

ABRASIVES

The need to sharpen tools has been recognised as long as tools have been used. The first method of sharpening was probably through the use of sand stones and then hide such as used in the old leather razor straps. Modern day abrasives tend to fall into two categories. Coated abrasives in the form of glass or emery paper where the abrasive material is coated or bonded onto a form of paper or cloth backing, and bonded abrasives where the material is bonded together to form a wheel or stone. Coated abrasives and bonded abrasives are both fields where there are a substantial number of variables. The right selection is essential for best performance.

Bonded abrasives

Oil stones

These should be a must for virtually every tool user for sharpening chisels and plane irons etc. The most popular selling size is the 8in x 2in combination grit which provides coarse on one and fine on the other side of the stone. Light oil is applied to the stone prior to sharpening.

Water stones

These are often thought to give a better finish. Whereas light oil is applied to the oil stone, the water stone should be soaked in water for a few minutes before use and then lubricated with water only.

Coated abrasives

There is no longer any sand in sandpaper. A variety of abrasive types are used:

Crushed glass

This is a frequently used ingredient. It can be crushed to obtain a wide range of different grit sizes.

Garnet

This is a natural material first found in the USA and very effective for finer finishes because it has a form of self-sharpening feature which means that as it wears it breaks down into new cutting edges.

Emery

This contains natural aluminium oxide crystals and is normally cloth backed and used on metals.

Synthetic materials (aluminium oxide & silicon carbide)

These are now available in addition to natural materials.

Grit sizes

All abrasives come in different grit sizes. Grits are sieved for measurement, the grit sizes being governed by the sieve mesh. The larger the size of the grit the coarser the grain and vice versa. Grit sizes vary between 16 the coarsest, to 400 (the finest for woodwork) and even up to 6,000 for the very fine specialist finishing materials for metal.

Bonding

This varies from hide glue to resin. Hide glue being more flexible and suitable therefore for lighter work and resin being more suitable for disc sanders and heavy sanding machinery.

Backing

This is also important. Paper is the traditional material and is still very popular. Laminate and cloth backings are also now used. Backings are measured by weight of the paper or backing material and are letter coded. 'A' is the lightest at approximately 75gsm per metre, 'E' being approximately 300gsm per metre. The general rule is that the lighter backing is used for finer and more flexible work and the heavier backing for heavier work. Cloth backings are of pre-stretched material and have been produced for the rough treatment of machines and metal working.

Applications

Glass paper

Used for joinery and woodwork and hand sanding. For stock removal.

Garnet paper

For hand sanding but for finer finishing and contour work.

Aluminium oxide

The medium paper is for hand sanding or for orbital sanders. The heavy paper open coat will reduce clogging. For machine use and particularly for sanding soft and resinous woods. Close grain should be used for finishing. Aluminium oxide cloth backing is for heavier sanding, drum or contour work and for use on metal materials.

Silicon carbide

This paper has a form of self-lubricating process for fine finishing and is the material normally used on a waterproof backing paper for wet or dry finishing. The combinations of abrasive, backing, bonding and grit sizes are so great that it would be impossible to cover the subject in a few words. However, general rules are;

With all types, the open, coarser grain is less likely to clog and finer grains produce a finer finish. It is often a good thing to start with a coarse grain and work up to a finer one.

When sanding it is important to sand with the grain and, when sanding flat surfaces a cork rubbing block is recommended. Maintain constant pressure and overlap (like lawn mowing) to ensure that all areas are covered.

Clean the paper to reduce clogging and always store your abrasives in a warm and dry place.