MEDIUM DENSITY FIBREBOARD (MDF)

Contents

INTRODUCTION

This BWF guidance note provides information on MDF, particularly on the risks to health associated with machining it.

The BWF receives enquiries, mainly based on rumours, about the health effects of and possible bans on MDF. This guidance note should provide adequate information to answer these questions.

MDF contains woodchip, sawdust and other similar wood waste and is typically composed of 98% softwood and 2% hardwood, although this varies.

The material is often bound together with a urea formaldehyde resin, although formaldehyde-free boards are now also available.

Despite rumours to the contrary MDF has not been banned in the USA (or anywhere else), nor is it likely to be. The USA in fact uses more of it than any other county.

The confusion possibly relates to some local Building Association codes within the USA, controlling the use of formaldehyde or several misleading articles in the recent trade press.

The fact that some 9 States in the USA (e.g. California) require warning notices in buildings, stating that a formaldehyde based product has been used, coupled with the fact that product liability is a critical issue in the USA, may have led to many of the rumours referred to earlier.

HEALTH EFFECTS - DUST

Due to its composition, MDF may emit a very fine dust when machined. Although the ratio of softwood to hardwood mix may vary the maximum exposure limit (MEL) is still 5mg/m³ as for wood dust of all types.

The health risks associated with the MDF dust may be effectively controlled by compliance with COSHH.

The health effects of MDF dust are similar to those of ordinary wood dust, as described in HSE Woodworking Sheets (WS's) numbers 6 and 30. Like many woods, it may cause both dermatitis and asthma.

The BWF knows of no cases of sino-nasal cancer resulting from exposure to MDF dust, although this will be monitored as its use becomes even more wide-spread.

Local Exhaust Ventilation (LEV) systems must be properly designed and maintained (see WS No 24 - LEV - General principles of system design).

When users switch from natural wood to MDF deficiencies in their system soon become apparent, due to the fine nature and large quantities of dust produced. Highest exposures may be expected in sanding and assembly; as for wood.

HEALTH EFFECTS- FORMALDEHYDE

Most, but not all, MDF's use a formaldehyde based resin. British Standards now restrict the amount of formaldehyde that can be used in the resin. A HSE survey carried out in the 1980's, monitoring exposure to formaldehyde during the machining of MDF found levels to be substantially below the MEL. Typical levels were 0.15ppm, but none were above 0.5ppm. Since this study, the amount of formaldehyde used in the resin has been reduced. Formaldehyde has an MEL of 2ppm although it can be smelt at approximately 0.8ppm. HSE studies to date, however, indicate this is not a risk when machining MDF.

Effective control of MDF dust, coupled with good natural ventilation, will invariably control any formaldehyde vapour.

The Woodworking National Interest Group (WOODNIG) of the HSE have carried out a research project to examine in more detail possible links between MDF and ill health.

This research came to the conclusion that there is no evidence of any different ill health effects associated with exposure arising from the machining of MDF to those associated with similar exposure arising from machining other forms of wood.

REFERENCES

HSE Information Sheets -

Woodworking Sheet No 6 COSHH and the Woodworking Industry

Woodworking Sheet No 24 - LEV - General principles of system design).

Woodworking Sheet No 30- Toxic Woods

Wood Panel Industries Federation

MDF Information Sheet

BWF Guides-

BWF Guide No 5 - COSHH and the Joinery Manufacturer

BWF Guide to Health and Safety in the Woodworking Industry

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