

材料化学工程与纳米技术

XPS测定减水剂吸附层厚度

郑大锋, 邱学青, 楼宏铭

华南理工大学化工与能源学院

收稿日期 2007-1-5 修回日期 2007-2-2 网络版发布日期 2008-1-14 接受日期

摘要

通过XPS谱图和XPS信息深度的计算方法测定了减水剂在胶凝颗粒表面的吸附层厚度。结果显示,木质素磺酸盐减水剂(LS)、改性木质素磺酸盐减水剂(GCL1-T)、萘系减水剂(FDN)和氨基磺酸盐减水剂(ASP)在水泥颗粒表面的吸附层厚度分别为8.70、10.87、1.50、7.26 nm;GCL1-T和FDN在粉煤灰表面的吸附层厚度分别为6.76 nm和0.95 nm。此方法可较准确描述减水剂在胶凝颗粒表面吸附层厚度的相对大小。由测定结果可进一步推断,FDN的分散机理以静电斥力效应为主;而空间位阻效应在LS、GCL1-T和ASP的分散机理中不可忽略。

关键词 [XPS](#) [减水剂](#) [吸附层厚度](#)

分类号

Measurement of adsorption layer thickness of water reducer by using XPS

ZHENG Dafeng, QIU Xueqing, LOU Hongming

Abstract

The adsorption layer thickness of water reducer on the cement surface was measured through the XPS spectrum and the calculating method of XPS information depth. The results showed that the adsorption layer thicknesses of lignosulfonate (LS), modified lignosulfonate (GCL1-T), naphthalene sulfonate formaldehyde condensate (FDN) and aminosulfonate formaldehyde condensate (ASP) on the cement surface were respectively 8.70 nm, 10.87 nm, 1.50 nm and 7.26 nm, while those of GCL1-T and FDN on the fly ash surface were 6.76 nm and 0.95 nm. This method could describe the adsorption layer thickness of the water reducer exactly. From the results, it could be further concluded that the electric repulsive force was the main factor of the dispersion mechanism of FDN, while the steric repulsive force could not be neglected in the dispersion mechanisms of LS, GCL1-T and ASP.

Key words [XPS](#) [water reducer](#) [adsorption layer thickness](#)

DOI:

通讯作者 邱学青 cexqiu@scut.edu.cn

扩展功能

本文信息

- ▶ [Supporting info](#)
- ▶ [PDF\(407KB\)](#)
- ▶ [\[HTML全文\]\(0KB\)](#)
- ▶ [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“XPS”的 相关文章](#)
- ▶ 本文作者相关文章

- [郑大锋](#)
- [邱学青](#)
- [楼宏铭](#)