

Avoiding smelly wee: the survey

The very short version

Many people approaching the idea of changing from a chemical toilet to a waterless one are concerned about smells. They almost always are concerned about the smell of poo; however, in practice it is often the wee container that causes more problems in the smells department.

Ninety eight people took part in this survey answering questions about how long they have been using a waterless loo, how many users there are, whether they have had problems with smell and how they manage their wee container (emptying, cleaning and specific products).

Nearly half said that they have had issues with smell 'sometimes' or 'often' with just one saying it was a constant problem.

Overall, the things that seem to help are:

- Emptying daily and rinsing
- Using vinegar either alone or in conjunction eco washing up liquid, bicarb or an essential oil
- Periodic descaling
- Drinking plenty of water

One thing that stood out was that, with the exception of vinegar, three quarters of users don't use/haven't tried any additives at all.

The more detailed version

Many people approaching the idea of changing from a chemical toilet to a waterless one are concerned about smells. They almost always are concerned about the smell of poo, almost no one in any post I have seen in the composting group or other, general, boating groups that I belong to, worry about the smell of wee. Until they change to a waterless toilet...

And the wee is the thing that often causes more smell than the poo. As long as no, or very little, wee is getting into the solid's container, the poo is fairly dry. The added carbon cover (sawdust, wood cat litter, small animal bedding etc.) absorbs more of the moisture. If it smells at all, it isn't the smell we associate with toilets. It tends to be more farmyard like and not very strong. If it gets unpleasantly smelly then it is likely that more wee is getting in and there isn't enough cover to properly soak it up. That smell is caused by the anaerobic bacteria that get to work on mixed wee and poo, basically sewage (like flushing toilets). These bacteria create a gas – that's the smell we associate with poo.

But, to get back to the wee. Once using a separating/waterless/compost toilet many people find that if there are any smells it's the wee that's causing them. The purpose of this short

survey was to find out how common that issue is and what users have found helpful in managing it.

The survey

The survey was conducted using the free version of Survey Monkey so was limited to 10 questions and 100 responses. It is a self-selected sample from the Composting Toilets for Boats and Off Grid Living Facebook group – so nothing is statistically significant! However, it does give an indication of the most popular ways to combat any smells from the wee container. If you are just starting out you might like to try some of them.

Section I asked about the length of time the respondent had been using it, and the numbers of men, women and children in the household.

Section II covered how often the container is emptied and cleaning routines

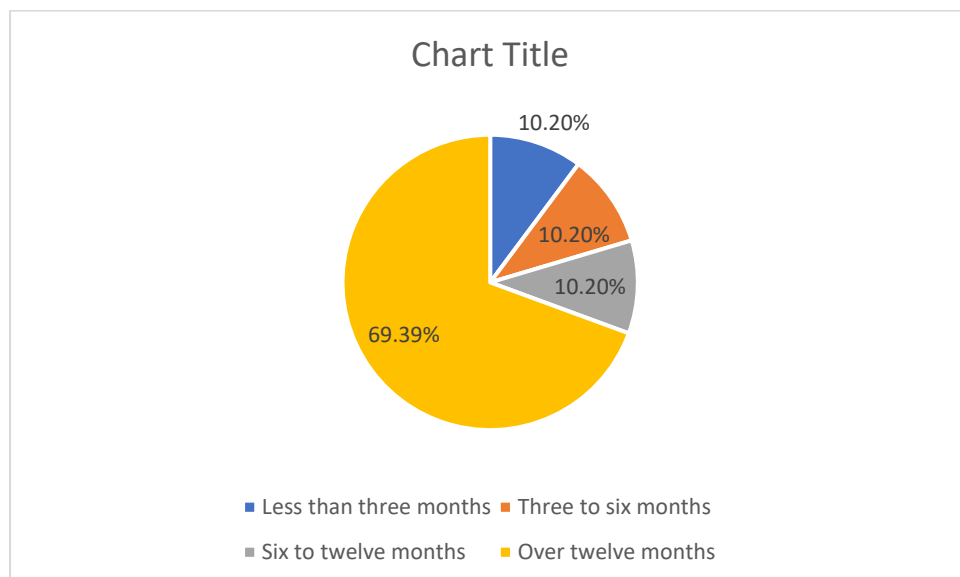
Section III explored all the cleaning products or additives that I have found any mention of, in threads in the group over the last year.

It was piloted with 18 kind respondents who provided some feedback as to things I had missed and some typos.

98 people responded, with 97 completing all the key questions about managing the wee.

Loo use

Eighty percent of the group (79) had at least six months experience of using a separating toilet.



I included a question about the users' gender as sometimes comments have suggested that male urine smells more strongly than female. There doesn't seem to be any scientific evidence for this but I thought it might be worth seeing what people who live in small

spaces thought. Scientific experiments don't always mimic real life in boats, vans or tiny homes where we are all closer to everyone's wee.

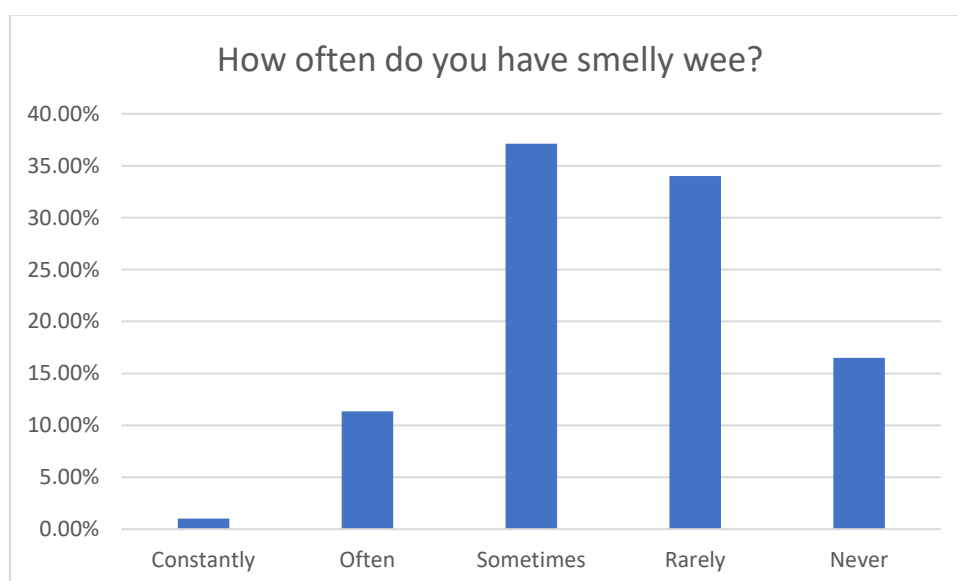
Eleven households had between one and three children using the toilet – none of the comments suggested that children's wee made any difference in terms of smell.

Nearly every household (97%) had at least one woman – this probably suggests that women are more likely to complete surveys than that there are fewer male only boats or off grid households!

78% had at least one man. One commented '*Wee only smells when both of us have used it*' and a few mentioned differences in smell but these were also related to diet so probably aren't significant.

How often do you find you have any problem/issue with smell from your wee container?

About half have smells at least some of the time, although only 12% said it was 'constantly' or 'often' a problem.



A number of people commented that it had been an issue at the beginning but that, with experience, and a bit of experimenting they had solved it.

Was having problems for a while, before trying a few different things. Also, I'm very lazy and barely rinse the thing, just empty it.

When we first started it was a problem but after a few trial and errors it's been fine! Use bio washing up liquid (not dry detergent)

Used to have problems but have now had all 4 seasons without bad smells unless the man in the house has had a curry, or we don't mix the solids often enough. We used to smell but sorted now.

The kind of things that affect any smells are:

Dietary, including alcohol

A bit whiffy when I empty container but I rinse it out twice with water. I eat a lot of garlic so my wee mainly smells of garlic!

Depends on what is eaten, mainly onion, garlic. Smells like mushy peas sometimes.

Generally when too much alcohol has been consumed!

If I am dehydrated.

Other health related things such periods or a specific medication

Only in the past few weeks really after I finished my period...

I notice a smell when I use a normal toilet too so I wonder if the problem is specific to my urine i.e. a tablet I'm taking or food I'm eating.

Leaving too long before emptying is a common cause

Maybe if it has gone into a third day and needs to be emptied, but it's only as you're getting closer to lift out and empty

If it sits too long

When the pee container is nearly full

Forgetting to add the usual anti smell substance of choice

Usually empty once a day but if OH is away, I'll empty less often. Which does lead to more smells, especially if I forget to add laundry liquid.

Only if not emptied daily and rinsed out.

if I don't use a white vinegar spray to do a quick flush.

Or forgetting to empty it at all!

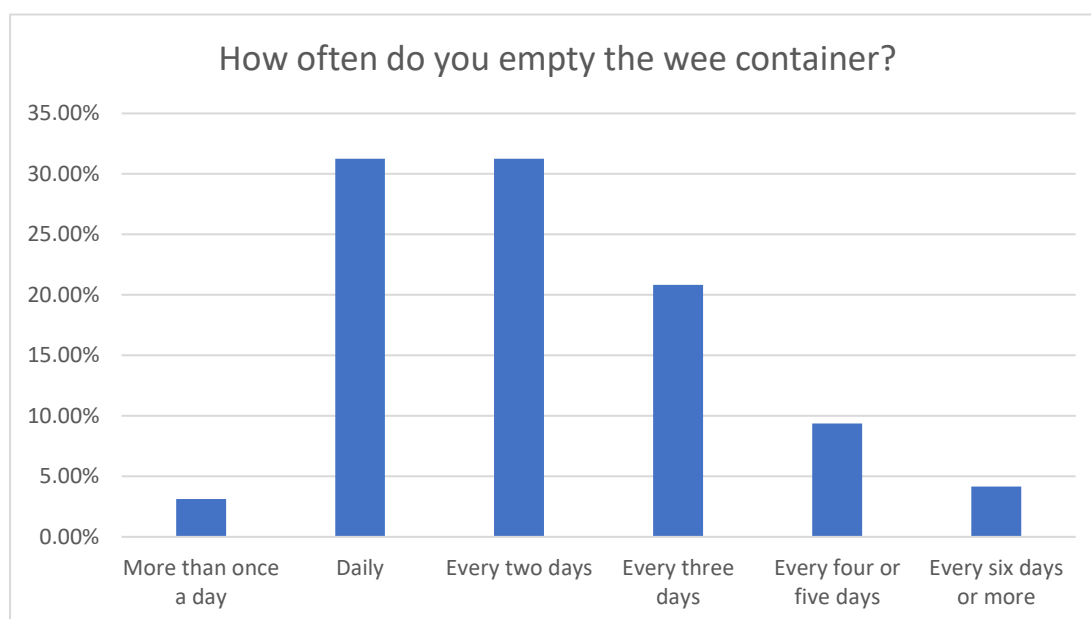
When we accidentally overflow... We have a foil tray under the bottle and the metal seems to react badly with the wee.

While most of the respondents have container type toilets, a couple reported having a soak away, one has no issues, the other that it can smell

On windy days but we drain into a soak away, no container

Cleaning

Over half of the respondents empty the wee container every day or every two days.



Cleaning routines

Respondents were offered a list of possible options with a scale of 'very useful' to 'not at all useful' and 'haven't tried'.

'very' or 'quite' useful

- Rinsing the container with water (three quarters, 76%). 13% found it 'not very' or 'not at all' useful and 10% had never tried it. One commented that rinsing wasn't enough:

Not terrible but definitely a smell that doesn't shift with a rinse out

- Using a descaling product from time to time when scale builds up (43%)
- Cleaning with a descaling product routinely (31%)
- Scrubbing out manually (37%)
- Drying the container between uses (16%). This was the one least likely to have been tried (67%) with 14% saying it was 'not very' or 'not at all' useful

Individual substances

Respondents were offered twelve options spanning common household cleaning agents such as vinegar, commercial products and cleaning agents designed for other uses e.g. dish or laundry washing. All were things that have been mentioned in recent threads on the subject in the group.

By far the most likely to have been tried is **vinegar** – 61% had tried it. Of those three quarters (74%) found it ‘very’ or ‘quite’ useful.

Next was an **eco-toilet cleaner** e.g. Bio Magic and **bio washing up liquid**, about a third had tried these (34% and 28%) with two thirds of those finding them ‘very’ or ‘quite’ useful.

Bleach featured in a number of discussion threads but didn’t prove very popular with only a quarter (24%) having tried it. One third (36%) had found ‘very’ or ‘quite’ useful, the rest ‘not very’ or ‘not at all’ useful.

Sugar is another that is often suggested in discussion threads but, again, has only been tried by a quarter of the respondents (26%). The proportion of useful to not useful is very similar to bleach: one third (35%) finding it useful, two thirds not.

And citric acid is a bit of a hit for some. 14% have tried it and all have found it ‘very’ or ‘quite’ useful with no detractors.

The use of everything else is so small it is risky to make any judgements.

Comments:

The wee container smells eggy when emptied but is rinsed with the Eco toilet cleaner which solves it

The more often I use hot water and vinegar to rinse it the less smells overall of urine.

Urine digester [e.g. Bio Magic] helps a lot.

There is a complete table of the results in appendix II for anyone who wants to delve further into the data.

Combinations

Only around 16% had tried any combinations of the above. Vinegar continues to be the lead choice, in combination with:

- An essential oil (86%)
- Eco washing up liquid (79%)
- Bicarbonate of Soda (66%)

Note: the percentage refers to the proportion of those who are using a mixture who find it ‘very’ or ‘quite’ useful. However, although these look impressive, they are based on the very small number (15-16, 16%) who reported having tried a combination.

Overall, it does suggest that it is vinegar that makes the difference. If you haven’t tried a combination yet, and are experiencing any smells, it might be worth trying.

Kate Saffin
5/12/20

Appendices

Appendix I: Other resources

For more on the causes of smelly urine:

<https://www.nhs.uk/conditions/smelly-urine/>

Appendix II: individual substance table

	VERY USEFUL-	QUITE USEFUL-	NOT VERY USEFUL-	NOT AT ALL USEFUL-	HAVEN'T TRIED-	TOTAL-
-	3.33%	5.56%	7.78%	7.78%	75.56%	
Bleach	3	5	7	7	68	90
-	12.36%	10.11%	10.11%	1.12%	66.29%	
Eco toilet cleaner e.g. Bio Magic	11	9	9	1	59	89
-	26.67%	24.44%	12.22%	5.56%	31.11%	
Vinegar	24	22	11	5	28	90
-	8.89%	11.11%	4.44%	3.33%	72.22%	
Bio washing up liquid	8	10	4	3	65	90
-	5.56%	10.00%	3.33%	2.22%	78.89%	
Bicarbonate of soda	5	9	3	2	71	90
-	0.00%	0.00%	0.00%	0.00%	100.00%	
Copper sulfate	0	0	0	0	90	90
-	4.44%	2.22%	2.22%	3.33%	87.78%	
Lemon Juice	4	2	2	3	79	90
-	1.11%	4.44%	1.11%	1.11%	92.22%	
Mint oil	1	4	1	1	83	90
-	4.44%	4.44%	6.67%	10.00%	74.44%	
Sugar	4	4	6	9	67	90
-	5.62%	4.49%	0.00%	1.12%	88.76%	
Sterilising tablets or liquid (e.g. Milton)	5	4	0	1	79	89
-	10.00%	4.44%	0.00%	0.00%	85.56%	
Citric acid	9	4	0	0	77	90
-	1.11%	0.00%	1.11%	0.00%	97.78%	
Commercial deodorizer e.g. PDZ	1	0	1	0	88	90