidator) and AAM(Active Aluminate Mixture) on the capability, efficiency of mixed loess catchments materials was discussed. Comparing with the other rainwater catchments materials, the time of runoff yield, and the capability, efficiency of rainwater catchments were studied under the condition of different rainfall intensities, rainfalls and slopes. The results of experiment showed that, comparison by the other materials, the mixed rainwater catchments materials with the additive of HEC and AAM have the rather strong tensile and press strength and the satisfying rainwater catchments efficiency of above 78% but only 1/3 to 1/2 cost of the concrete. This new-type of mixed rainwater catchments materials could be used in the engineering of rainwater catchments in Northwest region for promoting the benefit and reducing the cost of engineering.

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