

## New formaldehyde controls for composite pallet blocks

Formaldehyde is a chemical substance that is widely used in our industry for the adhesive or resin used in composite pallet blocks. From 1 April 2015 this will be reclassified by the EU as a category 1B carcinogen. The chemical is used to cure (set quickly with maximum strength) the adhesive bonding together the wood chips in the composite blocks (known in British Standards as chipboard or particleboard blocks) but because formaldehyde is emitted as a colourless gas which can discomfort and affect the health of people who breathe it in confined spaces, controls have been introduced across the UK over the last 10 years and in 2015 will be toughened up right across the EU.



Formaldehyde limits were first introduced in the 1980s when occupants of UK dwellings felt discomfort and BSI produced a standard test method and recommended limits of exposure. These were voluntary at the time but a much later decision by the World Health Organisation to change its classification of formaldehyde from "probably carcinogenic to humans" to "carcinogenic to humans" led to an alert issued 2004 by the European Panel Federation (EPF) urging the wood-based panel and block industry to switch to E1 resins – a very low formaldehyde emission level resin.

The first serious testing of composite pallet blocks was by UIC, then EPAL took this over in the 1990s and their rigorous testing of composite blocks for the Europallet is now carried out by a dozen European laboratories. Part of this testing is to evaluate for joint strength (nail retention), water swelling (disintegration), as well as formaldehyde gas emission. The formaldehyde emission testing is controversial, complex and takes special training and equipment and is not something that pallet makers could undertake without the help of a laboratory. The major change coming in April 2015 is when composite pallet blocks will be subject to tight emission controls on formaldehyde gas emanating from these materials. This Europe wide regulation will therefore have a substantial effect on the manufacture and use in pallets of composite blocks, so pallet users will require satisfying over emission levels. These controls will also affect the flooring, carpeting, upholstery and furniture industries and for all will be mandatory via national controls.

Although low formaldehyde emission resins for composite blocks boards of type designated E1 have long been freely available they are not always used in cheap composite blocks for pallets. The main effect of these regulations will fall on block manufacturers but it will impact on pallet and case makers as there may be a tightening under the REACH (Registration, Evaluation & Authorisation of Chemicals) Directive and/or the UK HSE may introduce separate legislation for workplace exposure limits.

The current formaldehyde maximum for pallet blocks for EPAL is 8mg/100g and we note IKEA are trying to bring board limits in their furniture down even lower to 4.5 mg/100g. A practical start for pallet makers may be to determine if their block supplier uses an E1 resin to achieve 8mg/100g which may possibly be the eventual EU target maximum. Much of industry across Europe now use an E1 resin whereas previously E2 or even E3 were adequate, which have much higher formaldehyde emissions. Work is also going on in relation to producing bio resins or combinations of bio resins and chemical resins to achieve lower formaldehyde content. The current difficulty is that bio resins are technically possible, but uneconomic.

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