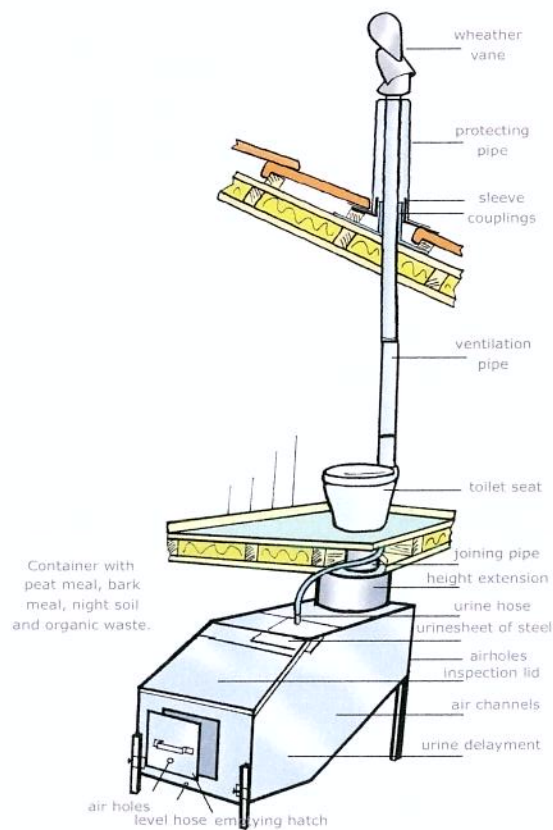


User guide for Mullis biological toilets.



Please read these instructions carefully before installation and follow the user guidance.

The best functional temperature for the system is between +18 and +25 degrees Celsius.

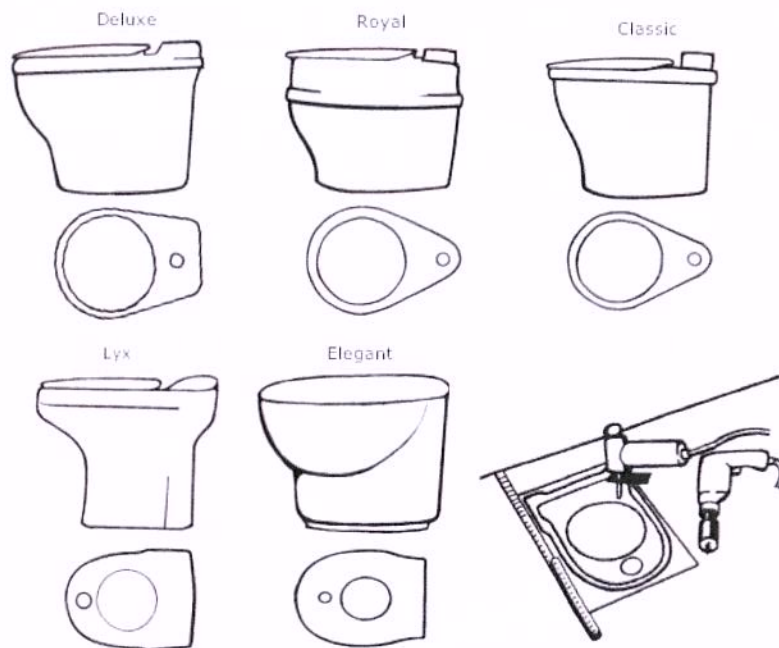
At 7 °C the biological process stand still.

In order to get the best results it is important to place the container somewhere warm enough all through the year. If this can't be done, the room or the container itself has to be isolated.

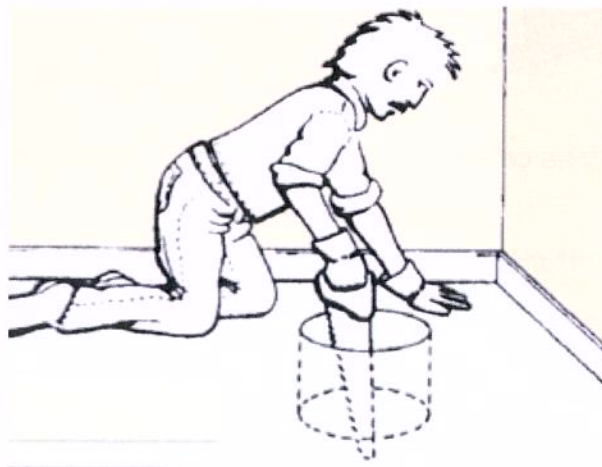
It is also important to have a good ventilated area for the container.

Please be careful, the container can be sharp-edged.

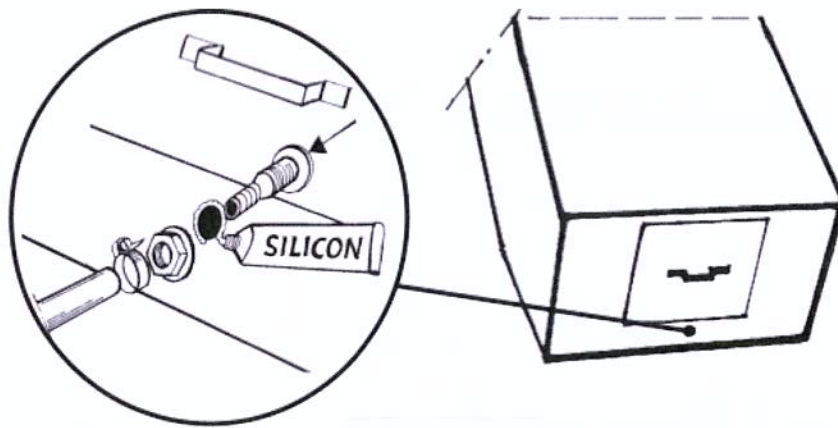
Installation of Mullis biological toilets



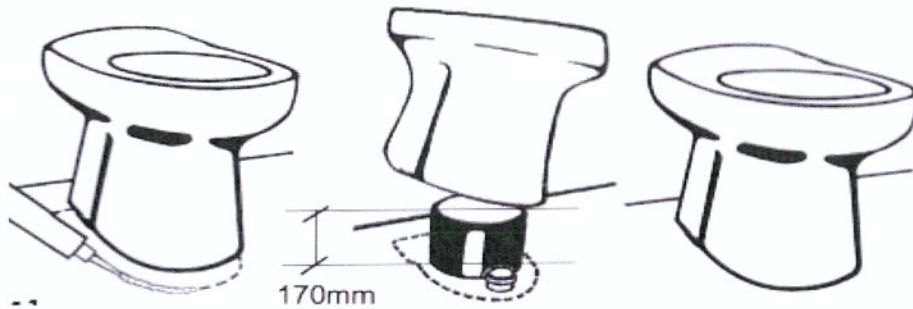
1. Place the toilet seat on decided location in the room. Make sure there is enough space under the house for the Mullis container of your choice. Also make sure there are no beams or walls in the way of the montage.
2. Draw the outline of the seats lower edge. Mark the contours for the holes on the floor. 270 or 200 mm, depending on the seat you've chosen. If you have a seat with urine separation, also mark this hole.
3. Cut the holes by the marks with a jigsaw tool.



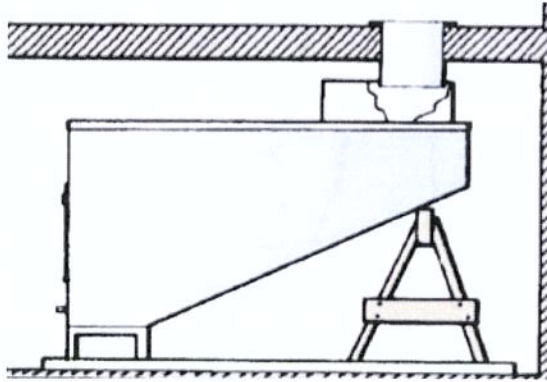
4. After this you can easily decide the right place of the container. It is important that it's standing steady. The ground has to be well drained and able to carry a weight of 500 kg without sinking. If you are building a new space please enlarge the dimensions so final adjustments can be made when placing the container. Make sure to have enough space in front of the emptying hatch, which is placed at the lower short side.
5. Bellow the emptying hatch there is a hole for the level hose. Put a string of silicone around the hole and take the plastic device from the inside of the container and thread it firmly. Stick the hose on to it with a hose clip.



Installation of Mullis porcelain seats



The stainless joining pipe should be hanged in the flange at the floor. Place the pipe about 30 mm into the container.
Don't forget the holes for the urine separation.
Then put the porcelain seat on it's place and put joint sealant around the hole in the floor.

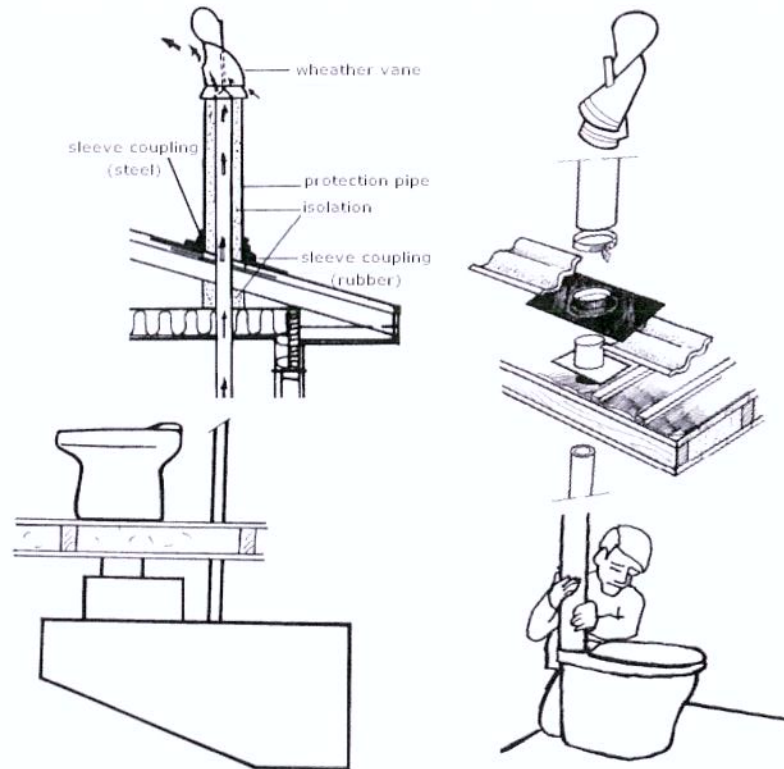


Installation of Mullis plastic seats



The stainless joining pipe should be hanged in the flange at the floor. Place the pipe about 30 mm into the container.
Don't forget the holes for the urine separation if you have chosen this option.
Remove eventual hygienic inset and screw the seat tight onto the floor.
Tighten the screws a bit diagonally into the floor for the seat to become more stable.
Replace the hygienic inset.

Ventilation



How the ventilation is drawn depends on the choice of toilet seat. For porcelain seats the waste air is taken directly from the container, while from the plastic seats it is taken directly from the seat.

Please contact a firm of ventilation for a correct installation of the ventilation(?).

The waste air-pipe should be 110 mm of diameter and be placed as straight as possible to enable best ventilation.

1. Plummet the hole in the ceiling and drill or saw a hole with 110 mm diameter. Hold the plummet to the roof and make one as large hole there.
2. Then montage the ventilation pipe at the seat or the container and make sure it is a bit over the roof-ridge for best results.
3. Seal at the roof where the pipe comes up.
4. Isolate the pipe at the attic and over the rooftop.
5. Put the protecting pipe (in stainless steel) over the isolation.
6. Montage the sleeve coupling at the protecting pipe.
7. Last but not the least, put the weather vane on the protecting pipe, to keep it stable.

About Mullis

Mullis is constructed to maintain the mouldering procedure, where oxygen, heat and microorganisms decompose human waste, food waste and vegetables.

Mullis has a unique construction, which makes the bed of wastes to decompose without a bad smell.

Gases and evaporated liquids are led out through a ventilation pipe out above the roof.

The well-balanced container in stainless steel enables soil and waste to move at the right speed towards the hatch where composed material is emptied.

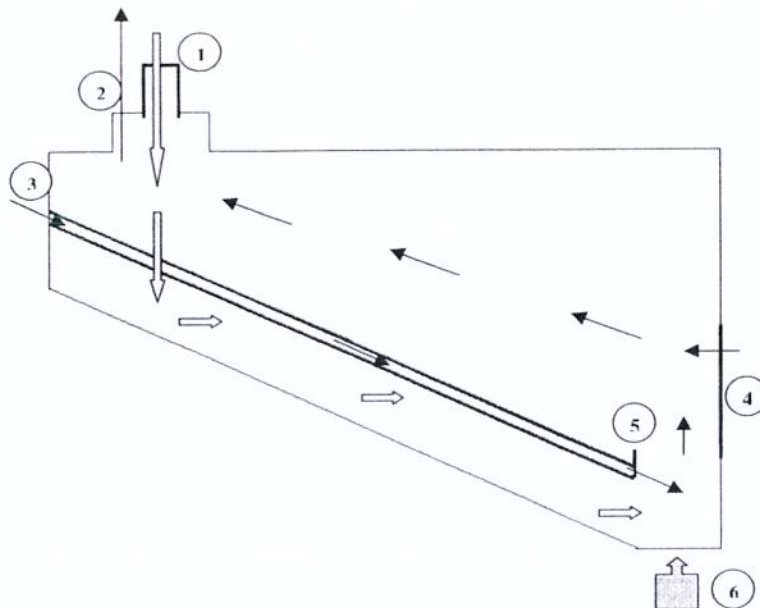
The emptying of finished compost occurs varied times and is depending of temperature. Emptying is normally done once a year.

A Mullis package contains a toilet seat (in plastic), a container in stainless steel (size of your choice) and a stainless joining pipe.

As additional options Mullis have porcelain seat, urine separation, ventilation pipe, protecting pipe, sleeve couplings, weather vane and more.

The best temperature for this mouldering process is +18 to +25 °C. Temperatures below 7 degrees Celsius will make the process stand still.

To avoid the process to stand still a radiator can be installed under the container. The heat will help the mouldering process not to stop at cold weather. The heat will also make air rise and thereby contribute to a better ventilation and circulation.

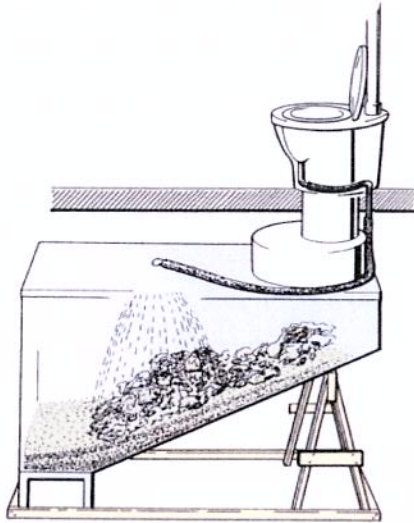


1. Intake from toilet seat
2. Place for ventilation pipe
3. Airholes
4. Emptying hatch with ventilation grid
5. Dividing wall
6. Place for radiator

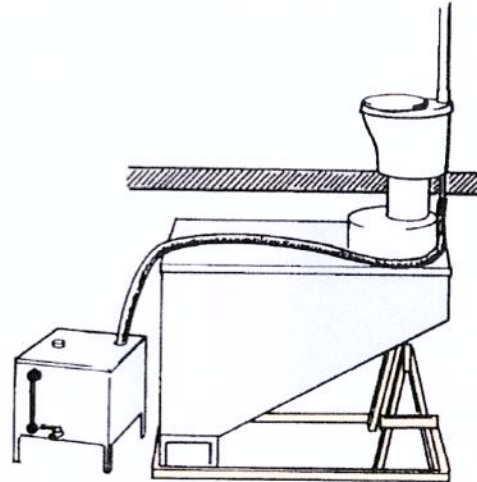
The black arrows show the way of ventilation and white ones show the way of liquids (urine and water).

Urine separation

By separating urine the risk of odor is reduced and dry faeces are easier to manage and compost. This is also an environmental benefit as urine can be used as a fertilizer.

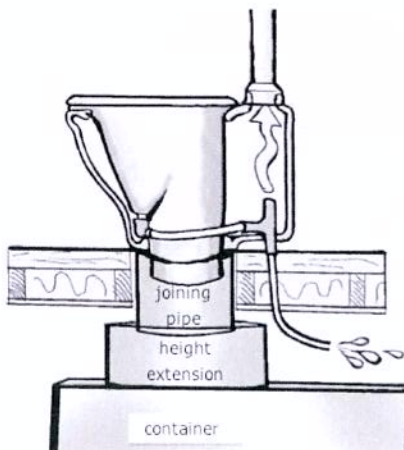


A closed system tank provides better decay.

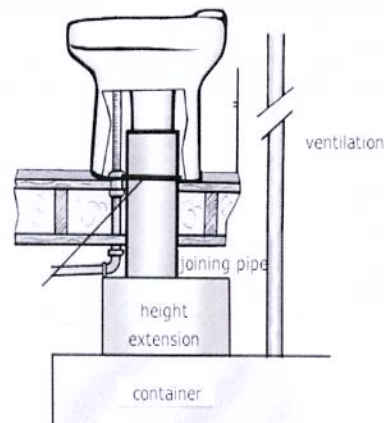


Collecting urine in the urine tank for irrigation during the growing season.

The urine separation package includes a removable, hygienic inset, a collecting ring, a sheet of steel that helps to diffuse urine and some hoses for connection.

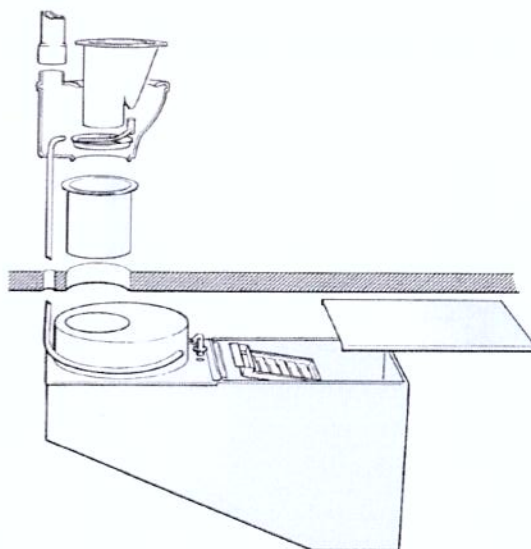


Plastic seat

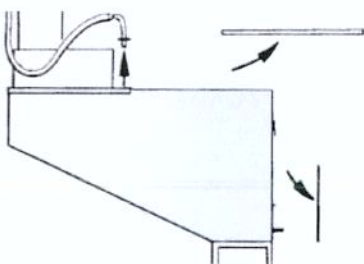


Porcelain seat

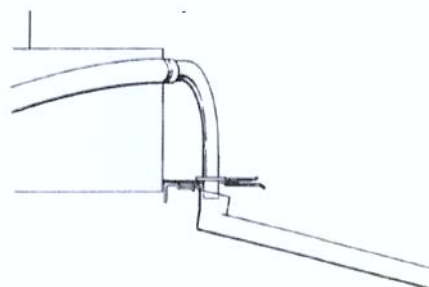
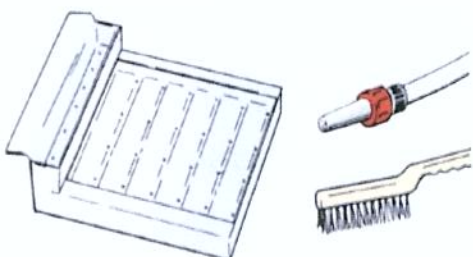
Cleaning/emptying the urin collection



1. Loosen the urine hose by pulling it straight up. Either remove the emptying hatch or remove the containers front lid.
2. Pull out the sheet of steel that helps to diffuse the urine.



3. Clean with water and if needed, use a wire brush to enable urine to flow through the holes.
4. Reassembly in the reverse order. Make sure the sheet of steel (that helps to diffuse the urine) is inserted to the bottom before the urine hose is pushed back down.

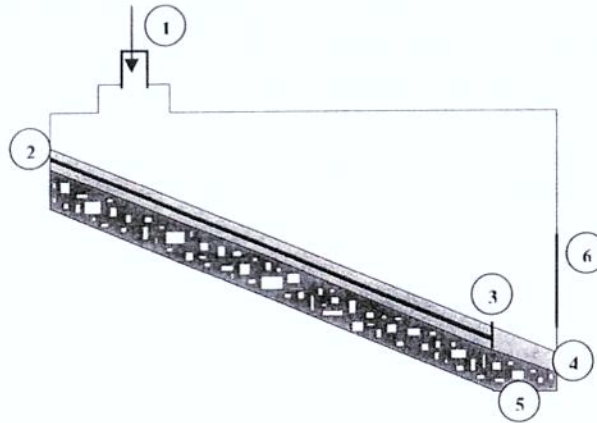


Please notice the following advices before using Mullis.

- ☒ Place the mouldering container in a warm enough space.
- ☒ Remember that good ventilation is required.
- ☒ Prepare the container with soil and peat before usage.
- ☒ Remember that the decomposition process is in need of liquid.

Spread peat meal and bark meal (the amount is depending on the size of your Mullis model) before usage.

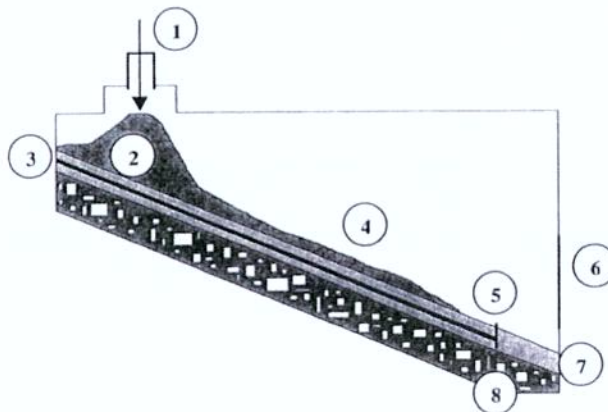
1. Intake from toilet seat
2. Air channels
3. Dividing wall
4. Bark meal
5. Peat meal
6. Emptying hatch



Now you are ready to start using your Mullis biological toilet.

When the first stack of feaces is large enough, move it to the dividing wall, if it hasn't moved by itself.

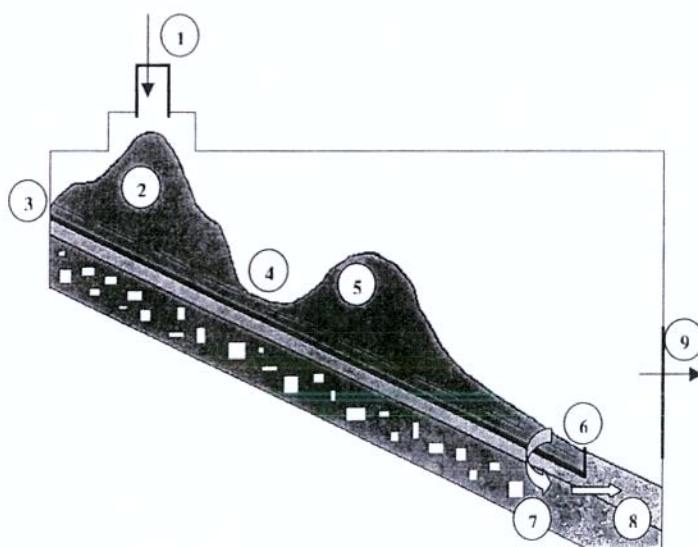
1. Intake from toilet seat
2. First stack
3. Air channels
4. Ongoing moldering
5. Emptying hatch
6. Eividing wall
7. Bark meal
8. Peat meal



For Mullis to work satisfying regular inspection of the waste is needed. When the first stack is big enough it should be raked down (as following:)

- ☒ Fill the area under the dividing wall with almost done mould. Push the material with a shovel into between the air channels and a bit before the dividing wall. In time the mould compartment is being filled. This compartment should always be full. The compartment will take the moisture and spread it to the area above.
- ☒ Rake up a hole to build a form of stop edge.
- ☒ Rake down the first stack in to the hole. Fill it with material from the stop edge. In this way you mix new material with partly decomposed material and this will speed up the mouldering process.
- ☒ After repeating this process during the first year it is time to empty the decomposed material. Shovel the mould from the top of the compartment and use it as compost or in the flowerbeds.

1. Intake from toilet seat
2. First stack
3. Air channels
4. Hole
5. Stop edge
6. Dividing wall
7. Almost done mould
8. Mould compartment
9. Emptying hatch



Important notice! A moldering toilet has an ongoing decomposing process. Directions are therefore general. The process is depending on amount of liquid, temperature and amount of mould and decomposing material in the system. It's also of high importance to inspect the system and see to its needs regularly.

Maintenance and user guide

While using Mullis biological toilet, please notice the following:

- Always sit down during usage.
- Urinate in the urine bowl.
- Never put paper or such us in the urine bowl.
- Rinse the urine bowl with water once in a while, use soap for cleaning.
- Strew peat moss over the feaces (?).
- Don't use any chemicals at any time.

Mullis is designed for soil and organic waste from kitchen and garden. Do not throw metal, plastic, glass, cartonnage (cardboard?) or any other non-decay material into Mullis.

Cleaning

Mullis (plastic) toilet seat have a hygienic inset, which is easily removed and cleaned. Do not use chemicals; it can damage the decomposing process.

Operational problems

Liquid at the emptying area can occasionally occur when overloaded with urine. Liquid can also be caused by bad or non-existing ventilation. Check if the draught is bad and in that case install a fan.

If the container and the decomposing is placed in a cold area, it should be isolated. This goes for the ventilation pipe as well. This is to avoid the decomposition process from stopping during the cold season. Thanks to Mullis ample capacity, it is possible to add waste.

To enable the process through the whole year a radiator can also be installed.

As a result of too large usage of paper soil can build up a mound under the toilet seat. In this case you should flatten the pile over a bigger area in the container.

Flies

Make sure there is a fly screen at the air intake at the container. You can also add ashes or saw dust into the container.

Emptying

After 3-5 years you should empty ready-made mould the first time. This is thereafter to be done once a year.

Every year you empty around 25 liter mould. The final product is approved of most municipal authorities for self usage.

The final product can be used as soil conditioner improvement.

Contact

info@mullis.se

www.mullis.se

