

EPF INDUSTRY STANDARD

The use of recycled wood for wood-based panels

Recycling

Recycling is playing an increasingly important role in everyday life. More and more regulations are issued on this subject, also at the European level such as e.g. the packaging directive.

The particleboard industry took up this challenge already quite some time ago. The MDF manufacturers more recently started using recycled wood in their production processes. The amount of recycled wood that is being used for the production of wood-based panels has been strongly on the increase during recent years. In so doing, the wood-based panels industry is trying to respond positively to the aim of sustained industrial development, in other words to create more value with less environmental impact.

On the other hand, the particleboard and MDF industries want to adopt a “responsible care” attitude and look to it that the use of recycled wood in panels does not create problems with the safety in use of these products and their potential environmental impact.

Limits

Limit values for contaminants that may be present in recycled wood are an excellent tool for ensuring that wood-based panel products are safe to use. The table below contains a list of relevant maximum limit values for wood-based panels containing recycled wood. As a reference, the specific limits for the presence of certain elements as defined in the CEN report CR 13387 “Child use and care articles – General and common safety guidelines” dated October 1999 were chosen. These limits, referring to child contact articles intended to be mouthed (sucked) by children, were also laid down in EN 71-3 “Safety of toys”. In addition, taking environmental considerations into account, limits for Fluorine (F), Chlorine (Cl), Pentachlorophenol (PCP) and Creosote have been established.

Elements / Compounds	Limit values (g/kg dry panel)
Arsenic (As)	0,025
Cadmium (Cd)	0,050
Chromium (Cr)	0,025
Copper (Cu)	0,04
Lead (Pb)	0,09
Mercury (Hg)	0,025
Fluorine (F)	0,1
Chlorine (Cl)	1
Pentachlorophenol (PCP)	0,005
Creosote (Benzo(a)pyrene)	0,0005



Sampling and frequency of analyses

To ensure that the above quality requirements are met, all EPF member companies using recycled wood shall collect the samples they have used for evaluating compliance with the EN specification requirements for internal bond (one sample per product type per production shift for each production line).

Alternative sampling procedures that ensure that at least 20 g of a representative sample are taken per production shift for each production line may also be used.

At the end of the month, all samples shall be added together, crushed and mixed, and a representative sample shall be tested to determine the content of the compounds mentioned in the above table. For practical reasons, the interval between tests for PCP and Benzo(a)pyrene has been set at once every three months.

Reference test methods suggested by EPF for the determination of:

Cadmium (Cd), Chromium (Cr), Copper (Cu), Lead (Pb) and Mercury (Hg):

Destruction via incineration. Thereafter, dissolve ash in HNO₃. The determination is done via Flame Atomic Absorption Spectrometry (FAAS) or via Electro Thermal Atomic Absorption Spectrometry (ETAAS), depending on the concentration in the extract. For Mercury, ETAAS is used.

Arsenic (As)

A wet destruction via H₂SO₄ or HNO₃ or H₂O₂. The determination is carried out via Atomic Absorption Spectrometry (AAS).

Fluorine (F) and Chlorine (Cl)

European Standard EN 24260 (Wickbold combustion method).

Pentachlorophenol (PCP)

Prepare sample and standard solutions. The determination is done via gas liquid chromatography (GLC).

Creosote (Benzo(a)pyrene)

Use the European Standard EN 1014-2 for sampling (Procedure for obtaining a sample of creosote from creosoted timber for subsequent analysis). Use hexane instead of toluene as a reagent. For determination, use the European Standard EN 1014-3 (Determination of the benzo(a)pyrene content of creosote). High performance liquid chromatography (HPLC) is used.

Alternative test methods that guarantee a similar accuracy (repeatability and reproducibility) may also be used.