

Separation and Identification of the Impurity *N,N'*-Dibenzyl-oxalamide in Hexabenzylhexaazaisowurtzitane

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Abstract: The impurity *N,N'*-dibenzyl-oxalimide in 2,4,6,8,10,12-hexabenzyl-2,4,6,8,10,12-hexaazateracyclo[5.5.0.0^{5,9}.0^{3,11}] dodecanes (HBIW) prepared by glyoxal and benzylamines was separated by column chromatography and identified by FTIR, ¹HNMR, MS and elemental analysis. Furthermore, *N,N'*-dibenzyl-oxalamide was synthesized with benzylamines and oxalyl chloride, and identified by spectrometric analysis which verified that the impurity was the *N,N'*-dibenzyl-oxalamide.

Key words: organic chemistry; separation; HBIW; *N,N'*-dibenzyl-oxalamide

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Surface Energy of FOX-7

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Abstract: The surface energy of FOX-7 and the soaking effect of fluoropolymer FOX-7 were studied in comparison with TATB by using the contact angles and Young-Good-Girifalco-Fowkes (YGGF) equation. The calculation results show the interfacial energy and interaction of FOX-7 with fluoropolymer are close to that of TATB. Fluoropolymers have good soaking effect on FOX-7 and TATB, and the effect on TATB is better than that on FOX-7. FOX-7 has strong alkalescence that offers electron easily on the acid-base interaction. The particle of FOX-7 with two fluoropolymers (F₂₆₀₃ and F₂₆₄₂) were studied by SEM as well. The results show the soaking of FOX-7/F₂₆₀₃ is much better than that of FOX-7/F₂₆₄₂ on particle scale, however, it can be expected that the fluoropolymer can make the almost same effect on FOX-7 and TATB on the whole.

Key words: organic chemistry; FOX-7; surface energy; contact angle; soaking effect



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