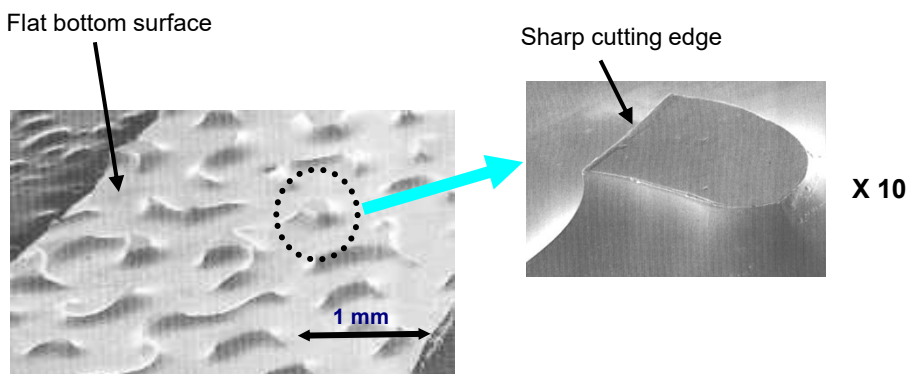


Polymer Prepper, A Simple Polymer Pulverizing Tool for Py-GC

Part 1: Surface Form and Contamination Removal

Because polymeric materials are generally non-thermal conductors, pulverizing polymeric samples into a uniform fine powder or preparing a thin film is important in order to obtain high reproducibility of pyrograms. It is very difficult or impossible for conventional cutting method using a cutter knife to pulverize samples into a uniform powder. Also freeze pulverization in which sample is ground with metal mass in liquid N₂ requires a long time to cool down and then to warm up to the room temperature. The use of liquid N₂ and high cost of the equipment make it unattractive in routine work. We have, therefore, developed Polymer Prepper¹⁾, a low-cost simple tool to address these issues.²⁾

Both sides of Polymer Prepper are made of nickel thin film and provide two different coarseness made by electric casting. SEM images of the file surface are shown below. Unlike normal sandpapers or metal files, the top of the raised surface is shaped flat and its edge is sharp at right angle. The lower bottom surface is also flat to prevent the surface from contamination with powder residues. This structure makes it easy to remove the power residues to clean the file surface by pressing adhesive tape (butyl rubber-based cleaning tape: thickness 0.7 mm, width 10 mm). With Polymer Prepper, fine powder of 0.1 mm in diameter can be quickly prepared effortlessly at low cost.



SEM Image of Cutting Surface of Polymer Prepper (medium)

1) Polymer Prepper has been discontinued and is no longer available.

2) Watanabe, et al., 4th Polymer Analysis Symposium, IV-13, p118-119 (1999)

Keywords : Polymer Prepper, Freeze Pulverization, Pretreatment

Products used : Polymer prepper

Applications : General Polymer Analysis

Related technical notes :

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