

## 4.2 Acceptable cleanfill material

### 4.2.1 Acceptable materials

Table 4.1 lists materials that are acceptable for disposal in cleanfills. The reasons for acceptance of these materials are described in the table.

For regional plans it is expected that the discharge of materials listed in Table 4.1 could be considered as a permitted activity for cleanfills. For district plans the placement of these materials could be expected to be permitted in areas where the plan provides for cleanfilling activities.

**Table 4.1:** Cleanfills – acceptable materials

Material	Discussion
Asphalt (cured)	Weathered (cured) asphalt is acceptable: After asphalt has been exposed to the elements for some time, the initial oily surface will have gone and the asphalt is considered inert.
Bricks	Inert – will undergo no degradation.
Ceramics	Inert.
Concrete – un-reinforced	Inert material. Ensure that other attached material is removed.
Concrete –reinforced	Steel reinforcing bars will degrade. However, bars fully encased in intact concrete will be protected from corrosion by the concrete. Reinforced concrete is thus acceptable provided protruding reinforcing steel is cut off at the concrete face.
Fibre cement building products	Inert material comprising cellulose fibre, Portland cement and sand. Care needs to be taken that the product does not contain asbestos, which is unacceptable.
Glass	Inert, and poses little threat to the environment. May pose a safety risk if placed near the surface in public areas, or if later excavated. The safety risk on excavation should become immediately apparent, so glass is considered acceptable provided it is not placed immediately adjacent to the finished surface.
Road sub-base	Inert.
Soils, rock, gravel, sand, clay, etc	Acceptable if free of contamination (see 4.3.2 for definition of contaminated soil in this context).
Tiles (clay, concrete or ceramic)	Inert.

## 4.3 Unacceptable cleanfill materials

### 4.3.1 Unacceptable waste

Table 4.2 lists common materials, especially construction and demolition waste, that are considered unacceptable for disposal at a cleanfill. Such material should be disposed of at a landfill authorised to accept that material. The reasons for exclusion are discussed in the table.

The table includes materials that have traditionally been inappropriately disposed of to cleanfills. This list is not exhaustive and there will be other materials that are unacceptable. If a substance or waste is not included in this table this *does not* imply acceptance. Generally, if the waste is not listed in Table 4.1, or it exhibits any of the properties that make it unacceptable as cleanfill as described in section 4.1, then the waste cannot be disposed of to cleanfill.

The classification of specific materials not listed in these tables could be confirmed through the appropriate regional council or through the resource consent process.

**Table 4.2:** Unacceptable waste

Material	Discussion
Abrasive blasting sand/agents	May contain metals, paint and other contaminants.
Asbestos (including asbestos sheeting)	Potentially hazardous. Although an inert compound, future excavation could cause significant health effects.
Asphalt (new)	New asphalt or asphalt that has been ground or pulverised may release oily substances that could leach into the environment.
Bark	Degradable; leaches tannins.
Cables	Metal cables will degrade (see Metals).
Car bodies	Contain metals, oils, plastics, asbestos and other potential contaminants.
Carpet	Degradable. May also contain formaldehyde residue from flooring.
Cesspit/stormwater sump cleanings	Contain various metal contaminants and organics.
Containers	To avoid any potential confusion, all containers are considered unacceptable. Containers may degrade or be punctured, releasing their contents or the remnants of their contents. The containers themselves may be detrimental to the environment (see plastics and metal).
Cork tiles	Degradable.
Corrugated iron	Degradable steel and zinc.
Electrical equipment and insulation	For example, fluorescent light tubes could contain PCBs (also see Plastics).
Formica	Generally stable (it is a melamine-formaldehyde polymer), but may be bonded with urea formaldehyde. This is water soluble and may leach formaldehyde compounds into groundwater. Often attached to particleboard.
Foundry sand	Contains metals.
Greenwaste (e.g. grass clippings, tree trimmings)	Will degrade and release contaminants such as ammonia and nitrates into the soil and groundwater, and may generate gases such as methane and carbon dioxide. The resulting leachate may mobilise other contaminants in the fill.
Hardboard	Degradable; contains phenol resorcinol formaldehyde.

Material	Discussion
Household waste	Typically contains large amounts of putrescible and degradable waste that will degrade and cause odour problems, and create soluble compounds causing leachate. Also contains some hazardous components.
MDF (medium-density fibreboard – customwood)	Degradable; may use urea formaldehyde as a bonding agent. This is water soluble and may leach formaldehyde compounds into groundwater (see Particleboard). Some modern MDF boards use phenol formaldehydes and other resins that may be acceptable, but the board itself is unacceptable.
Medical and veterinary waste	Unsafe if excavated (health hazard); may generate leachate.
Metals	For example, structural steel, roofing, window frames, building components, etc; degradable, can leach into the ground or groundwater. Soluble metals may be toxic depending on the concentration.
Paint	Hazardous waste. Liquid paints may contain significant quantities of volatile organic carbon compounds. These will contaminate soils and groundwater, causing detrimental effects to the environment (e.g. killing aquatic life) and human health. Some paints contain metals. Water-based paints contain preservatives and biocides which may include mercury, or other compounds that can cause dermatological problems.
Painted materials	Lead-based paint is hazardous and must be taken to a hazardous waste facility. Once paint has dried, the potential for contaminants in the paint to migrate through the soil is minimised, so all dried paint other than lead-based is relatively inert. However, to avoid any doubt all painted materials should be rejected.
Paper and cardboard	Paper and cardboard are degradable and present a fire hazard.
Particleboard (chipboard)	Contains urea formaldehyde as a bonding agent. This is water soluble and may leach formaldehyde compounds into the groundwater. Formaldehyde is known to cause many adverse health reactions and has been classified as a "probable human carcinogen" by the USEPA.
Plywood – structural / external grade	Uses phenol resorcinol formaldehyde as a bonding agent. This is not water-soluble and is relatively inert. However, the board itself is degradable and the difference between internal and external grade may not be apparent to the cleanfill operator.
Plywood – internal grade	Uses urea formaldehyde glue as a bonding agent. This is water-soluble and may leach formaldehyde compounds into groundwater (see Particleboard).
Road sweepings	Contain various metal contaminants and organics.
Sawdust	Degradable and could contain timber treatment chemicals.
Tar	Can contain a variety of compounds, many of which have been found to be carcinogenic. Many of the compounds do not bind to soil and can migrate directly to groundwater; potential for groundwater contamination with hydrocarbon compounds.
Timber (processed)	All sawn, gauged or dressed timber is considered unacceptable, as the cleanfill operator will not be able to determine easily if it is treated or untreated. Chemicals used for timber treatment can leach out and contaminate soils and groundwater. The chemicals used include copper-chrome-arsenic (CCA), light organic solvent preservatives (LOSP), creosote, boron and pentachlorophenol (PCP). These can all have a detrimental effect on human health and the environment.
Wood chips	Degradable.

Note: If a substance or waste is not included in this table it does not imply it is suitable for acceptance at a cleanfill.