



Biocappi portable dry toilets in Yverdon, Switzerland, June 2011. Photo by Molly Danielsson.

## How it Works

**In Use:** Underneath toilet seat is a 30-60 gallon container for dry collection of excreta and carbon materials. Urinals are provided to capture urine in 55 to 550 gallon containers on palettes. Containers are capped and driven to a municipal composter for composting in managed windrows, managed on private land in windrows, or brought to a biogas digester.

**User Responsibilities:** Toilet users are expected to cover each deposit with carbon material like wood chips or sawdust.

**Operations and Maintenance:** Service providers must bring enough carbon material to site and periodically add carbon to maintain dry conditions in the holding tanks to prevent exposed feces or urine. A ramp or crane are recommended to lift containers on to flat bed trucks for transport. Load out is considerably lighter than chemical portable toilets because liquid is not added.

**Can the homeowner do it or is a professional needed?** Professional service contract required for removal of holding tanks.

## Benefits

- Collecting excrement without water lowers treatment costs, energy use and creates a nutrient rich fertilizer.
- Renting portable dry toilets is a profitable means for dry toilet installers to diversify their income.
- Provides an educational opportunity for people to try out dry toilets.
- Urine from urinals could be applied directly to land as a fertilizer

## Costs

### Installation\*

**New:** \$100-120/week rental (generally 20% more expensive than chemical toilets because of increased cost from specialized equipment. Price could go down if scaled up)

**Retrofit:** A conventional portable toilet shell in Wisconsin is currently modified and sold in Germany for dry collection.

**Land Required:** Same as chemical portable toilet

### Treatment

**Can it meet La Pine limits?**  
Yes



Inside "1m3"s portable dry stall in Lausanne, Switzerland, 2011. Photo by 1m3.

# on site sanitation case study 05: Portable Dry Toilets Implementation in Europe



Biocappi portable dry stall and urinal area in Yverdon, Switzerland, June 2011. Photo by Molly Danielsson.



"1m3"s custom built portable dry stalls in Lausanne, Switzerland, 2011. Photo by

## Enforcement & Monitoring *to come*

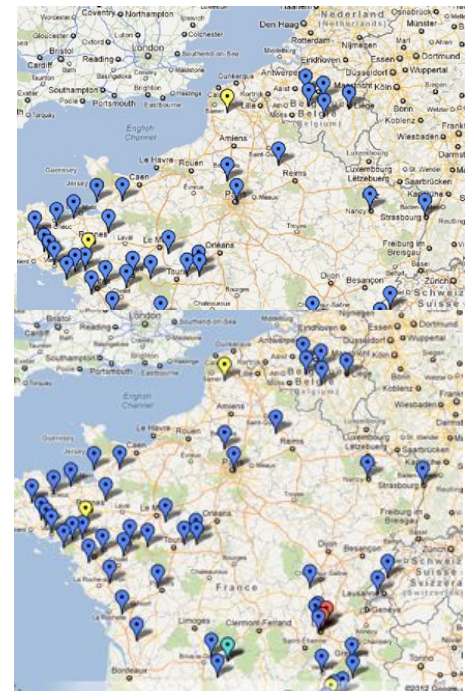
## Portable Dry Toilet Providers in France

In 2009 France changed their on-site sanitation regulations to permit dry toilets. Between 3,000 and 6,000 homes are equipped with dry toilets. 60 organizations provide dry toilets, 40 of which also provide dry toilet rental services. "This type of activity [portable dry toilets] has developed significantly over recent years, building a high level of public awareness around dry toilets" (Toilets du Monde 2010). Urine must go to household water treatment systems. Non-professionals can manage the system. France's decree ordered for a code to outline compost processing, but code has not been developed yet (Toilets du Monde 86). Currently providers take compost to municipal composters, biogas digesters or create windrows on private land for large events.



Biolan Urine diverting dry toilet, \$1000 USD Photo by Biolan.fi

Another market for portable dry toilets has been residential renovations. Composting toilets by Biolan like those featured to the right are installed in homes temporarily during construction. Homeowners cite their desire to have an indoor bathroom instead of using a por-



Since France's on-site rules changed in 2009 to include dry toilets 40 companies are providing dry portable toilets.

# on site sanitation case study 05: Portable Dry Toilets

## Implementation in Oregon

---



Modified chemical portable toilet housing for urine separating dry toilet, dry urinal and reservoir for wood shavings to cover feces.



1m3 opeartes portable urinals in Geneva for bars and the City of Geneva's summer stage. The urinal drains to a 330 gallon international bulk container. Photo by Jonathan Fernandez 2010.

## Installing in Oregon

Regulations permitting the system:

### **Current Regulations Permit Dry Collection but Not Composting**

Unclear where dry bulking material and excreta can be composted or what facilities are set up to aerobically compost such material.

Barriers to system:

### **Permittable Treatment Facilities Don't Permit Composting**

In Oregon, dry composting toilets are regulated as if they are septage (liquid wastewater) and require treatment. Treatment facili-

# on site sanitation case study 05: Portable Dry Toilets



Biocappi portable dry toilet stall in Yverdon, Switzerland, June 2011. Photo by Molly Danielsson.



Natural Event portable dry toilet stalls at large festivals in Australia. Photo by Hamish Skermer.

## Citations

Bigot, Emmanuelle. Biocappi Owner. Personal Interview. 24 June 2011.

Fernandez, Jonathan. 1m3 Co-owner. Personal Interview. 8 July 2011.

Intestinale- Dry Portable Toilet Association of France  
[www.rae-intestinale.org](http://www.rae-intestinale.org)

Toilets du Monde. Household Dry Toilets: An overview of current theory and practice in various countries, with suggestions for supporting the sector in France. October 2010.

On-site Sanitation Case Study  
06: Portable Dry Toilets  
Recode 2012

Authors: Molly Danielsson and  
Mathew Lippincott  
Project Manager: Melora Golden  
Funded by the Bullitt Foundation

This work is licensed under the  
Creative Commons  
Attribution-ShareAlike 3.0 Un-  
ported License 2012.

