Guidance Note: Considerations when inspecting waterless composting toilets in self-contained vehicles

Purpose

The Plumbers, Gasfitters, and Drainlayers Board has issued this guidance to assist vehicle inspectors and certification authorities in determining whether a waterless composting toilet meets the requirements for certification.

Please note that this guidance note replaces the previous version that was issued on 17 April 2025.

Background

Composting times for waterless composting toilets can vary from three months to three years, depending on system design, to achieve the decomposition necessary for public health and environmental protection and be ready for burial. This process requires the addition of a fibrous bulking agent (e.g. untreated wood shavings, coconut coir etc) to the compost pile to create air spaces promoting aerobic decomposition. The Australian/New Zealand Standard for waterless composting toilets *AS/NZS 1546.2:2008* recommends a minimum 12 month composting period as best practice, but this may be superseded by manufacturer specifications that demonstrate, through certified system performance, a shorter period for safe burial in accordance with the Standard.

In vehicle-based composting toilets, if the waste has not matured for the manufacturer-specified time or if fresh waste is added, resetting the composting process, then the material remains partially processed. In such cases, it must be transferred to a secondary treatment system (eg, a dedicated compost bin) for an additional 12 months to mature, unless otherwise specified by the manufacturer's instructions compliant with *AS/NZS 1546.2:2008*.

Unless otherwise indicated, solid waste from a composting toilet cannot be put into a dump station (or stock effluent system) as dry waste will block the pipes and compromise the wastewater system.

See Disposal section of this guidance note for more detail.

Requirements

As with all other toilet types used in self-contained vehicles, a vehicle that is fitted with a waterless composting toilet must meet the following requirements for certification:

- be of sufficient size, volume, and durability to be able to operate for a minimum of three days for the maximum number of occupants for which the vehicle is certified;
- be permanently fixed to and usable within the vehicle;
- be permanently fixed to the vehicle with the base of the toilet rigidly mounted in position and does not require removal in order to empty human waste;
- drain or flush directly into a suitably designed and fitted blackwater tank or removable chamber;
- be fit for purpose, made from suitable materials, and installed in a sound and appropriate manner;
- be fit for purpose and installed in accordance with its design and specifications.

We would like to draw particular attention to toilets needing to be installed in accordance with their design and specifications. We are aware of some examples where installation instructions specify a certain make and model of waterless composting toilet must be flued and have a mechanical fan installed but the New Zealand based suppliers have suggested that the toilet does not need to be installed with venting. In that situation, the toilet would fail to comply with regulation 17(1)(a), in that the toilet has not been installed in accordance with its design and specifications.

Guidance on capacity, venting, storage, and disposal as it relates to waterless composting toilets is set out below.

Capacity

To meet the requirements for self-containment, a vehicle must have a toilet that is of sufficient size, volume, and durability to be able to operate for a minimum of three days for the maximum number of occupants for which the vehicle is certified.[1]

Capacity should be sufficient for three days for the maximum number of occupants. Ideally the original solids chamber and liquids chamber/urine bottle should last this long for the number of persons. However, if the toilet system is designed to securely and hygienically use multiple sealed chambers — and the process of swapping them can be done without risk to the environment and the general public — then this can be permitted for the purposes of meeting the three day capacity where appropriate storage facilities are available. Refer to the storage section below for details on storage requirements.

Liquids Chamber/Urine Bottle

Capacity should be a minimum of 1.0 litre per person per day.

[1] Regulation 14(1)(a)

Solids Chamber

Capacity should be a minimum of 0.5 litres per person per day.

Solids chamber capacity doesn't tend to be an issue as these are generally designed to last for at least two weeks, when used by two people.

Venting

To meet the requirements for self-containment, a vehicle fitted with a composting toilet must have a ventilation system that:

- ensures unpleasant or unhealthy odours and foul air can easily escape to the exterior of the vehicle;[2]
- is fitted with a means of limiting the escape of foul air and noxious gases from the blackwater tank or removable chamber to the interior of the vehicle;[3]
- ventilates the blackwater tank or removable chamber directly to the exterior of the vehicle, where the manufacturer's design and instructions require external venting.[4]

Ensuring unpleasant or unhealthy odours and foul air can easily escape to the exterior of the vehicle

A ventilation system is intended to prevent the build-up of foul odours insider the vehicle, for example: openable windows, roof vent, grills and/or a mechanical ventilation system.

Fitted with a means of limiting the escape of foul air and noxious gases from the blackwater tank or removable chamber to the interior of the vehicle

Many composting toilets for SCVs are urine diverting toilets. These toilets separate urine from solids using a divider to channel urine into a separate liquids chamber or urine bottle. This prevents urine from mixing with solids, which can cause odours.

For efficient function, it is recommended that a bulking agent (e.g. dry untreated wood shavings, coconut coir, or peat moss) should be added to the toilet — in accordance with manufacturer's instructions — as cover material for the solids to absorb dampness enough to minimise the amount of odour. Additionally, the liquids chamber/urine bottle should be cleaned regularly — in accordance with manufacturer's instructions — to keep ammonia scents from forming.

Electrical, fan forced ventilation can also be used to effectively limit the escape of foul air and noxious gases from composting toilets. The ventilation creates negative pressure at all times, sucking

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[2] Regulation 20(1)(a)
[3] Regulation 20(1)(d)
[4] Regulation 17(1)(a)

the air out from the bathroom and preventing build-up of both noxious gasses and odours in the toilet. Where fan-forced ventilation is used the lid must not be sealed to allow the system to continuously draw air from the room.

Storage

To meet the requirements for self-containment, a vehicle must have sufficient facilities for the safe and secure offloading of waste from a waterless toilet.[5]

- Solids chambers must be closed with an insect proof lid, not sealed airtight, when put into storage.
- Liquids chambers/urine bottles must be securely capped.

Sealing the solids chamber allows gasses to build up and causes containers to expand. Closing prevents insect ingression and spillage, without gas buildup.

- Bags are not recommended to store the waste in secondary storage (not even double bagged)

Bags (especially compostable bags) are susceptible to tearing/decomposition. The original solids chamber and liquids chamber/urine bottle in which the waste was collected should be used for secondary storage.

- All chambers should be fastened inside the storage compartment.
- Storage compartment should be an externally vented locker, sealed from the vehicle's habitation area. This can be passive ventilation with louvered vents to allow airflow.
- Storage compartment should be on a lower level than the living quarters.

This prevents risk of living quarters contamination in event of spillage and limits potential risk of odour buildup.

Disposal

The following are recommendations for responsible use only and are outside the scope of self-containment certification requirements.

Liquid Chamber/Urine Bottle

- Disposed of at dump station

[5] Regulation 19(2)(c)

- Poured out into a toilet.

Note: if the toilet has a urine diverter plumbed directly into a greywater waste tank, this becomes a blackwater waste tank. Following a successful vehicle inspection, before determining maximum occupancy vehicle inspectors should consider the total capacity of the waste tank to hold both greywater and urine.

Solids Chamber

- Disposed of at a facility that accepts solid waste from composting toilets. Note: solid waste from a composting toilet cannot be put into a normal dump station under any circumstances as dry waste will block the pipes and compromise the wastewater system.*
- Kept onboard until the end of the trip and then emptied into a secondary treatment system on private property to mature before being buried. This should be done in an area where it will not come into contact with any consumable plants or surface waters and there is no risk of exposure to humans or animals.
- Burial of the composted end product should be in accordance with any relevant Council rules and guidance and *AS/NZS 1546.2:2008* – the Australian/New Zealand Standard for waterless composting toilets.
- Only be put into the user's private residential rubbish bin (double bagged) as a last resort.
- Not to be put into public rubbish bins.
- Not to be put into public toilets.

*Current dump stations limit the ability to dispose of solid matter down the access hatch — whether in a dry condition or liquified condition, solid matter from a composting toilet can block the odour trap of the dump station access. Future dry matter hatch access points may be introduced by councils. Look out for signage that indicates dry toilet friendliness.