

HEALTH & SAFETY INFORMATION FOR DECORATIVE LAMINATES

This information outlines the precautions, which should be taken in the handling processing and fabrication of decorative laminates. It has been prepared in accordance with the format developed by the British Plastics Federation to comply with Section 6 of the Health & Safety at Work Act, and with reference to Guidance Note G.S.8. "Articles and Substances for use at Work".

Products

The materials referred to are melamine surfaced high-pressure decorative laminates. They are supplied in sheet form in a variety of sizes, thicknesses, and surface finishes. Laminates basically consist of paper and thermo-hardening synthetic resins. Irreversible chemical bonds are formed between resin molecules in the constituent layers of paper during the curing process, which occurs under conditions of high pressure, and temperature. The resins used are the reaction products of phenol and formaldehyde, and melamine and formaldehyde, and are controlled to impart the required characteristics of wear, stain, impact, and fire resistance, and mechanical strength and formability in the finished laminate.

Decorative laminates are essentially for surfacing and may be bonded to almost any substrate, the most common being chipboard, plywood, hardboard, aluminium, and mineral based.

Handling and Storage

Laminates are chemically stable at normal temperatures and are no hazard under normal storage conditions. They are usually delivered banded on pallets, which are suitable for transporting the load to, and from stores by fork lift truck. Normal precautions should be taken to avoid injuries in transport and handling from unstable stacks and loads, incorrect lifting methods, and driving practices. The weight of a pallet depends on the size, number of sheets, and grade, but a useful guide in the calculation of a load is 1.5Kg per square metre for a 0.8mm laminate.

All laminates have a hard surface, (some may be smooth), and precautions (e.g. strapping) should be taken to avoid accidental slippage of stacked material in storage or transport.

Precautions should be taken to avoid cut injuries caused by sharp and burred edges. Broken laminates are particularly dangerous in this respect, and the danger can be lessened by taping the break. Gloves should always be worn when handling laminates. Displaced sheets in a stack are also hazardous, particularly at face level, and they should be picked up, as they are very slippery when face-down on a concrete floor.

Fire Precautions

Laminates are difficult to ignite and are not hazardous as a potential source of ignition, but in a conflagration, they will contribute to the fire. The hazard relating to smoke obscuration and noxious gases from a fire derives mainly from the items in the room, which will ignite first and burn vigorously. Items which are difficult to ignite and which have a low surface spread of flame will contribute much less to the smoke obscuration and noxious gas hazard. All organic products, whether synthetically produced like plastics, or naturally occurring such as wood or wool, will produce gases of varying composition, depending on the conditions under which burning takes place. The toxic gas most commonly found in fire gases from organic materials is carbon monoxide. The presence of elements other than carbon, hydrogen and oxygen in plastics can result in the production of other toxic gases. In the case of high pressure decorative laminates, if any other gases are released, the amounts will be extremely small, and the effects of carbon monoxide and oxygen depletion will for overweigh the dangers from such trace quantities.

Normal fire fighting procedures should be followed, including the wearing of breathing apparatus. Water and dry powder extinguishants are particularly suitable but CO₂ and Halon can also be used, the choice depending on the circumstances.

Finely-divided dust arising from the fabrication of laminates (i.e. sanding or sawing) are a potential source of explosion and combustion, and the propagation of flame in dust clouds and accumulation is very rapid.

Care must be taken in the design and servicing of pneumatic handling and extraction systems to avoid explosive conditions. Explosion relief and isolation should be provided and potential ignition sources eliminated.

In all cases, expert advice should be obtained. A very useful reference on this subject is booklet No.22 in the Health & Safety at Work SERIES "dust Explosions in Factories" obtainable from HM Stationary Office.

Machining and Fabrication

Machining of laminates by sawing or grinding may generate dust and noise. Local exhaust ventilation should be provided at points where excessive dust occurs and the comments made in paragraph 3 noted in the design of such systems. The properties of substrates to which the laminate may be bonded must also be taken into consideration when assessing machining hazards. The working of aluminium/laminate composite board requires particular care, as any fine dust generated is highly explosive and requires special precautions. It should not be fed into central dust collecting systems with either materials.

Care should be taken to protect the eyes from splinters and dust and cuts, and the "Protection of Eyes Regulations" must be met.

Excessive noise is likely to occur during grinding and sawing and suitable precautions (i.e. screens and ear protection) should be taken. Reference should be made to the publication "Code of Practice for reducing the exposure of Employed Persons to Noise", which is available from HM Stationary Office.

Health & Environmental Aspects

Decorative laminates are fully cured and chemically inert. They are not classified as toxic or harmful. If finely ground during fabrication the accidental inhalation of small quantities of dust need not be cause for concern, but in all cases where the machining generates large scale airborne dust particles, dust masks and local exhaust ventilation should be provided to ensure dust is directed away from the breathing zone of the operator.

Most powders can cause irritation with persistent direct contact with the skin. The sensitivity of individuals varies considerably, but a few may develop non-infective industrial dermatitis. Problems of this nature can invariably be avoided by simple basic precautions, such as the use of dust masks, gloves, overalls, and care with personal hygiene. Properly dispensed pre-work barrier creams, soaps, washing facilities, and after-work conditioning creams will prove effective. In the exceptional case of a person with an allergic sensitivity to the dust, the only remedy is to avoid all contact at any level of exposure. Professional medical advice should be obtained in such cases.

There is no measurable fume or reactive constituent in the laminate.

Product Information

Technical literature is available describing the properties and characteristics of each grade of laminate and the applications and recommended fabrication methods. Users should be familiar with the contents of this literature. If there is any doubt, further information and advice should be requested.

Waste Disposal

Much of the content and recommendations in sections 3 to 6 apply equally to waste disposal.

In general, waste may be disposed of by controlled incineration or burial, but the requirements of the "Control of Pollution Act" should be observed. The material is not classified as a "notifiable" waste.