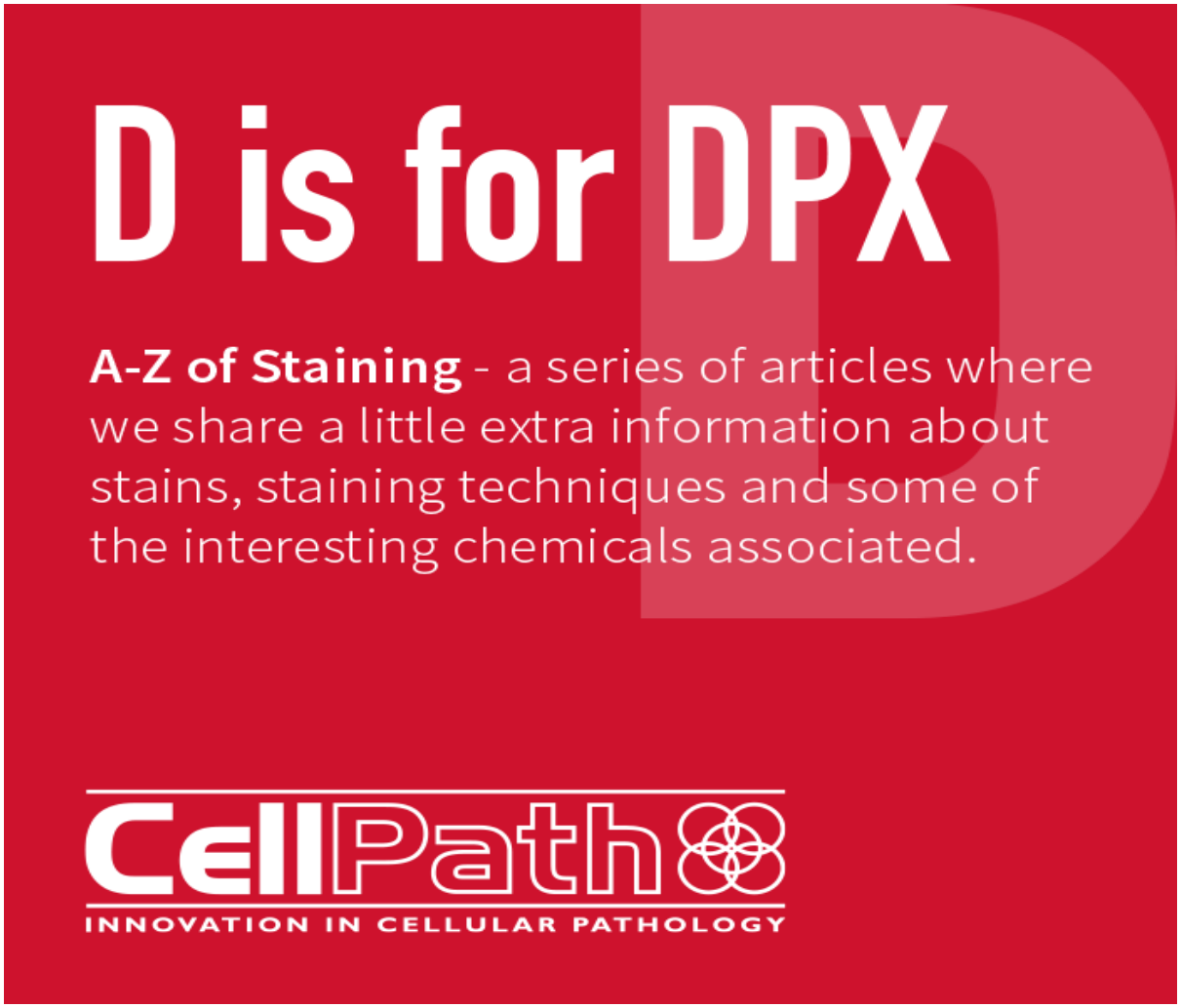


**Welcome to the fourth in our A-Z series - D is for DPX.**

## What is DPX?

First, the mysterious initials - DPX. Each letter indicates one of three components essential for the successful manufacture of DPX. The 'D' is for distyrene, a type of the plastic polystyrene. The 'P' represents a plasticiseran additive designed to reduce the viscosity of a material. The 'X' is for xylene- as you no doubt know, xylene is used as a solvent to remove alcohol from tissue during processing.

## What is it made from?

Whilst the distyrene and xylene elements have remained largely consistent since the inception of the formula it has been necessary for manufacturers to utilise

several different plasticisers. An original formulation from 1939 contained tricresyl phosphate which was later replaced by dibutyl phthalate. The replacement chemical, dibutyl phthalate, does come with a few of its own problems though. Chemicals from the phthalate group have been linked to a wide range of health problems, including asthma, cancer and diabetes. Here at CellPath, acknowledging the dangers of phthalates, we have developed a phthalate-free formulation of DPX with the same excellent properties.

## What is it used for?

Now we know what DPX stands for, and what it is made from, we can concentrate on the use of this handy formulation in your lab. Simply, DPX is a mounting medium. Mounting medium is used to attach a coverslip to a microscope slide to protect the tissue during microscopy and storage. In order to be an effective mounting medium, it is important that DPX has an optimised viscosity and refractive index (RI). The RI of the liquid should be close to the RI of glass once dry. This allows for clear and non-distorted viewing of the specimen under the microscope. Though applied in liquid form, DPX forms a hard adhesive film between slide and coverslip once dry. This hardening is caused by the evaporation of the solvent xylene. The rate of evaporation determines the drying time of the mounting medium. Before microscopy it is important to make sure the mounting media has started to dry. For DPX, slides should be left untouched for approximately 1 hour. This will allow adequate hardness to protect the sample from accidental damage during microscopy. It is then important that slides dry completely before they are filed otherwise they may get stuck together. For DPX, this takes 48 hours. There are several other variants with different formulas. These include ExPert and ExPert XTF– a xylene and toluene-free formulation- with additional safety benefits. Like DPX, ExPert

mounting medium also takes 48 hours to dry. ExPert XTF requires 72 hours of drying time to ensure slides are completely dry.


Synthetic mounting media have not always been available and in the earliest days of histology natural resins were used instead. One of the best of these natural resins was called 'Canada Balsam'. This was the sap of Canadian Pine trees which, when suitably diluted with xylene type solvents, has some of the required properties. Of course, it is sap which eventually fossilises to become amber, and, as such, Canada Balsam can darken over time like amber. It never truly hardens and will eventually crystallise- not entirely useful properties for a mounting medium. Here at CellNass, the oldest material we store is dated in the 1890's so we know those slides will be mounted with a natural resin.

In our next post, we explore one of the core chemicals associated with staining samples in the histology or cytology lab - Eosin. Your comments on our series and ideas for future posts are very welcome.

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