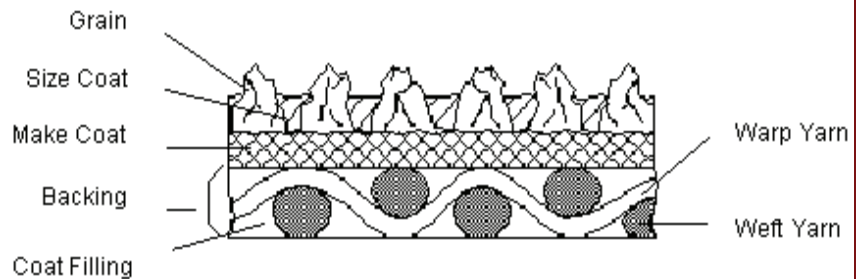


Sandpaper Grading Systems and What It Means by Richard Sherwood

What is with all the different grades of sandpaper? Maybe you are confused, I know I am. After all, what is P240 sandpaper? Some papers indicate the grit with a number while others show a letter and then a number. To add confusion to the subject, what is now 320 paper may not be what was 320. It depends on the paper manufacturer.

The confusion comes from the fact that sandpaper sold in the U.S. now is graded on two different scales, depending on if the maker uses the scale historically used in the U.S. or if they are using the scale that has been used in Europe. The U.S. scale is called the CAMI scale for the Coated Abrasives Manufacturer Institute while Europe uses the FEPA scale. The FEPA scale, for the Federation of European Producers of Abrasives, produces papers that are more course than CAMI paper but the advantage of FEPA paper is that this grading system requires a higher percentage of the abrasive particles be closer to the stated grit size. This requirement results in a more uniform scratch pattern on the material being sanded. Papers manufactured under the FEPA scale can be designated with the letter "P" before the grit number.

Coated abrasives consist of a backing material, a bond material ("coat") and of abrasive grain. This figure shows the principle construction of a coated abrasive using cloth as a backing. Some of the types of abrasives used by FEPA paper manufacturers are Fused/sintered Alumina, Zirconia Alumina, Silicone Carbide, Garnet, Diamond and Cubic Boron Nitride.



Common types of paper you may have in your shop are aluminum oxide, garnet, and silicon carbide. Aluminum oxide is a sharp granular material that breaks down leaving sharp edges on the sanded item. This ability to leave sharp edges makes aluminum oxide sandpaper fast working and long lasting. Garnet is also a granular material. When it is used, it leaves more rounded edges on the material. Garnet sandpaper can be used as a last grit because, as it rounds over it tends to blur or smooth out the sanding scratches. Silicon carbide is the abrasive used on wet/dry sandpaper.

The makers of abrasive papers are using the scales, and in some instances both scales, on their products and are designating the paper differently so it can be difficult at first glance to determine just how smooth or course the paper really is. Klingspor uses only the FEPA designation but does not include the "P" designation on all of its garnet and aluminum-oxide papers. Norton makes their product almost exclusively using the FEPA scale but does not indicate this on any of their papers. Mirka uses the FEPA process and registers this on all papers with the letter indicator. 3M uses both grading systems. Some of 3M's wet/dry paper and some of their garnet paper is CAMI graded while their aluminum-oxide paper is FEPA. They mark their aluminum-oxide paper with the "P" designation.

As indicated earlier, FEPA paper is more course than paper with a CAMI designation and it is important in the finishing stages that you know which paper you are using. Because the numbers in the two systems are closer to each other in the lower grits, it is not as important to stay with one system or the other. You may want to try to use FEPA paper exclusively in the finishing stages. Since FEPA grit size is more uniform, you may have a better result as you move up through the numbers.

The chart will hopefully make the differences clearer as well as help you buy and use the paper you actually need. If you are trying to make the transition like I am, you may wish to make a copy of the chart and have it posted in your shop for handy reference.

	CAMI	60	80	100	120	150	180	
	FEPA	P60	P80	P100	P120	P150	P180	
Course	←		Grit Size		→		Fine	
	CAMI	220	240	320	400	600	800	
	FEPA	P220	P240	P320	P400	P600	P1200	P1500

The sources used in preparing this article were: *Fine Woodworking*, April 2005, <http://woodworking.about.com>, and <http://www.feпа-abrasives.com>