TECHNICAL DATA SHEET

04/2014

KoskiDeck

KoskiDeck plywood is in accordance with standard EN 636-3:2012; plywood for use in exterior conditions. The plywood is used above ground and exposed to weather, being "*capable of withstanding exposure to weathering conditions and liquid water, or water vapour in a damp but ventilated location*", and it corresponds to use class 3, as defined in standard EN 355-4:2013.

Application

KoskiDeck has applications in scaffolding, trailers, loading platforms, warehouses, horse boxes, and farm building, among others.

Logs

Koskitukki Oy, the parent company of Koskisen Oy, is responsible for the raw material supply to the Plywood mill. The policy is to purchase raw materials as environmentally friendly as possible, in accordance with the PEFC certification and FSC control. The logs used are birch, together with spruce, when combi plywood is produced.

Bonding

Gluing with phenol-formaldehyde resin is in accordance with Class 3 of plywood bonding quality standard EN 314-2:1993. Bonding class is designed for exposure to weather in exterior conditions.

Coating

The plywood is coated with a saturating grade kraft paper impregnated with phenolic resin, providing a protective and fine coating. The coating is pressed in a hot press with press plates with special pattern. Coating weights can vary from 120 to 800g/m^2, and available standard colors are dark brown and black.

Formula and density

The formula of the plywood can be cut into following approximate component shares: peeled veneers 83,6%, glue (phenol-formaldehyde resin) 6,9%, hardener (wood flour, chalk, potassium carbonate, etc.) 2,4%, water 7,1%, and coating < 0,1%. The density of birch plywood is ca. 700 kg/m^3, and 630 kg/m^3 for combi plywood.

Energy used during production

In the production of coated plywood electric power consumption is 810 MJ/m^3 (excluding forklifts' operations). The electric power consumption is distributed between different sources; hydropower 47,1%, natural gas 9,9%, KoskiPower 10,0%, and nuclear power 33%. Koskisen's own power plant, KoskiPower, provides thermal energy from Koskisen's wooden by-products, and the consumption of thermal energy is emphasized in veneer drying, hot-pressing of plywood board, and coating. Total emissions to air from energy consumption during the production are

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approximately 32 kg CO_2e/m^3. Figure 1 presents how the electric power consumption is distributed between different phases of plywood production process. (Haaparanta 2011, pp. 62-64.)

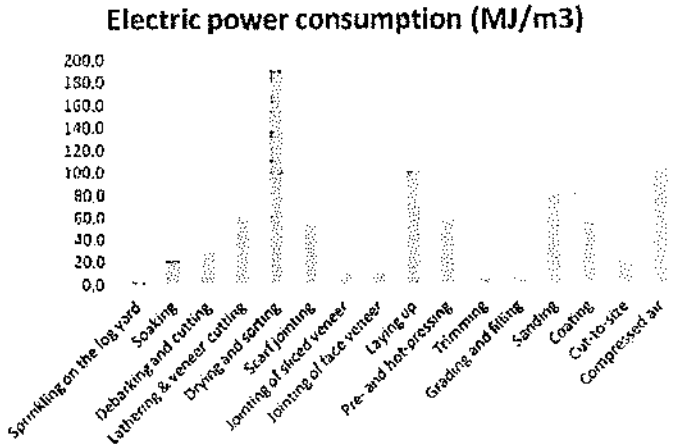

Figure 1. Electric power consumption of plywood manufacturing process (Haaparanta 2011, p. 64)

Emissions

The air emissions during the production are calculated with a data program that has been specially developed for the mechanical woodworking industry. The calculation is based on the annual production volume, and at plywood mill the formaldehyde, phenolic, and other VOC emissions, as well as particle pollution (incl. PM10), are calculated.

Formaldehyde emission levels of the panels fulfil requirements of Class E1 according to the CE-marking, as well as Class A of EN 1084, as the formaldehyde content is lower than the maximum of 3,5mg HCHO/(m^2h). Plywood also fulfills the requirements in respect to formaldehyde emissions according to CARB phase 2, as the content analysis result for exterior glued plywood, 0,05 HCOH mg/l, is lower than the limit of 0,39 mg/l.

Carbon footprint

One cubic meter of phenolic coated plywood has a carbon footprint of 231kg CO_2-equivalents (New Size, 9mm thickness, 680 kg/m^3 density). CO_2-equivalent is a unit for comparing the radiative forcing of a greenhouse gas to CO_2, i.e. CO_2e refers to the amount of CO_2 that would cause the same impact on climate, as a given amount of another greenhouse gas. (Haaparanta 2011, p. 77.) Figure 2 shows the distribution of CFPs between different process phases of phenolic coated plywood, including only the emissions that occur during the production process; rest of the emissions are released when logs and other raw materials for plywood are produced and transported to the mill. (Haaparanta 2011, p. 66.)

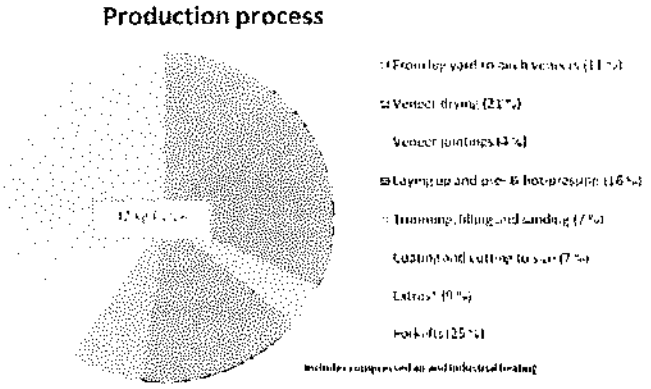

Figure 2. Distribution of kgCO_2e/m^3 between manufacturing phases (Haaparanta 2011, p. 66)

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Certificates

The Koskisen system has been set up to meet the requirements of the quality management system standard EN ISO 9001, environmental management system standard EN ISO 14001, occupational health and safety management standard OHSAS 18001, and chain of custody standard PEFC ST 2002:2010, certified by Det Norske Veritas. The plywood is CE-marked according to the standard EN 13986:2004.

Handling, protection and repairing

Plywood does not contain any harmful chemicals or additives to environment or health (R20-R48, R50-53).

Plywood should be retained in original packing until required, in similar "climatic" conditions as the intended end-use. Panels should be stacked flat on a firm raised base, with enough bearers to prevent sagging. The stack should be covered in order to prevent the top face from picking up moisture, and to prevent the edges from moisture penetration. (Handbook of Finnish plywood, pp. 62-63.) Coated plywood can be prepared with fillers and painted with separate instructions.

Waste

There are several ways of plywood disposal; from recycling to burning. Used plywood can often be reused for secondary applications and thus recycled. Plywood can also be disposed by burning, according to the instructions of local authorities. At a right combustion temperature, phenol coated plywood does not produce any more hazardous combustion residues than produced by wood. Almost all plywood can also be composted, which requires chipping the panels and acknowledging the long duration of the composting process. The plywood contains nothing classified as hazardous waste. (Handbook of Finnish plywood, p. 64.)

The materials used in packaging, like cardboard and plastics, are recyclable. Plastic bandings are also recyclable. Wooden pallets or thin plywood used in packaging can disposed by burning according to the instructions of local authorities.

Literature

Finnish Forest Industries Federation, 2002. *Handbook of Finnish plywood*. Lahti: Kirjapaino Markprint Oy.

Haaparanta, L., 2011. *Life cycle assessment of plywood process – carbon footprint of two plywood products*. Master's thesis, Aalto University, School of Chemical Technology.

The information in this leaflet is, although based on extensive tests, intended as a guideline only and comes without warrant.

Committed to Wood

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