
SATRA
TECHNOLOGY

Taiwan Footwear Manufacturer's Association
35th International Footwear Conference
Taipei, 10th-12th November, 2016

Research at SATRA
SATRA研究

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东莞赛卓公司总经理

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Research at SATRA
SATRA研究

- Founded in 1919 创建于1919年
- British Boot, Shoe and Allied Trade Research Association 英国鞋靴和联合贸易研究协会

Knowledge 知识
Research 研究
Testing 测试

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Research at SATRA
SATRA研究

- Innovation 创新
- Technical Development 技术发展
- Consultancy 咨询
- Product Efficiency 产品效率
- Planning 计划
- Trouble Shooting 问题解答
- Test Method Development 测试方法研发
- Test Machine Development 测试仪器研发

Research at SATRA
SATRA的研究

Contract 合约

- Customer Queries 客户询问
- Consultancy 咨询
- Product Development
- 产品开发
- Bespoke Testing 制定测试

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Research at SATRA
SATRA的研究

Authorised 授权

- Funded by SATRA
- 由SATRA提供资金
- Industry Investigation
- 行业调查
- Dissemination to Members
- 向会员宣传
- Test Method Development
- 测试方法研发

Authorised Research
授权研究

Project Proposal and Selection
项目申请和选择

- Member input 会员投资
- Improve Industry Knowledge 改进行业知识

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Authorised Research
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Test Method Development
测试方法的建立

- Fundamental Research
- 基础研究
- Challenging Product Claims
- 具有挑战性的产品要求
- Fair and Indiscriminate Test Procedures
- 公平公正的测试流程
- Method Verification 方法验证
- Adoption by International Standard Committees
- 被国际标准委员会采纳

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Authorised Research
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Test Machine Development测试方法的建立

- Design 设计
- Pneumatics 气体力学
- Liquid Systems
- 液态系统
- Electrical 电器学

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Authorised Research
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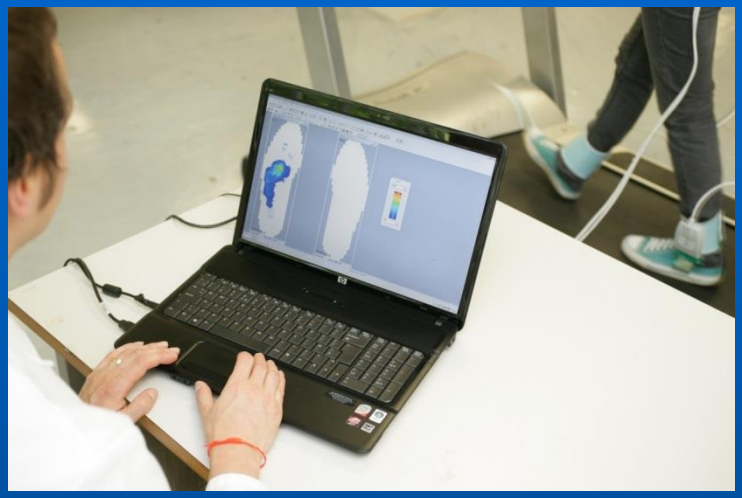

Recent Projects 最新项目

- Foot Scanning 脚型量测
- Rotational Slip 旋转防滑
- Thermal Properties 热力特性
- Water Resistance 防水性
- Cold and Damp Rating 寒湿等级

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Authorised Research授权研究
Foot Scanning脚型量测

- 3D Foot Scanner 3D脚型扫描仪
- 6,000 Participants 6,000名参与者
- UK, USA and China 英国美国和中国
- 9 Fundamental Foot Dimensions
- 9个基本脚型尺寸数据
- Lower Leg Dimensions in Women
- 女士包括小腿部位的测量

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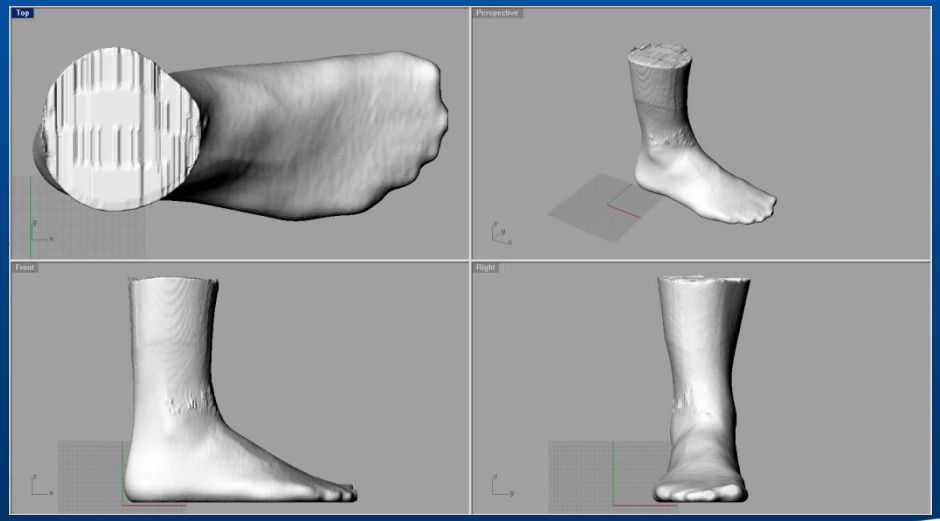
Foot Scanning脚型量测

- Full 3D image 三维影像全景
- Shoe Size Distributions 脚型尺寸分布
- Investigating Foot Shape 研究脚型
- Updating Guidelines 更新指导方针



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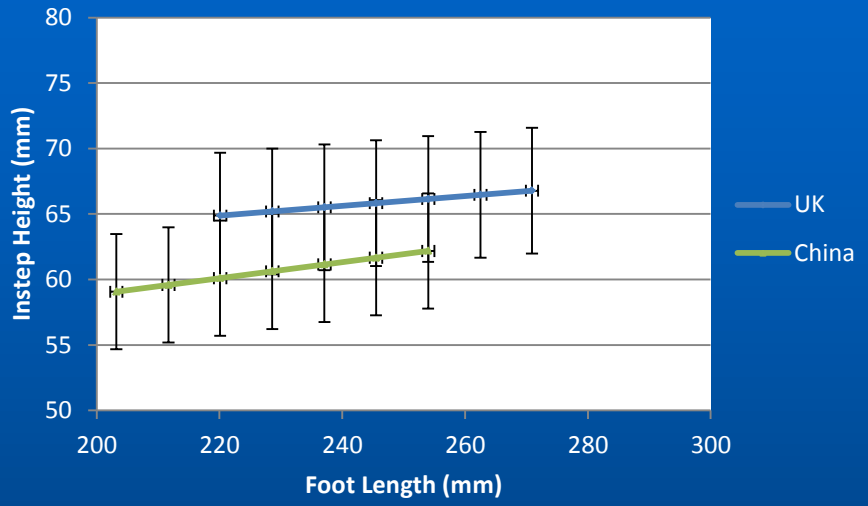
Foot Scanning 脚型量测

- Difference between the guidelines and collected data
- 现有的指导方针与实际收集数据之间的不同之处
- Developing Fitting Aids 研发合脚性支持



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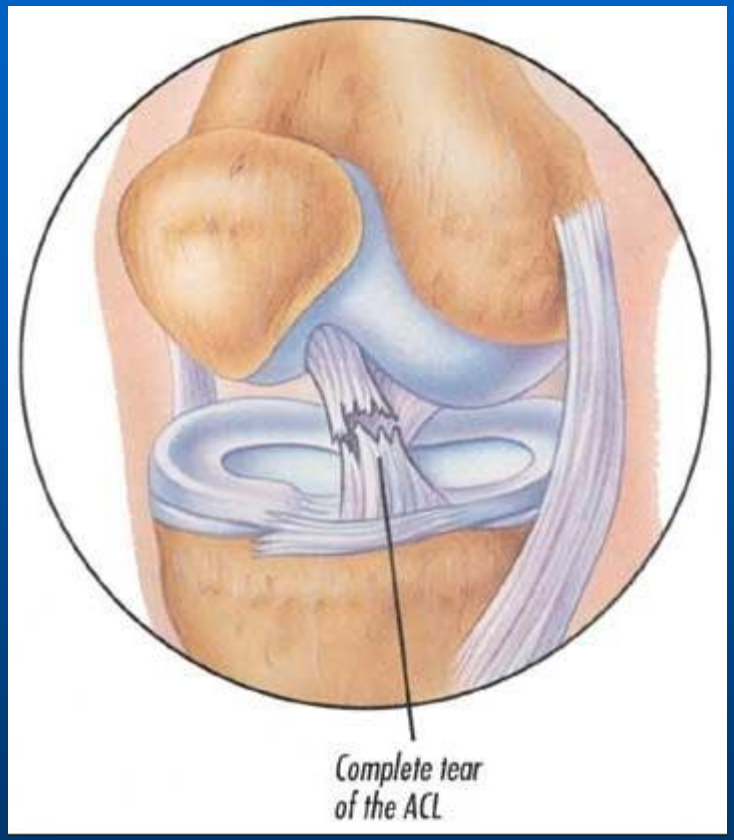
Rotational Slip旋转滑动



- TM144 Slip Resistance
- TM144防滑
- Rotational slip used in turning
- 使用旋转滑动
- Vital in sports and high activity scenarios
- 在运动和高强度环境下非常重要
- Can cause damage to foot and lower leg
- 可能导致对脚和小腿的伤害

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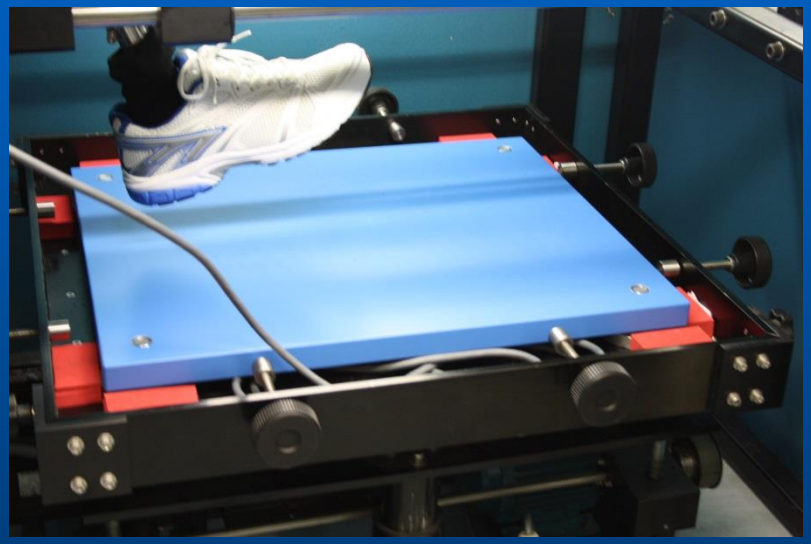
Rotational Slip 旋转滑动



- Using the TM362 - Pedatron
- 使用TM362--Pedatron
- Rotation of the Floor Surface
- 地板面旋转
- 3 axis force platform to assess torque
- 三轴测力台来评估扭力
- Multiple Surfaces
- 多种表面

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SATRA Pedatron

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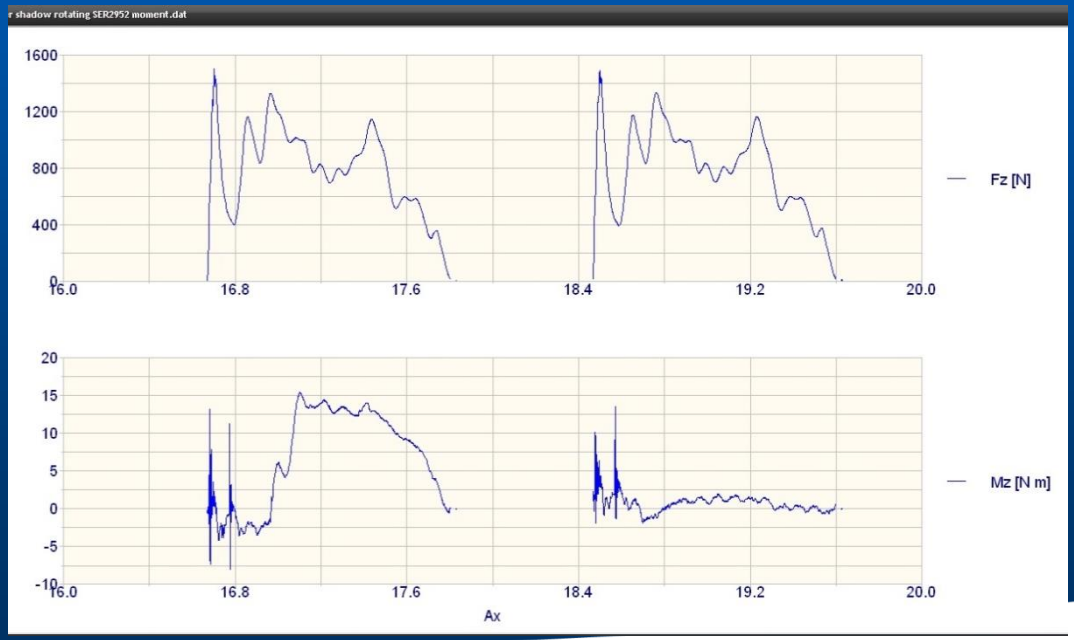
Rotational Slip 旋转滑动

- Improved Test Method
- 测试方法的完善
- Evaluate Torque Reduction Claims
- 评估扭力的减少

- Development of Torque Reduction Footwear
- 研发减少扭力的鞋子



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Thermal Properties 热力性能

- Standard Laboratory Conditions 23°C 50%rh
- 标准实验室环境23°C 50%rh
- Jungle Conditions closer to 30°C 80%rh
- 丛林环境接近于30°C 80%rh
- Below ambient and freezing temperatures
- 低温和严寒环境

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Thermal Properties 热力性能

- TM47 - Water Vapor Permeability Testing
- TM47 – 水汽渗透测试
- TM376 - Advanced Moisture Management
- TM376 – 高级水分管理
- Range of temperatures and humidity
- 不同温湿度环境

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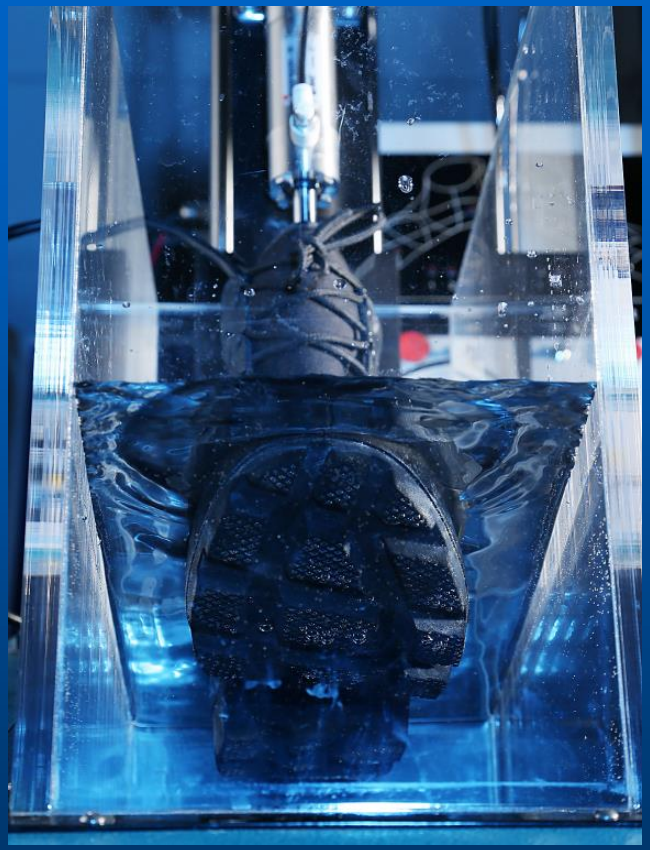
Water Resistance 耐水性能



- Water Resistance is fundamental for performance footwear
- 耐水是性能好的鞋子最基本的性能
- TM230 – Dynamic Water Resistance Testing
- TM230 – 动态耐水测试

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Water Resistance 耐水性能

- Real conditions are more extreme
- 真实条件可能更极端
- Adaption of TM230 改良版TM230
- Abrasive Particulate Test
- 研磨微粒测试

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Customer Demand for Dirty Test
客户需求变脏测试

- Cross country and endurance running
- 越野和耐力长跑
- Submersion in mud
- 泥浆淹没
- Fishing and Surfing attire
- 钓鱼和冲浪服装
- Sand in sea water
- 海水中的沙
- Silt in river water
- 河流泥沙

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SATRA Advanced Moisture Management test

先进的湿气管理测试 TMV376

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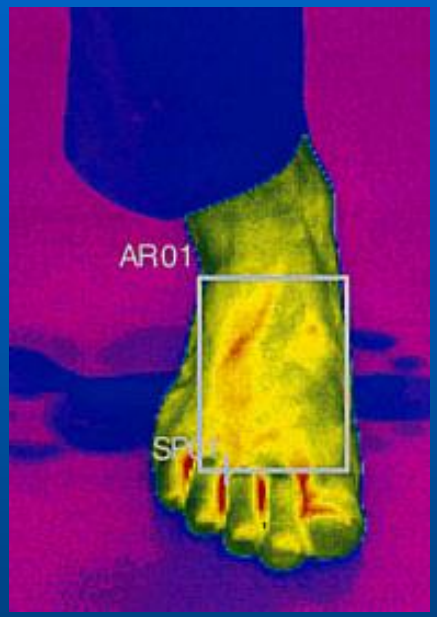
AMMT simulates a hot sweating foot
AMMT 模拟一个发热流汗的脚



Hose and shoe weighed before & after test
测试前后对袜子和鞋子称重

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Standard Atmosphere wind tunnel
标准的鼓风箱

23°C, 50%rh, 1.6 m/s wind speed风速

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Typical test results - men's dress shoes

典型的测试结果 - 男时装鞋

Outer & Lining material 外表&内里材料	Water input (g) 进水量	Hose gain (g) 袜子吸收	Shoe gain (g) 鞋子吸收	Evaporated (g) 水氣釋放
Leather 皮革	15	2.8	7.1	5.1
Synthetic 人造材料	15	6.3	5.2	3.5

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SATRA Advanced Moisture Management test
SATRA 先进的湿气管理测试

Demonstrates and proves that new technologies and materials really actually work

新技术和材料的展示和证实真的有效

SATRA Cold rating SATRA耐寒度

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Typical ‘R’ values
典型的R值

Highly insulating product高绝缘产品: R = 0.35 $m^2°CW^{-1}$

Lower insulation product低绝缘产品: R = 0.10 $m^2°CW^{-1}$

…. but how warm each will keep the foot depends on what the wearer is doing – their activity level

…但是保持脚有多暖和取决于穿着者所做的事 -- 他们的活动水平

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SATRA Cold Rating 耐寒度

Using measured ‘R’ value we calculate the Cold Rating for product used in different applications:

使用测好的’R’值，我们可以测量不同用途产品的耐寒度

Low activity (static)	generating	4W of foot heat
Medium activity (walking)	generating	8W of foot heat
High activity (exertion)	generating	12W of foot heat
低耗活动（静止）	产生	每只脚4瓦特的热量
中等活动（走路）	产生	每只脚8瓦特的热量
高等活动 （尽力）	产生	每只脚12瓦特的热量

At each activity level we calculate the lowest ambient temperature at which the footwear will maintain the foot at a comfortable temperature of 20°C

对于每种活动我们计算最低室温，这是鞋子维持脚最舒适的温度，20℃

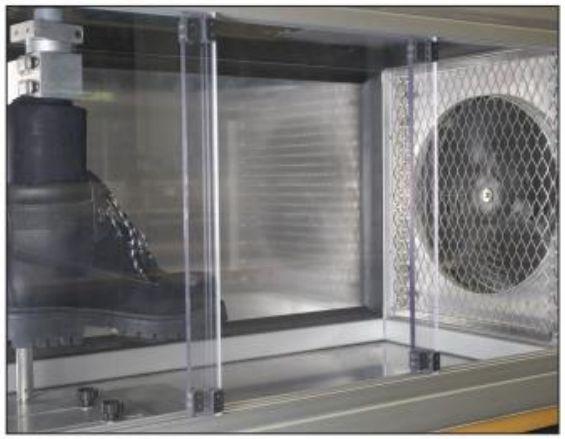
New SATRA test published (2010)
SATRA 发布的新测试（2010）

SATRA TECHNOLOGY CENTRE

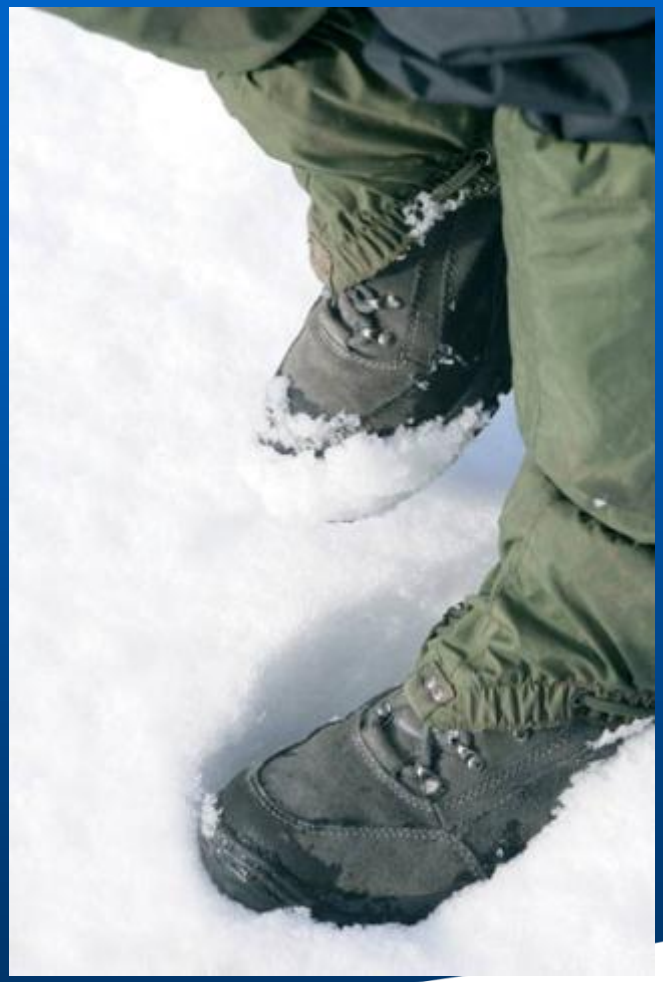
TEST METHOD: SATRA TM436

DETERMINATION OF WHOLE SHOE THERMAL INSULATION VALUE AND COLD RATING

NOVEMBER 2010



This method is intended to determine the thermal insulation value and cold rating of complete footwear in conjunction with hose and is applicable to all types of closed-uppered footwear.



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Cold and Damp Rating耐冷和耐湿

- Thermal properties are a high priority
- 热力性能优先考虑
- Introducing water changes thermal resistance
- 水的摄入会改变耐热性能
- Ability to lose water is important
- 能够流失水分很重要

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Cold and Damp Rating耐冷和耐湿

- Suite of tests to evaluate performance both dry and damp
- 一组测试来评估干式和湿式的性能
- TM444 introduces water
- TM444会摄入水
- TM436 Cold rating
- TM436耐寒等级
- Water Resistance of Construction
- 耐水性结构

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- Always looking to improve industry knowledge
- 一直致力于行业知识
- Invite members to give input
- 邀请会员进行投入
- Disseminate findings in SATRA Bulletin
- SATRA Bulletin会散播这些研究成果

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Thank You
谢谢

For more information please contact

更多信息请联系

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