

Polyester Wax

AGL4184



A ribboning embedding medium of low melting point.

Polyester Wax is another synthetic wax devised by Dr. H. F. Steedman, Department of Zoology, University of Glasgow (now at Bath University of Technology), as a ribboning embedding medium (Nature, 1957, 179, 1345). Its main advantage over paraffin wax and ester wax is its low melting point (37°C), which results in the reduction of tissue hardening and shrinkage and obviates the use of infiltration ovens.

The wax is soluble in most organic solvents, including alcohols, ethers, esters, ketones and hydrocarbons: warming to 25°C facilitates solution. The wax has good water tolerance, is almost opaque, and sections easily. No electrification of ribbons occurs during cutting. Sections of 2 microns and more may be cut at room temperatures between 10° and 22°C.

Infiltration

It is essential that the wax solvent should be entirely removed from the specimen. Because of the low melting point of the wax the speed of the usual processes of solvent removal, evaporation and diffusion into wax is reduced, and heavy non-volatile solvents such as cedarwood oil are not recommended unless some means of stirring is employed during infiltration. Recommended solvents are alcohols, ethers and esters or, if preferred, xylene or ligroin. A mixture of 96 parts of ethanol and 4 parts of water is considered excellent.

Fixed specimens are brought to the ethanol/water mixture or to ethanol absolute. "Cellosolve" or xylene as preferred. The specimen may be immersed in a mixture of any of the above solvents and wax, or in pure wax. The time allowed for infiltration is about 33% longer than that for paraffin wax.

Block Making

The block is prepared by the usual method, as for paraffin wax blocks, and should be left to cool without immersing the molten wax in water. It is unnecessary to surround the blocks with cold water during the setting time.

Section Cutting

Sections should be cut at a speed of about 80 to 100 a minute – similar to that used in paraffin wax sections. As the wax melts at approximately the same temperature as that of the body the block should not be handled. As mentioned in the introduction, sections of 2 microns and more may be cut at room temperature of 10° to 22°C.

Note

As polyester wax tends to become softer the longer it is kept in a molten condition, it is recommended that only a sufficient quantity for a day's use be melted at one time. The main stock of wax for block making can thus be kept solid until it is required.