In paper manufacturing, various additives are used, often at minute concentrations. While GC, LC, IR, and NMR are available for analyzing paper additives, these methods require a pretreatment to extract the additives. This can be a cumbersome and time-consuming process. However, pyrolysis gas chromatography (Py-GC) is a simpler method, since an extraction step is not necessary.

The analysis of alkylketene dimers, AKD, used as a sizing agent in the paper industry, is described here. AKDs exist in three forms: unreacted, ketones resulting from hydrolysis, and AKDs bonded to cellulose by hydroxyl groups. Py-GC analysis revealed that in this sample all the AKDs were converted to dialkylketones by hydrolysis, as shown in Fig. 1. Fig. 2 is a pyrogram of paper with AKD added. Within 8 minutes, three dialkylketones originating from AKD were eluted. This example demonstrates the speed and ease with which Py-GC can analyze AKD without any pretreatment.


Keywords: Paper, Size, AKD, Flash Pyrolysis

Products used: Multi-functional pyrolyzer, UA-1

Applications: Paper Manufacturing

Related technical notes:

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