

## 击实砾质土抗拉强度试验研究

张 辉<sup>1, 2</sup>, 朱俊高<sup>2</sup>, 王俊杰<sup>2, 3</sup>, 袁友仁<sup>4</sup>, 冯业林<sup>4</sup>

(1. 同济大学 土木工程学院, 上海 200092; 2. 河海大学 岩土工程研究所, 江苏 南京 210098;

3. 重庆交通大学 岩土工程研究所, 重庆 400074; 4. 国家电力公司 昆明勘测设计研究院, 云南 昆明 650051)

收稿日期 2006-1-14 修回日期 2006-5-11 网络版发布日期 2007-1-31 接受日期 2006-1-14

**摘要** 抗拉强度是黏性土的一个比较重要的力学性质, 由于在工程中使用相对较少, 对其研究并不多。实际上, 诸如土体裂缝、坍塌、土石坝心墙水力劈裂等不少工程问题都与抗拉强度有着密切的关系。对3种砾质土进行击实试样的抗拉强度试验, 研究抗拉强度随试样干密度、前期固结压力和含水率等的变化规律。试验结果表明, 击实砾质土抗拉强度随着干密度的增加而增加, 增加幅度显著; 随着前期固结压力的增加, 土的抗拉强度也增大, 但在试验范围内(固结压力100~500 kPa)增大并不明显。随着含水率的增加, 抗拉强度稍有减小。在所试验的含水率、密度和前期固结压力范围内, 试验得到的砾质土抗拉强度为20~80 kPa。

**关键词** [土力学](#); [砾质土](#); [夹具](#); [抗拉强度试验](#); [前期固结压力](#)

分类号

## EXPERIMENTAL STUDY ON TENSILE STRENGTH OF COMPACTED GRAVEL SOIL

ZHANG Hui<sup>1, 2</sup>, ZHU Jungao<sup>2</sup>, WANG Junjie<sup>2, 3</sup>, YUAN Youren<sup>4</sup>, FENG Yelin<sup>4</sup>

(1. School of Civil Engineering, Tongji University, Shanghai 200092, China; 2. Institute of Geotechnical Engineering, Hohai University, Nanjing, Jiangsu 210098, China; 3. Institute of Geotechnical Engineering, Chongqing Jiaotong University, Chongqing 400074, China; 4. Kunming Hydroelectric Investigation and Design Institute, State Power Corporation of China, Kunming, Yunnan 650051, China)

### Abstract

Tensile strength is an important mechanical property of clay soil. It is used seldom in engineering, and there are few studies on it. In fact, there are a number of geotechnical problems related to the tensile strength of clay, such as cracking in clay, sliding and hydraulic fracturing in the core of earth dam. Tensile strength tests on three kinds of compacted soil samples are carried out. The variations in tensile strength of the soils with the change of dry density, water content and preconsolidation pressure are investigated respectively. The results of the tests indicate that the tensile strength of the soil increases with the dry density increasing, and the increment is obvious. On the other hand, with the increase of the preconsolidation pressure, the tensile strength increases simultaneously, but the increasing rate is small for the range of the preconsolidation pressure varied from 100 kPa to 500 kPa. Moreover, the tensile strength of the soil decreases with the increase of water content to some extent related to the dry densities. Within the investigated ranges of water content, dry density and preconsolidation pressure, the tensile strengths of the soils vary from 20 to 80 kPa.

**Key words** [soil mechanics](#); [gravel soil](#); [clamp](#); [tensile strength](#)

### 扩展功能

#### 本文信息

▶ [Supporting info](#)

▶ [PDF\(191KB\)](#)

▶ [\[HTML全文\]\(0KB\)](#)

▶ [参考文献](#)

#### 服务与反馈

▶ [把本文推荐给朋友](#)

▶ [加入我的书架](#)

▶ [加入引用管理器](#)

▶ [复制索引](#)

▶ [Email Alert](#)

▶ [文章反馈](#)

▶ [浏览反馈信息](#)

#### 相关信息

▶ [本刊中 包含](#)

[“土力学; 砾质土; 夹具; 抗拉强度试验; 前期固结压力”](#)

[的 相关文章](#)

▶ 本文作者相关文章

· [张 辉](#)

·

· [朱俊高](#)

·

· [王俊杰](#)

·

· [袁友仁](#)

·

· [冯业林](#)

DOI:

---

通讯作者