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Development of a Highly Efficient Environmentally Friendly Plasticizer

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摘要	The purpose of this work is the synthesis of adipic acid ester and the study of the possibility of its use as a PVC plasticizer. The resulting butyl phenoxyethyl adipate was characterized by Fourier-transform infrared spectrometry, thermogravimetric analysis (TGA) and differential scanning calorimetry (DSC). The compatibility, effectiveness and plasticizing effect of butyl phenoxyethyl adipate in comparison with dioctylphthalate (DOP) were determined. The new environmentally friendly plasticizer has good compatibility with PVC and high thermal stability. The effectiveness of the plasticizing action of adipate based on the glass-transition temperature was 132.2 degrees C in relation to pure PVC and 7.7 degrees C in comparison to compounds based on DOP. An increase in the fluidity of the melt of polyvinyl chloride (PVC) compounds in the temperature range of 160-205 degrees C by 19-50% confirms a decrease in the energy intensity of the processes of manufacturing and the processing of polymer materials containing a new additive.
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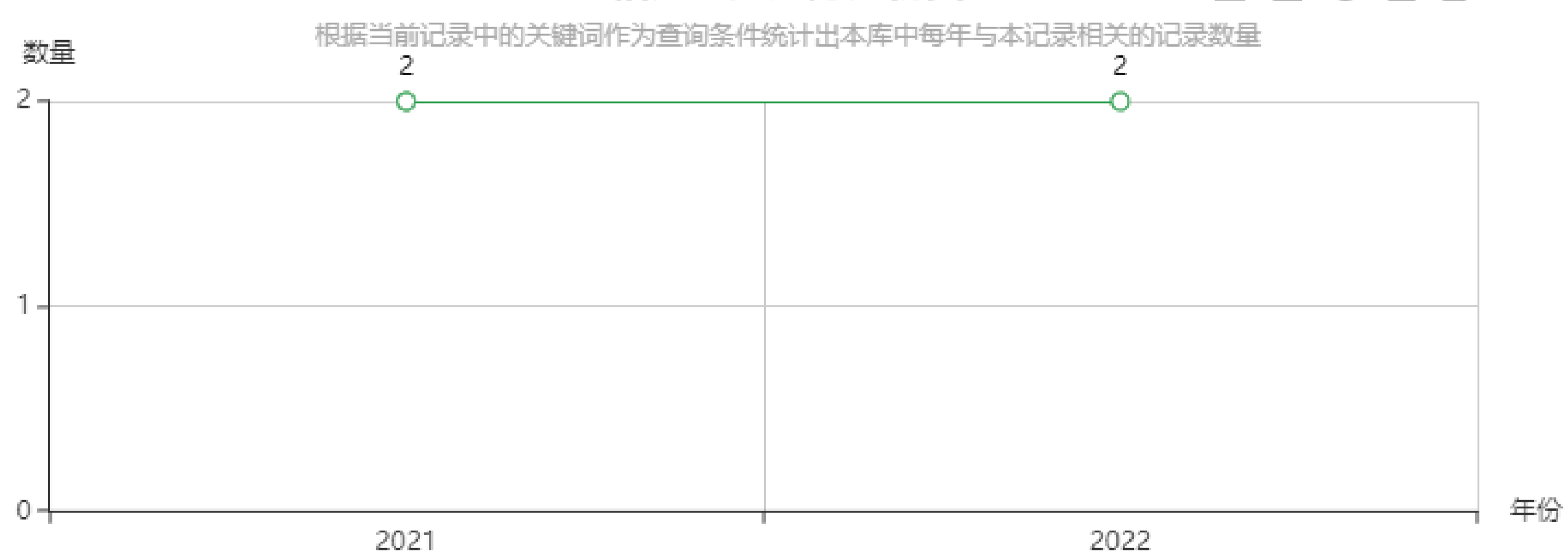
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