

EMISSIONS AND ENVIRONMENTAL IMPACTS

FORMALDEHYDE

The formaldehyde emission of Kerto LVL products, determined according to standard EN 717-1, clearly fulfills the requirement for class E1 ≤ 0.100 ppm and it also fulfills the tightest requirements existing (≤ 0.030 ppm). The formaldehyde emission of Kerto LVL is about 0.017 ppm.

EMISSION CLASSIFICATION OF BUILDING MATERIALS M1

Kerto products have the Finnish M1 Emission Classification of Building Materials granted by Building Information Foundation RTS.

Classification covers Kerto-S, Kerto-Q, Kerto-T, Kerto-Qp, Kerto-L and Kerto-Kate products untreated and surface treated with WeatherGuard – moisture protection treatment or MouldGuard – mould protection treatment.

M1 classification is based on emission measurements undertaken by VTT (Technical Research Centre of Finland). Measurements are made of samples conditioned for 28 days. The measurement results are shown in table 1.

TABLE 1. VTT EMISSION MEASUREMENT RESULTS

	Kerto LVL	Weather Guard	Mould Guard	M1 requirement
Unit	mg / m ² h	mg / m ² h	mg / m ² h	mg / m ² h
Volatile organic compounds TVOC *	0.062	0.144	0.043	< 0.2
Formaldehyde	0.008	0.007	0.004	< 0.05
Ammoniac	< 0.005	< 0.005	< 0.005	< 0.03
Carcinogens *	< 0.005	< 0.005	< 0.005	< 0.005

POTENTIAL ENVIRONMENTAL IMPACTS

Environmental product declaration has been published for Kerto LVL based on Life Cycle Assessment (LCA). The environmental product declaration has been prepared according to standards EN 16485 and EN 15804.

In the calculations of the Life Cycle Assessment has been taken in to account the raw material sourcing, raw material transportation, raw material use and production operations (so called cradle to gate). That is to say it covers the life cycle of the product until it is in the mill ready to be delivered to the customer.

TABLE 2. PRODUCT'S POTENTIAL ENVIRONMENTAL IMPACTS

Impact	Unit	Total
Global warming potential, GWP ¹ (incl. biogenic carbon)	kg CO ₂ equiv. / m ³ of product	- 655
Global warming potential, GWP ¹ (excl. biogenic carbon)	kg CO ₂ equiv. / m ³ of product	130
Depletion potential of the stratospheric ozone layer; ODP	kg CFC 11 equiv./ m ³ of product	0.192 x10 ⁻⁷
Acidification potential of soil and water sources; AP	kg SO ₂ equiv. / m ³ of product	1.082
Eutrophication potential; EP	kg Phosphate equiv. / m ³ of product	0.220
Formation of tropospheric ozone; POCP	kg Ethene equiv. / m ³ of product	0.092
Abiotic depletion potential (ADP-elements) for non fossil resources	kg Sb equiv. / m ³ of product	0.0008
Abiotic depletion potential (ADP-fossil fuels) for elements	MJ, net caloric value	2610

CARBON FOOTPRINT

The carbon footprint of a product is defined through a life cycle assessment (LCA) that reviews the environmental impact of a product, taking into account only a single impact category: climate change (global warming). To quantify the impact on climate change, a parameter known as the global warming potential (GWP) has been defined.

For example, CO₂ emissions cause global warming. Other gases that also cause global warming, e.g. methane, have been included in CO₂ equivalents weighted by the impact factor that each of them contribute in comparison to the contribution of CO₂ over the selected time period. The factor of CO₂ is of course 1. In Kerto LVL's carbon footprint, the temporal boundary has been set to 100 years. The definition of the temporal boundary is quite important; different gases stay in the atmosphere for different lengths of time: impact on global warming is a function of time. For example, methane emitted today has a significant impact potential over the next 20 years, however, the potential for the effect due to this emission, distributed over the next 100 years is significantly reduced, since methane is removed from the atmosphere relatively quickly (~ 12 years).

The total GWP for Kerto LVL is -655 kg CO₂ equiv./m³ (see table above). This is an indicator result obtained from partial LCA that covers the relevant initial stages in the product lifecycle, from raw material acquisition up until the mill's gate. At the mill's gate the amount of carbon (calculated as CO₂) stored in the product exceeds the sum of resultant emissions that contribute to global warming.

CO₂ STORED IN THE PRODUCT

Kerto LVL (1 m³) contains the stored carbon equivalent to 789 kg CO₂ stored in wood. Metsä Wood's certification systems guarantee the sustainability and traceability of wood raw materials.



MetsäWood