

*HAZARDOUS WASTE IDENTIFICATION GUIDE*

*ANNEX 4-4*

*EXAMPLES OF CLASSIFICATION OF WOOD WASTE IN FOREIGN  
COUNTRIES*

In 2021, The United Nations Economic Commission for Europe, the Food and Agriculture Organization of the United Nations (FAO), published the Draft Catalogue of wood waste classifications in the UNECE Region which outlines the practice of classifying wood waste in the countries belonging to these organisations<sup>1</sup>.

In Finland, only railway sleepers, power and communication line posts are classified as hazardous wood waste, while other wood waste is classified as non-hazardous. Similar practices exist in France.

In Germany, hazardous wood waste includes all impregnated wood waste, as listed in the table below, because this waste can be contaminated by pollutants such as heavy metals (arsenic, lead, cadmium, chromium, copper, mercury), chlorine, fluorine, and POPs (pentachlorophenol and polychlorinated biphenyls).

Table 1. Classification of hazardous wood waste in Germany<sup>2</sup>

Ref. No	Source of waste generation, sector	Hazardous wood waste	List of waste code	
1.	Packaging waste	Munition boxes	15 01 10*	
2.		Cable drums made of solid wood (manufactured before 1989)	15 01 10*	
3.	Construction and demolition waste	Insulating and soundproofing panels treated with agents containing polychlorinated biphenyls	17 06 03*	
4.		Wood for construction of load-bearing parts	17 02 04*	
5.		Timber framework and rafters	17 02 04*	
6.		Windows, window frames, entrance doors	17 02 04*	
7.		Impregnated construction timber from outdoor use	17 02 04*	
8.		Construction and demolition timber contaminated with hazardous substances	17 02 04*	
9.		Impregnated waste wood from outdoor use	Railway sleepers	17 02 04*
10.			Power posts	17 02 04*
11.	Impregnated garden outdoor furniture, garden, and landscape items (arbours, garden houses, fences, pots, etc.)		17 02 04*	
12.	Impregnated wood waste used in agriculture		17 02 04*	
13.	Waste from manufacturing and industrial undertakings	Wood waste from manufacturing and industrial undertakings (e.g. industrial floors, cooling towers)	17 02 04*	
14.	Wastes from hydraulic works	Wood waste from hydraulic works	17 02 04*	
15.	Ship and wagon waste	Waste wood from scrapped ships and railway wagons	17 02 04*	
16.	Waste from waste treatment	Fine fraction from processing wood waste into timber materials (e.g. by removing coatings)	19 12 06*	

In the Netherlands, wood waste treated with creosote and arsenic compounds is classified as hazardous; and in Slovenia, wood waste treated with any wood impregnating agents is classified as hazardous.

<sup>1</sup> <https://unece.org/forestry-timber/documents/2021/03/informal-documents/draft-catalogue-wood-waste-classifications>.

<sup>2</sup> <http://www.gesetze-im-internet.de/altholzv/AltholzV.pdf>.

In the United Kingdom, waste wood treated with creosote and chromated copper arsenate (CCA), such as railway sleepers, power and communication line posts, farm fences, and waste wood from cooling towers, are considered hazardous in all cases. According to the UK Environment Agency's Guidance on Classifying waste wood from mixed waste wood sources: RPS 207<sup>3</sup>, wood waste that is coated or otherwise processed (exposed to chemicals) may be classified as non-hazardous, where it is destined for: (1) incinerators or co-incinerators, or (2) the manufacture of board. In all other cases, the hazardousness of wood waste must be identified by assessing hazardous properties<sup>4</sup>.

Following the Austrian Guideline for waste wood sorting<sup>5</sup>, hazardous wood waste includes:

(1) Kyanized (impregnated with solution of mercuric chloride (II)) and creosote-treated (impregnated with tar oil or other creosote types) wood waste, mostly railway sleepers, power and communication line posts, and poles;



(2) Wooden floors of mechanical workshops, garages, etc., wooden packaging that may be contaminated by mineral oils and other chemical substances;

<sup>3</sup> <https://www.gov.uk/government/publications/classifying-waste-wood-from-mixed-waste-wood-sources-rps-207/classifying-waste-wood-from-mixed-waste-wood-sources-rps-207>.

<sup>4</sup> In accordance with the Technical Guidance on Waste Classification (<https://www.gov.uk/government/publications/waste-classification-technical-guidance>).

<sup>5</sup> <https://www.oewav.at/Publikationen?current=323523&mode=form>.



(3) Munition boxes.



Burnt, charred, and incompletely burnt hazardous firewood, as listed above, is also considered hazardous waste.



Wood waste treated with other wood preservatives (e.g. using pressure impregnation with a chrome-copper-boron salt, recognisable from a typical greenish colour) is classified as non-hazardous waste in Austria; however, such waste cannot be recycled and must be subject to heat treatment (incineration).

In Denmark, not all impregnated wood waste is classified as hazardous<sup>6</sup>. If pressure-impregnated timber is treated with creosote or arsenic, when it becomes a waste, it is normally considered a hazardous waste. If only timber surface has been treated or other agents have been used, the Danish Environmental Protection Agency considers that this is not normally a hazardous waste.

Explanation by the Danish Environmental Protection Agency about what renders timber hazardous:

Creosote and arsenic salts are classified as carcinogenic in the list of dangerous substances. Arsenic salts are also classified as hazardous to the environment and toxic. Waste containing more than 0.1% (m/m) of carcinogens is classified as hazardous waste.

A test of creosote-impregnated poles that had been present in nature for 40 years has shown that creosote accounts for 15–75% of the baseline. Creosote concentrations in freshly impregnated timber are estimated at approximately 17%. This means that the concentration of creosote in timber after 40 years is approximately 3–13%.

A test of arsenic-impregnated timber has shown that 20–25% of arsenic is eluted after 2–4 years of use, with arsenic concentrations ranging from 0.3% to 0.6% (as arsenic salts). Therefore, both examples meet the criteria for hazardous waste.

Many other impregnation techniques do not classify wood waste as hazardous:

Old copper-impregnated timber is generally not classified as hazardous waste as the copper content is between 0.1% and 0.2% by weight of timber with more recent agents, and around 0.3% with older agents. Copper compounds are classified as hazardous waste in terms of health hazards at concentrations above 20% or 25% (depending on the copper compound concerned).

Old chromium-impregnated timber is also generally not classified as hazardous waste, as chromium is detected in timber as a chromium III compound that is not classified as hazardous to health or the environment. The chromium content is approximately 0.3%.

Boron content in old timber is considered to be extremely low and is therefore not classified. Boric acid and other boric salts are classified as harmful to reproduction; waste containing more than 0.3% of substances harmful to reproduction is hazardous waste.

Old timber impregnated with tin compounds (TBTN/TBT agents) is not classified as hazardous waste as the concentration of tin compounds is usually approximately 0.08%. Tributyl compounds are classified as hazardous waste at concentrations of 1%.

Therefore, in the light of experience from other countries and in summary of the above studies, we recommend using the algorithm given in Chapter 2.4.4 of the Guide for the classification of wood waste.

<sup>6</sup> <https://mst.dk/affald-jord/affald/affaldsfraktioner/impraegneret-trae/>.