

Global Warming means more than just grapes in Glasgow



Scientists argue over the facts of global warming, and statistics can be interpreted in different ways. But the evidence is piling up. Most scientists, and most countries apart from the USA, have signed up to the threat of global warming. They've backed international agreements such as Kyoto to cut the level of so-called greenhouse gases, such as CO₂ in the atmosphere, which are believed to cause global warming.

But it is not just in the Sahara, where deserts are on the move, or the Antarctic where ice caps are melting. Rising temperatures affect the British Isles too.

Sometimes global warming seems remote from our daily lives. But there has been a steady build up in the signs of climate change. Botanists and zoologists report the northward march of temperature sensitive plants and animals. And it's not just the odd butterfly or fern. Thirty years ago English winemakers could only plant successful vineyards in southernmost Kent and Sussex. Now one of the largest vineyards in the UK is in Scotland. Average temperatures and sea levels are rising; flooding has affected property values in certain parts of the country; and weather patterns have changed, and are predicted to change even more. It's been a bonanza for sun protection lotions as we are advised to protect our skin from higher levels of harmful Ultra Violet (UV) light from the sun. But rising temperatures and UV are harmful to other things too.

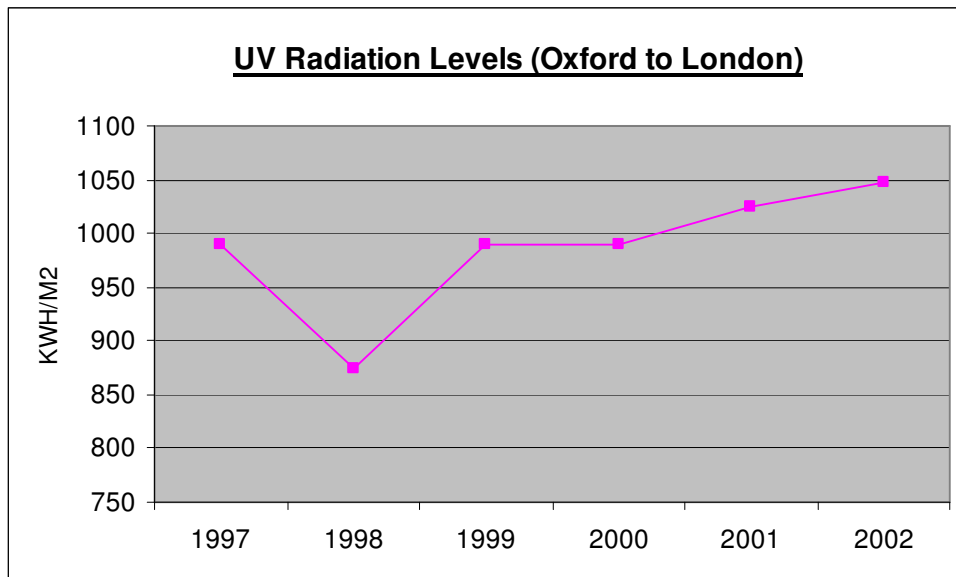
Freefoam has led the way in widening the colour choice in roofline, and pioneered the use of environmentally friendly Calcium Zinc based lead-free products. Of course, one cannot take this lead without considerable research and commitment, and close collaboration with our raw material partners.

Interest from the continent in our colour range led us to investigate the limitations of the colour stability of our products when exposed to extreme continental conditions. Apart from higher levels of UV, even the most stable system could be expected to give problems where direct heat absorption causes rapid temperature rises on darker coloured surfaces. And predictably they did. In some situations it exceeded the softening point of the material, creating irreversible distortion. But customers, of course, expect you to solve these issues and we are pursuing several different methods of tackling it with our raw material partners. What has emerged, in relation to colour stability, is that all colours, but darker colours in particular, have a 'tipping point' of UV exposure beyond which fading is rapidly accelerated. Identifying that tipping point and pushing it further out is the challenge and we are in the process of solving it.

This is not a problem for us in the British Isles, but our investigations led us to review the current levels to which roofline products are exposed. The results made us take a second look... and a third.

Back in the early 1990s we debated with our material suppliers about the appropriate levels of relatively expensive TiO_2 (Titanium Dioxide) for UV protection of white products. The consensus was that 4 parts per hundred was quite adequate, and that certain producers were happy at 3.5 parts. Manufacturers' product guarantees at the time were generally for ten years with the stipulation that this covered installations north of a line – the Kilo Langley line – through Paris. It is generally shown on maps like a weather isobar line. The UV irradiation at that place at that time was approximately 950 KWH/m², and the line was considered to be virtually static. Below this line additional UV protection, generally 5–6 parts per hundred, was required to protect PVC profiles in hotter climates.

We were alarmed to find that by 2003 this 'Paris level' had increased to over 1100 KWH/m². More alarming still was that the Paris 'limit' number was now being seen in southwest and east coast Ireland. Even higher figures were recorded over a large part of southern England and Wales, extending across to north of London. The graph shows annual figures for the area between Oxford and London and clearly indicates a rising trend in UV levels. Without being alarmist, the area south of Bristol is about 20% higher, and the current trend of increase is approximately 1.5% per year.



Source: National Radiological Protection Board website (UK) and the Irish Meteorological Office.

While we were alarmed about this rate of increase, our own products were not at risk. We had been supplying markets in southern France for some time, and had added the necessary 5–6 parts per hundred to all our fascia products for operational simplicity, whether they ended up in France or the UK. Our products had more

expensive ingredients as a result, but we knew customers would welcome the added protection. Better safe than sorry.

It is difficult to say what should be recommended in the future, but the South West of England has already exceeded 1200, and Florida with an energy load of 1600 requires a TiO₂ level of 8 parts or more.

With grapes now growing in Grimsby and Glasgow we must deal with the facts as we see them and make certain our products last longer than the guarantees that back them. Although our products are well within the current safety limits for the UK and Ireland, we will immediately step up the levels of TiO₂ protection for whites and take similar protection with our darker coloured products to maintain that extra protection.

This is not a small issue, nor is it one that affects only Freefoam, or just PVC-UE roofline. Every manufacturer will have to establish the levels of protection its products need, but the industry is not good at open or early debates. A previous problem with discolouration was swept under the carpet and strenuous attempts were made to suppress honest debate. Many companies, large and small, suffered unnecessarily as a result. In particular, 'pinking' did for one well known company that is now closed down. Had that debate taken place, as it should, in the open, and in good time it might still be in business and another large company wouldn't be managing a refurbishment program which could yet exceed the huge provision it has made.

This issue will affect us all: extruders, stockists, installers, raw material suppliers giving performance warranties and insurers brave enough to venture into this arena again having had their fingers burned before. Let's not duck the issue this time.