

PAG widely used in the field of pharmaceutical patterning applications or in the field of photoresist applications. The process of patterning requires dissolving the PAG solid material in a solvent and preparing it with other additives to form a coating solution of a certain concentration, ensuring that the coating temperature of the photoresist is the same as room temperature, usually 25 °C.

In this experiment, we selected six commonly used solvents, anhydrous methanol, dichloromethane, acetone, ethyl acetate, acetonitrile, and tetrahydrofuran, based on the current market situation of photoresist solvents and the laboratory's own situation, to investigate the solubility of the synthesized iodonium salt PAG.

During the solubility test, accurately weigh 0.1 g of iodonium salt PAG solid and add the selected solvent dropwise until the solid is completely dissolved. Weigh and record the mass of the solvent used at this time in mm, and divide it into three levels: readily soluble ($\text{mm} \leq 1\text{g}$), soluble ($\text{mm} \leq 10\text{g}$), slightly soluble ($\text{mm} \leq 100\text{g}$), and insoluble ($\text{mm} \geq 100\text{g}$).

	ACE	THF	DCM	EA	MeOH	AcN
PAG1-3a	√	×	√ √	×	√ √	√ √
PAG2-3a	√ √ √	√ √ √	√ √ √	√ √ √	√ √ √	√ √ √
PAG3-3a	√ √ √	√ √ √	√ √ √	√ √ √	√ √ √	√ √ √
PAG1-3b	√ √ √	√ √ √	√ √ √	√ √	√ √ √	√ √ √
PAG2-3b	√ √ √	√ √ √	√ √ √	√ √ √	√ √ √	√ √ √
PAG3-3b	√ √ √	√ √ √	√ √ √	√ √ √	√ √ √	√ √ √
PAG1-3c	√ √ √	√ √	√	√	√ √ √	√ √ √
PAG2-3c	√ √ √	√ √ √	√ √ √	√ √	√ √ √	√ √ √
PAG3-3c	√ √ √	√ √ √	√ √ √	√ √	√ √ √	√ √ √

Notes: √ √ √ readily soluble; √ √ soluble; √ slightly soluble; × insoluble