



技术类成果

特殊地基防渗加固灌浆 成套技术及应用

【创新性】

开发了SK-P膏浆、SK-A低热沥青、模袋灌浆、SK-S稳定浆液、SK-M超细水泥、微生物灌浆等十几个系列的灌浆材料。研制了膏浆搅拌机、膏浆灌浆泵、沥青加热罐、沥青灌浆泵、模袋止浆塞等灌浆设备。形成了分段充填灌浆、压密灌浆、水压平衡灌浆、裸岩防渗灌浆、壁后止水灌浆、水泥-化学复合灌浆等特色灌浆技术。提出了“压力-灌浆量”的双限控制灌浆技术，推导了灌浆浆液扩散方程、灌浆堵漏基本方程和地表抬动公式，借助开发的智能灌浆系统，形成了“动态”灌浆新方法。

主要完成人：杨晓东、张金接、符平、赵卫全、邢占清、赵宇、黄立维、周建华、李娜、王丽娟
获奖单位：中水科

【影响力】

在国际上首次提出了“压力-灌浆量”的双限控制灌浆技术，并在实际工程中得到应用。在国内最早提出了模袋灌浆和膏浆灌浆技术，并被多部行业灌浆规范采用。国内最早开发了干（湿）磨超细水泥、低热沥青、微生物灌浆等特殊地层灌浆材料。国内最早将随机模拟方法应用于灌浆扩散过程和效果的分析与评价。最早提出了平板裂隙灌浆试验平台及大型堵漏抗冲模型试验平台。技术成果在水电、交通、矿山等不同领域应用超过100项。

ANTI-SEEPAGE, REINFORCEMENT AND GROUTING PACKAGED TECHNOLOGIES FOR SPECIAL FOUNDATIONS AND THEIR APPLICATIONS

【Innovation】

The company has developed a dozen series of grouting materials, such as SK-P plaster, SK-A low-heat asphalt, bagged grouting, SK-S stable slurry, SK-M superfine cement, microbial grouting, etc., as well as various grouting devices, including plaster mixer, plaster grouting pump, asphalt heating tank, asphalt grouting pump, and bagged grout-stopping plug. Featured grouting technologies, such as segmented filling grouting, compaction grouting, balanced grouting under hydraulic pressure, anti-seepage grouting with bare rock, backfill water sealing grouting and cement-chemical compound grouting, have taken shape. The company has also proposed the “pressure-grouting quantity” double limit control grouting technology, derived the grout diffusion equation, the leak-stopping equation and the ground surface uplift formula for grouting, and established new dynamic grouting methods by means of the intelligent grouting system it has developed.

【Influence】

The company has put forward the “pressure-grouting quantity” double limit control grouting technology in the world for the first time, and applied it in practical projects. It is the earliest company in China who has developed special strata grouting materials, such as dry (wet) milled superfine cement, low-heat asphalt and microbial grouting, applied the random simulation method in the analysis and evaluation of the grout diffusion process and effect, and put forward the experimental platforms for slab crack grouting as well as large leak-stopping and impact-resistant models. More than 100 technological achievements have been applied in hydropower, transport, mines and other fields.

Main Contributor : Yang Xiaodong, Zhang Jinjie, Fu Ping, Zhao Weiyan, Xing Zhanqing
Zhao Yu, Huang Liwei, Zhou Jianhua, Li Na, Wang Lijuan
Award-winning Unit : BIC

