

# Foam Facts

## from Glover Bros



(Or all you reasonably need to know about upholstery foam)

### Introduction

Gone are the days when foam was just latex and that was that. Today the many types of foam available present a bewildering choice for the busy upholsterer so in an effort to spread a little light we have compiled this fact-sheet. We hope it will help you pick the right foam for the job. If we have missed anything out do please let us know.

### Types of Foam

The upholsterer generally comes across four types of foam, the most common being *polyurethane block foam*. This comes to him in sheets or pieces cut to particular sizes. But it is actually produced in long slabs, 16 or so metres long and about a metre high. The manufacturer cuts these into manageable shorter blocks from which a convertor slits them into sheets or cuts them into whatever shapes are required.

The upholsterer will also use *reconstituted foam (chipfoam)*. This is made from off-cuts of foam which are minced into small pieces and then compressed and bonded together as blocks. These vary in height and density depending on the pressure used in the manufacturing process. The density of reconstituted foam is normally measured in lbs per cubic foot. The lightest (and softest) is 4lb and the heaviest 121lb. Blocks are converted in the same way as polyurethane foam to sheets or other shapes.

“ If it's blue it must be OK for seating, but the only thing the colour actually indicates is what dye the manufacturer put in ”

As every upholsterer knows, reconstituted foam is invaluable for bar seating and similar applications, often topped with a more comfortable polyurethane foam. Glover Bros stocks 6lb and 8lb recon. in 1" and 2" sheets.

*Cold cure foam* is another variant of polyurethane foam. Instead of being made in large slabs it is produced as individual small moulds—often cushion shape. Cold cure foam moulds tend to be dense and hard-wearing. We stock standard cushion sizes (20" x 22" x 4") in the flat and domed versions.

Then there is the father of all foams—*latex foam*. This is made from natural latex rubber. In upholstery it generally comes in the form of "pincore"—which, as its

name suggests, is peppered with tiny holes to help air circulation. Apart from its luxuriant feel the main distinguishing feature is its price. It costs about four times as much as the most expensive polyurethane foam. It is available in three hardnesses—soft, medium and hard.

Glover Bros stocks only standard cushions (20" x 22" x 4") of medium hardness but sheets are available to order up to 4" deep. Incidentally, if you want it thicker than this, you'll have to laminate two or more sheets as it is produced in blocks only 4" high.

The upholsterer has limited choice if he/she decides to use reconstituted, cold cure and latex foams. Availability from wholesalers is usually restricted to two weights of reconstituted foam, two types of cold cure cushion and one type of pincore cushion. But when it comes to polyurethane foam there is real and, for many, a bewildering choice.

### Fire Retardancy

All foam sold for furniture and re-upholstery in the UK must comply with the requirements of the *Furniture and Furnishing (Fire Safety) Regulations 1988*. Many foams meet these requirements by the addition of melamine (that's the stuff they make unbreakable crockery from). Now this is OK for cups and saucers but it doesn't do any favours in the soft seat department. As a result, these combustion-modified foams—CMHR and CM foams—are simply not as comfortable as pre-1988 foam and their long-term performance is not as good. Nevertheless, they are still widely used and for many years were the best that could be achieved in compliance with the law. But recently there has been a breakthrough in combustion modification technology.

A few years ago, the leading UK foam producer, Vitafoam, came up with a range of combustion modified foams—the *Reflex* range—which did not contain the dreaded melamine. Suddenly, we were back to pre-1988 when all foam felt spongy and luxuriant. As well as feeling better, Reflex foam is more durable and more consistent than the equivalent CM or CMHR foam.

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## How good is your PU foam?

Most people who buy polyurethane foam know of only one measure of quality—density. They know that "40" is a good seating quality and "35" is all right but not so good. A lot of people also think—mistakenly—that if it's blue it must be OK for seating. In many cases this happens to be true but the only thing the colour actually indicates is what dye the manufacturer put in. There is no generally agreed colour coding for foam, or any British Standard linking colour with quality.

*Density* is measured in kilograms per cubic metre. It tells you how heavy a foam is or, put another way, how much substance as opposed to air there is in it. So a cubic metre of our Reflex 40 should weigh (within a stipulated tolerance range) about 40 kg. To put this in everyday terms, a standard Reflex 40 cushion (20" x 22" x 4") should weigh between 1.15kg and 1.21kg. If it doesn't, it's either not cut to size or the foam is not within specification. In general what the density tells you is how durable a foam is—how much punishment it will take before it deteriorates.

The higher the density the tougher it is. So if you were lucky enough to be asked to upholster the seats of a London bus you would be wise to look for a "60" grade foam. Incidentally, as we said earlier, the density of chipfoam is normally expressed in lbs per cu ft. To give some idea of how very dense these foams are, 5lb per cu ft is equivalent to 80kg per cu mtr and 8lb, to 128kg!

“Odd shapes can be supplied ready cut but please send a template made from stiff card rather than paper. Any dressmaker will tell you hard it is to cut from flimsy paper”

You will occasionally see bargain offers of foam that are considerably cheaper than the norm. These are almost certainly "changeover" slabs that occur when the manufacturer is changing from one density to another. Rather than clean the tubes he will switch midway in production so you will get a variable quality. "You always get what you pay for."

One important point about density: it is not necessarily the same as *hardness*. This is measured separately. Some "30" grade foams are harder than some "50's".

*Hardness* is measured in terms of how much force is needed to depress a piece of foam by a given percentage of its thickness. This is usually measured in units known as Newtons. To give you a flavour of this, the softest foam we stock—Reflex 27S—as a hardness factor of 70 to 100 whereas our Reflex 35 is 100 to 130. Our CM33 foam is 140 to 180 and this highlights a distinction between Reflex foams and other combustion modified foams. The Reflex 35 and the CM33 are roughly the same density and are both intended as firm seating

foams but the Reflex has a much lower hardness rating.

The hardness factor of Reflex foams is generally lower than the equivalent CMF foams. They feel softer. But what you have to remember is that whereas normal CMF foams lose their hardness fairly quickly in use, Reflex foam remains the same in the long term. In other words, what you feel now is what you get—this year, next year, and the year after that. This isn't to say that CMF foams flatten quickly. If they are good quality, like ours, they should give years of satisfactory service. It's simply that they will feel softer after use than they do when you take them off the shelf. Experienced upholsterers take this into account when advising customers on which CMF foam to use. Life is simpler with Reflex foams.

Three more measures are interesting but not essential knowledge for the upholsterer: *tensile strength* (how easily it breaks if you stretch it); *elongation* (how elastic it is); and *compression set* (how much it flattens out with continuous use).

## Foam cutting

Keep your electric carving knife for the turkey. The BOSCH foam cutter is the only tool for the job if you want speed, safety and accuracy.

This professional tool will cut up to 10 inches depth of the hardest foam month after month. If you are fortunate enough to possess a cordless BOSCH foam cutter, hang on to it. They stopped making them in 1995 and are unlikely to make any more. But the mains version is still produced and available from Glover Bros at substantially below list price.

## And gluing

A variety of adhesives are available to stick foam, first of which is our own brand of GLOVERBOND. This comes in convenient large aerosol cans of 500ml. For large areas you can use our excellent S85 which comes in 1 or 5 litre cans and can be applied by brush or spatula. Its great advantage is that you get a good bond by applying it to only one of the components to be joined.

## Classifications

Finally there is an informative classification based on the British Standard BS3379 which serves as a useful guide to which foam should be used for a particular job. There are the five so-called fatigue classes, as shown in the table overleaf.

These classifications are determined by what is known as a constant load pounding test. Under this, samples of foam are subjected to 80,000 poundings by an indenter exerting a force of 76.5kg. The samples are checked before and after the test to find out the loss in thickness and hardness.

Our Reflex 35 and 40 and CMHR5OS all come into the high quality league "V" so if they are used for

domestic seating they should give exceptionally long service. Foams in the next class "S" for severe—such as our CM33 and Reflex 27S are suitable for domestic seating. Next comes "A" for average foams which are OK for backs and arms. Finally there are the foams classed "L" for light use.

Our catalogue lists foams according to the above classifications and the hardness measures so that you can pick the right foam for the job. The choice is yours.

## Prices

Please see the attached list of grades stocked and their prices—but as foam can be a volatile commodity, please ring first before ordering in quantity. As a general guide "V" usually costs about 50% more than "A".

Ó Glover Bros January 2003

Recommended applications	Type of service	Class
Heavy duty contract seats. Heavy duty public contract seats	Extremely severe	X
Public transport seats. Cinema and theatre seats. Contract furniture seats	Very severe	V
Private and commercial vehicle seats. Domestic furniture seats.	Severe	S
Private vehicle seat backs and armrests. Domestic furniture backs and armrests.	Average	A
Packing, scatter cushions and pillows.	Light	L