

Help and advice



Martin Cummins on high temperature adhesives

Some like it hot, but that's not always cool

SUMMER is here and of course we're all holding out for a hot one, so should we all be running to grab those high-temperature adhesives to cope with the heat? Well the simple answer is not necessarily.

We need to consider first what an adhesive claimed as High Temperature (HT) really does. What does the term really mean?

During a recent training session this very question was raised.

Among those present, some believed that these are adhesives that can be applied when it is hot in the room; others thought that they are adhesives that should be used if a building is permanently warm; or that they are adhesives capable of performing whether it is warm or cool. In some respects all three views may be correct.

So there may be differences in what HT means depending upon the adhesive type, its area of use and the slant given to the product by the manufacturer.

If nothing else the name suggests a product with higher performance characteristics with regard to temperature.

We must therefore consider why there may be a need for higher performing products.

British Standards instruct what temperature ranges should not be exceeded (i.e. 27degC for vinyl floorcoverings) in service and also the temperatures limitations throughout installation.

With due respect to British Standards the nature of flooring is constantly changing, therefore the parameters products need to perform under, are continually being stretched.

A prime example is under floor heating. This has been around a while as warm water-pipe systems. These give a relatively controlled warming and cooling process on the floor whilst the floorcoverings and adhesives are not put under too much strain and perform well.

Nowadays though under floor heating can consist of radiant surface mats (traditionally used under ceramic tiles and referred to as under-tile heating) which, having as little as 3mm smoothing compound above them, can give quick temperature fluctuations putting the floorcoverings and adhesive under considerable strain.

Another such situation could be a conservatory or a glass fronted building. These areas are subject to high solar gain with extreme temperature fluctuations, particularly on a warm spring day or a cooling autumn afternoon.

The floorcovering of choice was typically stone which is relatively stable and used a strong bed of cementitious material and no problems are encountered.

However, the attraction of bespoke or design vinyl flooring creates a different situation. Here the adhesive is close to the surface, the vinyl heats up or cools down quickly with the external weather change and puts the system under pressure.

Of course not all floor covering give rise to such concern under temperature variance; for example, carpets and carpet tiles even when very warm will not put adhesives under severe strain and, provided the adhesive itself is stable in warmer temperatures the coverings will remain successfully adhered. The greater problem with these is generally found to be wet/dry variances.

However, hot pressed vinyl tiles (aka LVT) and rubber may not suffer great dimensional change with temperature variance, BUT they are extremely strong products and exert a great deal of strain on the adhesive line.

High strength and high Temperature tolerant adhesives are therefore required to ensure the flooring doesn't 'pop off'.

What about rooms which are constantly warm or constantly cool. What requirements are needed from adhesives in these situations?

In general the floorcoverings selected and products chosen should be stable at the temperature in use. A pressure sensitive adhesive may not perform particularly well at low temperature, but is good in warm temperatures whereas a good quality SBR adhesive tends to perform well warm or cold.

Historically, epoxy adhesives with extremely high strength and not affected by temperature to any great extent held the floor covering where it was placed.

The downside is that they are not particularly contractor friendly, being hard to use to use and

awkward to lay. They do still have a place, although more for moisture tolerance.

Options are much wider now as these epoxy's are joined by the high technology adhesives that bring a more 'engineered' solution for wide temperature tolerance.

With all the above in mind our [Laybond] HT adhesives are more about temperature tolerance – the ability to ensure the floorcovering performs under wide temperature fluctuations.

They are recommended in areas where traditionally Epoxy or PU adhesives were necessary. Other adhesives claimed as HT may be suitable over wide temperature fluctuations or may be products designed to be used in constantly warm environments (export grades) or simply be products that themselves are not affected by heat (but they may be unable to hold the floorcoverings should

they themselves be affected).

In summary: Be aware that the label high temperature may not be just about high temperature performance and the adhesive's ability to not break down.

It may refer to the adhesive's ability to tolerate wide temperature fluctuations and that doesn't necessarily mean from ambient to hot; equally it can mean where the base temperature is low moving to ambient.

Consider at the outset what conditions the floor will be subjected to and match the adhesive and its performance to ensure a successful installation. But as always, if you are in any doubt, consult the product data sheets or the manufacturer. **CFJ**

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David Gatfield on floor preparation

Cheap and cheerful? You'll get an earful

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tested method.

If none of the above take your fancy, Altro manufactures a resin compound for use under vinyl flooring that dries completely matt with obvious advantages. This makes apparently good screeders, even from those whose work looks like they used the bucket to lay the screed rather than the trowel.

Another important factor which is sometimes out of the flooring contractors control due to time constraints, is how to allow sufficient curing time for the smoothing compound before the floor covering is installed.

Generally speaking, in reasonable drying conditions most smoothing compounds will take light foot traffic after a few hours and will allow the installation of floor coverings a few hours after that. But problems can still occur if the finished floor is heavily trafficked before the smoothing compound has had time to fully cure.

Even though the flooring has

been laid, the smoothing compound may still be susceptible to indentation from heavy trolleys or machinery manoeuvred into position on small wheeled trucks.

Not to mention the damage that chair legs can inflict, particularly when only two of the four are in contact beneath a ten stone sixth-former rocking back and forth on the newly installed floor covering.

And we've all heard the startling statistic that an eight stone woman in stilettos exerts a downward pressure of several tons per square inch on the 2mm of plastic you've just finished laying and are still awaiting payment for.

There's much more to correct and effective subfloor preparation than we've had time or space to cover today, but I'm sure it's an issue that we'll cover time and time again. **CFJ**

David Gatfield is Altro's northern region technical services manager

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