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Effect of Crystal Modifier on Crystal Morphology of ε-HNIW

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Abstract: The effects of alcohol compound (A_1) and carboxylic compound (A_2) as crystal modifiers on the crystal morphology of ε-HNIW were investigated by the process of crystal transition from γ-HNIW to ε-HNIW in the ethyl acetate/cyclohexane system. It has been found by scanning electron microscope (SEM) that the crystal shape of ε-HNIW changes and the crystal surface is smoother with less surface defects. Compared with the crystals obtained without crystal modifier, the area of {110} planes of the crystal obtained with A_1, and the area of {011} planes of the crystal obtained with A_2 are increased. It is proved that A_1 could inhibit the growth of {110} planes and A_2 could inhibit the growth of {011} planes. The interaction between crystal modifiers and ε-HNIW crystal surface is studied by molecular dynamic simulation, which is consistent with the experimental results.

Key words: chemical engineering; crystal modifiers; crystal transition; ε-HNIW; planes
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为促进我国火工烟火行业的创新发展,中国兵工学会火工烟火专业第十六届学术年会拟于2011年三季度召开。

会议征文内容包括:

1、国内外火工品及相关药剂、烟火剂的基础理论,关键技术;
2、国内外火工品、爆破器材、烟火器材的发展趋势及动态分析;
3、国内外火工品及相关药剂的新工艺、新材料、新方法;
4、火工品及相关药剂、爆破器材、烟火器材安全生产、贮运及销毁新技术;
5、火工品安全性、可靠性评估新方法、新理论;
6、火工品及相关药剂测试分析新技术、新方法及仪器设备;
7、火工品及烟火器材应用研究;
8、十二五火工烟火技术的发展趋势及动态分析。

来稿请写明作者姓名、性别、职称、职务、单位名称、从事研究工作内容、通信地址、邮编、电话、手机、E-mail,以便联系。征文截稿日期为2011年7月10日。

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