

## Roof Insulation - a Spray Foam DIY Proposition?

We get each week a number of enquiries for roof insulation DIY systems. Of course the motivating factor is to save money and perhaps to get the job done quickly rather than wait 6 to 8 weeks before a professional spray foam polyurethane company could install the roof insulation due to order book workload particularly in winter months. We fully appreciate these motivations which is why our pricing policy is ultra competitive and why we try to accommodate within a customer's installation time frame. If you have decided to go the DIY foam route then go to at least reputable distributors such as DIY Spray Foam or Iso-Spray DIY Polyurethane Spray Foam Shop who maintain an online shop and can provide backup and customer support for all DIY spray foam applications.

A popular and commonly sold spray foam DIY system is FROTH-PAK which is made by the Dow chemical company. FROTH-PAK is a two component system, supplied in 2 small cylinder drums, one contains the isocyanate and the other contains the polyol. These chemicals are then mixed at the spray gun 50/50 and the resulting chemical reaction produces the polyurethane spray foam. As a DIY system, FROTH-PAK for example, is not (as we understand from Dow's web site) generally supplied by Dow as a fire rated foam. The generally accepted minimum fire rating in the UK market for roof insulation spray foam is Class 1 which few if any of the DIY kits meet although we do understand some kit suppliers meet B2 fire rating, a rating that will still allow combustion of the foam. A B2 fire rating (German) is equivalent to the Class E BS EN11925-2 fire rating which describes materials as meeting this as moderately flammable. Kits that do not contain any fire suppressant chemicals are very combustible and a very real fire hazard. Spraying your roof with a foam anything less than BS Class 1 means in our view that you are creating an unnecessary fire hazard. You should also consult with your insurance company before proceeding down this route as it may invalidate your buildings insurance. To give credit to Dow they actually say that the foam produced by FROTH-PAK "... will burn if exposed to sparks or flames and may constitute a fire hazard since it can be ignited by a spark" (their words). The roof insulation foam that Rooftherm specifies and uses is a British Standard foam fire rated at Class 1 (low flammability). This means that a spark cannot ignite the foam and that the foam will resist the spread of flame. In fact, if you try and light the foam with say a cigarette lighter it will smoulder at the point the flame hits the surface of the foam but extinguish when the flame is removed. The polyurethane foam does not spread flame. At this point any person who loves his family and home would not proceed any further with this type of DIY spray foam kit. And certainly they would not sacrifice the safety of their family for the sake of a perceived cost saving. But let's look at a few more points. DIY kits are typically 100% closed cell polyurethane which means they are suitable for marine flotation systems but they are not suitable for spraying against timber in a roof insulation installation of foam. Rooftherm uses a 5% open cell polyurethane foam. This means that the timbers in a roof can "breathe" which is very important since any damp in the timber needs to evaporate off and the foam does not prevent this. If damp cannot evaporate off then the risk is that wet rot and possibly dry rot may develop. Clearly very bad news if you want your roof to stay up! So again, the DIY system will not be suitable for insulating a roof. At Rooftherm we use a relatively high pressure and high temperature when spray applying polyurethane foam to the underside of a roof. We do this because it ensures an excellent welded bond to the substrate. The foam is heated up to typically 120 degrees and pressurised at typically 600 psi. The DIY kit has to rely on the pressure within the drums, as more chemical is released from the drum the pressure drops. The temperature a DIY kit foam is installed at is ambient so in the middle of winter when the loft is a freezing temperature the ambient temperature is too low to successfully spray. Again, to give credit to Dow they point this out saying that the tanks need to be at 24°C or warmer. So you got these drums you have lugged up into the loft and the drum contents need to reach at least 24°C before spraying. So that effectively limits to spraying in the UK to the warmer summer months. Now the bond that polyurethane foam will have with the substrate will depend to a high degree on the temperature and pressure that the foam is applied at. You want, after all, for the foam to stay up or you won't have any insulation. Professionally installed it is no problem, in fact we at Rooftherm will guarantee the bond, if we install polyurethane foam to your roof we say it will not drop off! What chance has the foam bond got if applied cold? Work it out! So, there we have it, fire risk, timber rot risk and low bond risk before we move onto the fact that DIY kit yields offer relatively small if not applied under "ideal" conditions for yield. And of course yield is a big cost determinate, the less you get the more it costs per metre to spray. Leaving aside other issues (clogging spray heads, splatter, finish, depth control etc) a DIY installed roof insulation system is never going to compete with professionally installed polyurethane foam. And where are you going to get your all important installation certificate certifying that Class 1 fire rated foam has been installed? Try selling your home without an installation certificate and the surveyor will likely ask you to remove all the foam!