

# BIOLAN®

## COMPOSTER 220

### INSTRUCTIONS FOR INSTALLATION, USE AND MAINTENANCE

|   |                     |
|---|---------------------|
| Serial No.                                      |                     |
| Assembler                                       | Date of manufacture |
| Stamp of seller, signature and date of purchase |                     |



#### Contents

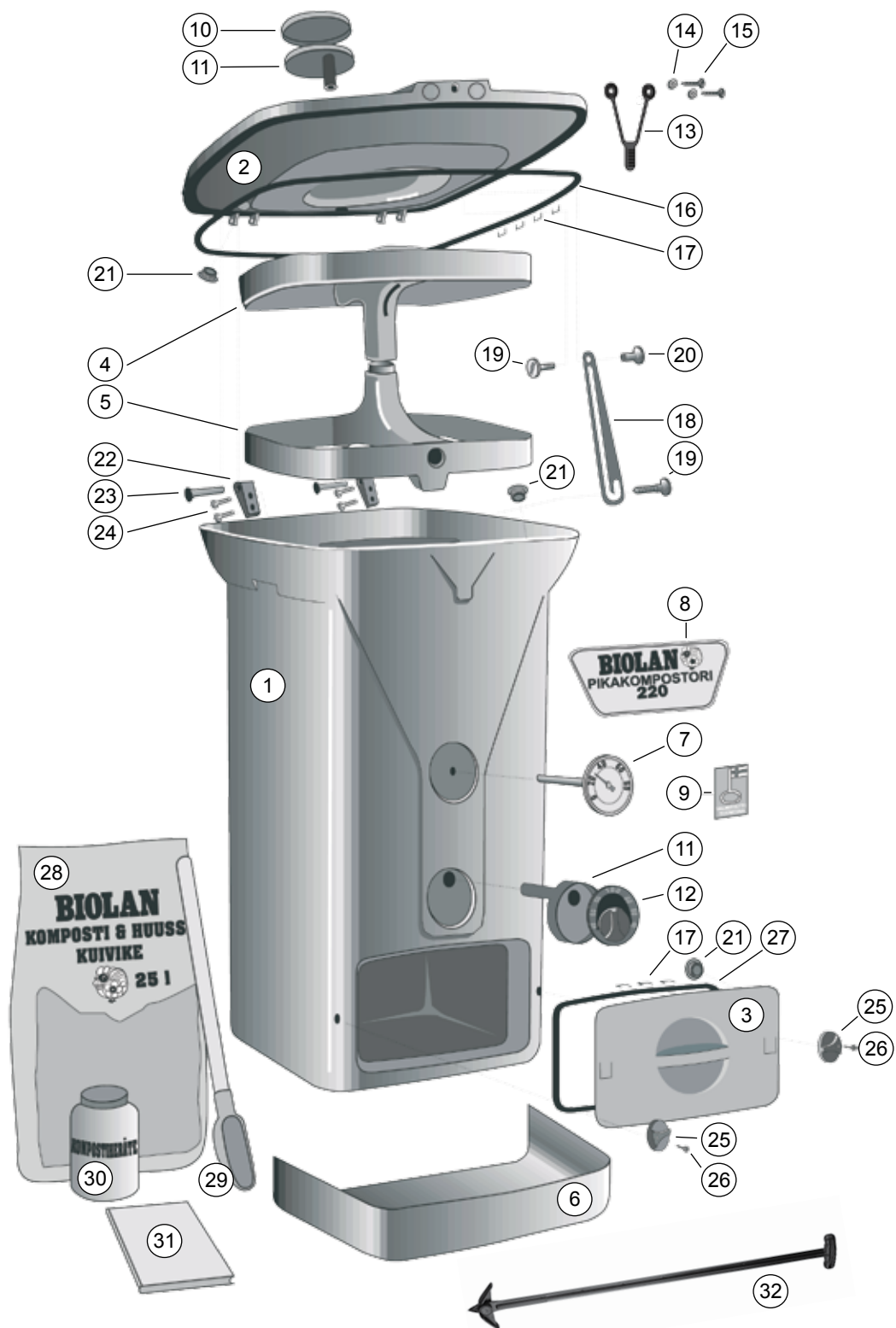
|   |   |
|---|---|
| Parts list for Biolan Composter 220 .....                       | 2 |
| 1. Location of the composter .....                              | 4 |
| 1.1 Technical specifications .....                              | 4 |
| <i>Permissions and regulations applying to composting</i> ..... | 4 |
| <i>What is a good biowaste bin like?</i> .....                  | 4 |
| 2. Composting .....   | 5 |
| 2.1 Commissioning .....   | 5 |
| 2.2 Using the composter .....                                   | 5 |
| <i>How to adjust the air valve?</i> .....                       | 5 |
| <i>How often shall I mix the Biolan Composter?</i> .....        | 5 |
| 2.3 Using the composter in frost .....                          | 5 |
| 2.4 Emptying the Biolan Composter .....                         | 6 |
| 2.5 Cleaning the Biolan Composter .....                         | 6 |
| 3. What happens in the Biolan Composter? .....                  | 6 |
| 4. Using the compost in the garden .....                        | 7 |
| 4.1 Cover soil .....  | 7 |
| 4.2 Using cover soil .....                                      | 7 |
| 4.3 Maturing cover soil to compost soil .....                   | 7 |
| 4.4 Using mature compost soil .....                             | 7 |
| Biolan accessories .....  | 7 |
| Is the composting not successful? .....                         | 8 |
| Matters related to the guarantee .....                          | 8 |

## Parts list for Biolan Composter 220

| Component | Component title   |                        | Number                     | Material                 |
|-----------|---|------------------------|----------------------------|--------------------------|
| 1         | Tank  | green<br>brown<br>grey | 572601<br>572901<br>576201 | PE, insulation PU        |
| 2         | Top   | green<br>brown<br>grey | 572602<br>572902<br>576202 | PE, insulation PU        |
| 3         | Emptying door   | green<br>brown<br>grey | 572603<br>572903<br>576203 | PE, insulation PU        |
| 4         | Upper air pipe  | green<br>brown<br>grey | 572604<br>572904<br>576204 | PE                       |
| 5         | Lower air pipe  | green<br>brown<br>grey | 572605<br>572905<br>576205 | PE                       |
| 6         | Emptying tray   | green<br>brown<br>grey | 572606<br>572906<br>576206 | PE                       |
| 7         | Thermometer   |                        | 572607                     | Acid-proof steel         |
| 8         | Name tag  |                        | 572608                     | PE                       |
| 9         | Product authenticity sticker  |                        | 572609                     | PE                       |
| 10        | Convex cover  |                        | 572610                     | PE                       |
| 11        | Air valve body, 2 pcs.  |                        | 572611                     | PE                       |
| 12        | Adjustment disc   |                        | 572612                     | PE                       |
| 13        | Locking rubber for the top  |                        | 572613                     | Rubber                   |
| 14        | Washer for locking rubber, 2 pcs.   |                        | 572614                     | PE                       |
| 15        | Locking rubber bolt, DIN7997 ZN 4.5x30, 2 pcs.                                      |                        | 572615                     | Galvanized steel         |
| 16        | Rubber sealing ring for lid   |                        | 572616                     | EPDM-rubber              |
| 17        | Sealing ring fixation brackets  |                        | 572617                     | RST                      |
| 18        | Cover support   |                        | 572618                     | PE                       |
| 19        | Bolt for supporter, 2 pcs.  |                        | 572619                     | Polyethylene + steel     |
| 20        | Counterpiece for bolt   |                        | 572620                     | PE                       |
| 21        | Inset plug for urethane, 3 pcs.   | green<br>brown<br>grey | 572622<br>571020<br>571524 | PE                       |
| 22        | Hinge, 2 pcs.   |                        | 572623                     | PE                       |
| 23        | Hinge pin, 2 pcs.   |                        | 572624                     | PE                       |
| 24        | Hinge screw DIN7985 ZN 6x16, 4 pcs.   |                        | 572625                     | Galvanized steel         |
| 25        | Emptying door latch, 2 pcs.   |                        | 572626                     | PA                       |
| 26        | Latch screw DIN7985 ZN 6x35, 2 pcs.   |                        | 572627                     | Galvanized steel         |
| 27        | Sealing rubber for emptying door  |                        | 572630                     | EPDM-rubber              |
| 28        | Compost and Toilet Bulking Material, 40 l   |                        | 5621                       | Package PE               |
| 29        | Emptying bucket   |                        | 572632                     | Polyethylene + wood      |
| 30        | Compoststarter (only in Finland)  |                        | 5353                       | Package PE               |
| 31        | Instructions for use  |                        | 572634                     | Paper                    |
| 32        | Compostmixer<br>(the mixer blades with pins are separately available as spare part) |                        | 5752                       | Glassfibre-reinforced PP |

**Spare parts for the Biolan Composter are available for at least five years. Spare parts can be obtained from the dealers.**

The main components of the Biolan Composter (parts 1–6) have a guarantee of five years covering defects in material and workmanship.



# BIOLAN COMPOSTER 220

*The Biolan Composter is an efficient unit for the year-round composting of kitchen waste. Thanks to the thermo-insulated structure and the patented ventilation system, ready compost is processed rapidly. The wonder of composting can be monitored in the thermometer and through the emptying doorway. The composter is dimensioned for the waste of one family.*

## 1. Location of the composter

Place the Biolan composter in a location, where waste can be easily taken all year round. A recommendable place is, for example, by the gate next to the waste bin.

Place the composter on a firm surface in a location where water will not gather. The bottom of the composter is fitted with an exit hole for possible excessive seep liquid. This is why the Biolan Composter should be placed on the ground surface. If the composter is placed onto tiling or stone paving, the tile or the stone at the seep liquid hole shall be removed. If the compost mass is exceptionally wet, some seep liquid can run out from under the emptying door (part 3) or it can seep through the air valves in the front wall (parts 11 and 12).

If you want to place the Biolan Composter, for example, in a storehouse, you can insert a hose connector into the seep liquid hole and connect to it a hose, which goes to, for example, a floor drain or a canister. Measure the diameter of the seep liquid hole and choose a connector, that is slightly bigger, to ensure proper attachment of the connector.

### 1.1 Technical specifications

- volume 220 l
- for 1–6 persons, depending on the amount and type of waste
- bottom size 61 x 61 cm, cover size 75 x 79 cm (w x d)
- height of the composter 120 cm
- operating height 105 cm
- weight of an empty composter 32 kg
- weight of a full composter 100–150 kg
- weight of the cover when opening 3,5 kg

The part numbers following the components refer to the parts list on page 2. The product number in turn refers to a specific Biolan product presented on page 7.



#### What is a good biowaste bin like?

A good biowaste bin is dimensioned according to the amount of waste created. A bowl by the kitchen sink may be sufficient for two persons, whereas a family with children may require a waste bin of 10 litres. It is good, if the vessel has a cover, but it must not be airtight.

To bind moisture and make emptying of the vessel easier, put a layer of Biolan Compost and Toilet Bulking Material on the bottom of the vessel. As an alternative, you can also use a piece of soft paper, newspaper or an egg crate.

Also biodegradable bags can be used. The bag, however, decomposes in the composter more slowly than kitchen waste and therefore the contents of the bag shall be poured into the composter separately. In a closed bag, the waste starts to decay.

#### Permissions and regulations applying to composting

The permissions and regulations applying to the composting naturally vary from country to country, but also different municipalities may apply different regulations. Consult your local municipal environmental authority for the regulations valid in your own municipality.



Typically in Finland:

- the composter for domestic waste must be thermally insulated, equipped with a cover and protected against rodents
- in some municipalities it is required that the municipal environmental authority or the refuse disposal company be notified of composting domestic waste
- garden waste may only be composted in a composter, in a board frame or in a pile.
- the compost must be looked after so that no harm is caused to people's health or to the environment
- the composter must not be placed closer than 15 metres to a well or 5 metres to the border of a neighbour without the neighbour's consent.

## 2. Composting

Proper use of the Biolan Composter allows more efficient composting of the mass and enables convenient use and emptying of the composter. Owing to the thermal insulation and the ventilation system of the composter, the composting of the waste is more efficient. The composting starts as soon as there is a sufficient amount of waste in the composter, i.e. it is approximately level with the air channel. After start-up the waste reaches the cover soil stage in 5-8 weeks.

### 2.1 Commissioning

1. Put on the bottom a layer about 5 cm thick (about 20 litres) of Biolan Compost and Toilet Bulking Material.
2. Close the air valve in the front wall almost completely, i.e. set the figure 20 on the adjustment disc (part 12) pointing upwards (see the point, How to adjust the air valve?)

### 2.2 Using the composter

1. Empty the biowaste bin into the composter. If you use biodegradable bags, empty the waste from the bag into the composter and put the bag there separately.
2. Cover the waste with Biolan Compost and Toilet Bulking Material (product number 5621). Depending on the wetness of the waste, a suitable amount is about 1/3–1/2 of the amount of waste added. The Biolan Compost and Toilet Bulking Material absorbs odours and keeps the compost mass airy.
3. Continue the filling until the surface of the waste reaches the level of the lower air pipe (part 5). Adjust the air valve in the front wall in winter to the position 40 and in summer to the position 50.
4. Continue the filling in accordance with the points 1–3 until the surface of waste reaches the level of the upper air pipe (part 4). Open the air valve properly – depending on the outside air temperature (winter frost–summer heat) between the positions 50–100. Sufficient amount of waste has accumulated, and the population of micro-organisms has been created. The composting process starts, which can be established from the rise of the temperature. Observe the location of the thermometer (part 7) below the upper air pipe. So the thermometer gives indicative information about the various stages of the composting process and the temperature during the hot phase.
5. Continue filling the composter as usual (points 1–3) until it becomes almost full of waste. Open the emptying door (part 3) and empty (see the point 2.4)

### 2.3 Using the composter in frost

The heat in the composter is created by burning of the waste. The thermal insulation of the Biolan Composter prevents the heat from escaping and, by doing so, boosts the operation of the composter and helps it stay unfrozen. The composter's operation tolerates mild frost provided, that waste is added continuously on a weekly basis and the amount of waste added is sufficient. In severe frost or if the toilet is rarely used, the compost mass cools down and, in the winter, may even freeze. If the temperature of the composter drops below 20 degrees centigrade:

1. Continue filling the composter as usual (see paragraph 2.2, points 1–2).
2. If the frost is severe, adjust the air valve to a lower setting, between positions 20–40.
3. Check that the air outlet valve (parts 10 and 11) has not frozen. Dismantle the valve cover and remove any ice.
4. Empty the composter from the emptying door so as to provide more space for the waste and to stimulate the compost mass by inputting oxygen and mechanical crushing.

5. Bury hot water bottles or canisters in the surface layer of the compost mass to provide warmer conditions for the micro-organisms.

Freezing damages neither the unit nor the compost mass itself, and the composting process will continue at the latest when the sun begins to warm in spring.

Put into the **household compost** all biowaste, such as

- fruit and vegetable peels
- leftovers of meat or fish, and other food waste
- coffee or tea grounds with filter bags
- soft and wet papers
- crushed eggshells
- pet excrements
- natural fibres in small pieces
- biodegradable bags, open and separate from waste
- garden waste
- solid toilet waste



**Do not place in the compost**

- non-decomposing waste, such as plastic, glass, rubber, leather
- toxic substances, such as rot-resistant or disinfecting agents, paints, solvents, petrol, cigarette butts
- vacuum cleaner bags
- coloured advertising paper
- large amount of paper at one time
- ash or lime

### How to adjust the air valve?

The air supply to the composter is adjusted with the air valve (part 12) in the front wall of the Biolan Composter. The figures 20–100 in the adjustment disc indicate in per cent (%) how much the air valve has been opened.



At the start of composting, adjust the valve to the position 20. Then the figure 20 is at the upper edge of the adjustment disc and the broadest part of the adjustment handle points upward (see illustration).

As the amount of waste increases, adjust the air valve to a higher setting. You can turn the disc in either direction.

If the composter is utilized frequently, keep the air valve in the completely open or in the almost open position between 50–100 (winter frost–summer heat). If it is rarely used, adjust the air valve to a lower setting for breaks and during severe frost.

### How often shall I mix the Biolan Composter?

If operated duly, the Biolan Composter hardly requires any mixing at all. The ventilation system of the composter combined with sufficient dosing of the Biolan Compost and Toilet Bulking Material are sufficient for keeping the compost mass adequately loose.

Do not mix the layers in different composting phases with each other, but only mix the top layer at intervals of a few weeks to the depth of 20–30 cm. Press the Compostmixer into the compost mass from directly overhead and lift it back the same way. Observe the location of the air pipes while mixing the compost.



## 2.4 Emptying the Biolan Composter

Compost that has reached the cover soil stage is emptied from the Biolan Composter. The waste matures to cover soil in about 5–8 weeks after the composting process has started. To enable an efficient uninterrupted composting process, we recommend that at most half of the mass be discharged from the unit at a time.

1. Place the emptying tray under the front edge of the composter.
2. Using the emptying bucket (part 29) or a straight-edged spade, empty from the compost the part that has matured the most.
3. Attach the emptying door and drop the remaining compost mass onto the bottom of the composter using the mixer or the spade.

## 2.5 Cleaning the Biolan Composter

Various mould and ray fungi are the decomposers in the compost, and should not be washed away. The air valve (parts 11 and 12) and the possible seep liquid hose (see paragraph 1) shall be cleaned as required, however, at least every five years.

The Biolan Composter can be emptied all year round. Emptying often boosts the operation of the composter as a result of the oxygen surge.

The micro-organisms decomposing the compost do not have teeth. The larger the bits you place in the compost the longer it takes for them to decompose.

The Biolan Compost and Toilet Bulking Material has been explicitly developed for the Biolan Composter. It is sufficiently coarse and sour. The compost stays airy and the bark of coniferous trees repels flies.

# 3. What happens in the Biolan Composter?

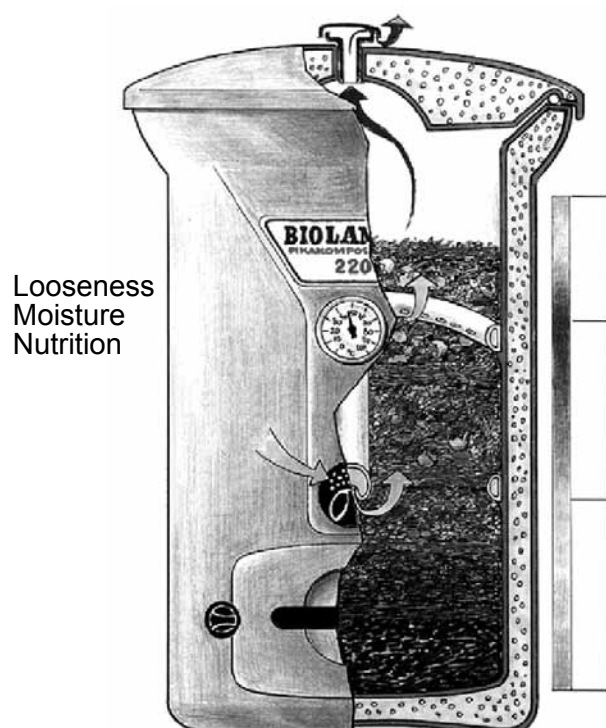
The decomposing micro-organisms have three basic needs that have to be fulfilled in order to provide effective composting. oxygen, humidity and nutrients.

**OXYGEN:** The micro-organisms need oxygen to survive. To ensure sufficient looseness, Biolan Compost and Toilet Bulking Material (the litter specifically developed for the Biolan Composter) shall be mixed with waste. Applying suitable bulking material is essential for proper operation of the composter. The Biolan Compost and Toilet Bulking Material brings about looseness, binds excess moisture and neutralises odours. Branch chaff can also be used for additional looseness. Sawdust, cutter chips, peat, tree leaves and grass are materials which pack up and therefore they must not be used as bulking material.

If the composter smells rotten, it is too tight and lacks oxygen.

**HUMIDITY:** The micro-organisms of the compost are swimmers, which can only live in a humid environment. The humidity of the compost mass is suitable when the mass glistens with moisture and, when clenched in the hand, a few drops of water can be extracted from it.

**NUTRIENTS:** The carbon-nitrogen balance of the compost must be correct. Kitchen waste, green garden waste, manure and urine are sources of nitrogen. Withered brown waste, such as ripened hay, straw, tree leaves and branches contain carbon. Also the Biolan Compost and Toilet Bulking Material contains a lot of carbon.



The micro-organisms that decompose the compost use the waste in the compost as well as each other for nutrition. Three stages can be separated in composting: warming phase, hot phase and cooling phase. The composting process does not start until the amount of waste is sufficient and the population of micro-organisms has been created.

The heating-up stage

- temperature 0–40°C
- decomposing performed mostly by bacteria
- sugars and proteins are the nutrients
- lasts in general a few days

The hot stage

- the temperature rises over 40°C
- decomposing performed by bacteria and actinomycete, which specialize in high temperatures
- micro-organisms of the hot phase and decomposing products are used as nutrition
- lasts from a few days to at most a few weeks

Cooling phase, i.e. the cover soil phase

- temperature drops to the level of the surrounding environment
- decomposing performed by fungi, actinomycete and earthworms
- the most resilient parts of the compost are decomposed: e.g. lignin and cellulose
- humus is formed
- lasts a long time, at least several months

## 4. Using the compost in the garden

Correctly used, the compost makes an excellent soil conditioner, but if used incorrectly, it may even be harmful to plants. Compost soil changes and develops constantly. It shall be used in a different manner in different stages of its development. Typically compost soil is divided into two different groups based on its maturity: We speak either about cover soil or mature compost soil.

### 4.1 Cover soil

The compost emptied from the Biolan Composter is usually in the cover soil, i.e. in the cooling phase (see paragraph What happens in the composter?) The decomposing has reached a level where food waste has already decomposed. The harder wood material, eggshells and citrus fruit peels are not yet completely decomposed. Therefore, the cover soil has quite a rough look.

### 4.2 Using cover soil

The cover soil is excellent used as soil conditioner. The nutrients stimulate the activity of micro-organisms, and the humus it contains improves the water balance of the soil. A suitable thickness for the layer to be applied is about 2–5 cm.

As the definition "cover soil" implies, during the growing season cover soil is applied as cover on the ground surface and around the roots of perennial plants and bushes.

In autumn the cover soil can be moulded lightly in the soil. For the winter the compost undergoing the cover soil phase, and to be used in spring, shall be transferred into a composter with a cover or protected by some other means to avoid rainwater flushing away the nutrients.

### 4.3 Maturing cover soil to compost soil

If the cover soil is post-composted, it will mature into proper compost soil. Post-composting can be done for example using a pile or a composter that is not insulated, because the compost soil will not heat up any longer. It is advisable to use a composter with a cover, such as e.g. the Biolan Garden Composter (product no. 5720) or the Biolan Stone Composter (product nos. 5731 and 5732) to avoid rainwater flushing away the water-soluble nutrients. In a couple of months, the compost matures into compost soil of a dark-brown colour and aggregate structure, from which source substances, except for bigger wood splinters, can no longer be distinguished.

### 4.4 Using mature compost soil

The fertilizing qualities of the compost soil depend on the raw material consistency of the compost soil. Compost created of domestic waste has in general a better nutritive value than compost based on garden waste. Many garden plants, however, require more quick-acting fertilizers to grow rapidly. For this reason the compost should be "spiced-up" with the rich-in-nitrogen Biolan Natural Fertilizer Grains.

Plain compost mould makes not a good growing medium, it shall be mixed with at least 1/3–1/2 of mineral soil, such as for example sand, silt, loam or clay.

*After composting, toilet waste can be spread either on ornamental plants or on a vegetable plot. If the compost is to be used on a vegetable plot, we recommend post-composting it for a year after treatment in the Biolan Composter so as to ensure it is guaranteed hygienic.*

## Biolan accessories

### Biolan Compost and Toilet Bulking Material

Biolan Compost and Toilet Bulking Material is a blend made of pure, dried and ground conifer bark and peat for composting and dry toilets. Compost and Toilet Bulking Material gives the compost an airy structure, which ensures effective and odourless composting. Packing size 40 litres.

Product no. 5621



### Biolan Stone Composter

The Biolan Stone Composter is a thermally insulated Finnish composter, for garden, domestic and toilet waste. The Stone Composter is extremely robust and weatherproof. Its hinged cover makes daily use easier. Volume about 450 litres.

Dimensions 95 x 114 x 95 cm (d x w x h).



Product number red granit 5731, grey granit 5732

### Biolan Compostmixer

The Compostmixer is an excellent tool for managing the compost. Using the Compostmixer, the compost can be mixed up easily and without straining the back. The Biolan Compostmixer is made of resilient glass fibre-reinforced polypropylene, so it neither corrodes nor oxidizes even over time.

Product no. 5752



### Biolan Garden Composter

The Biolan Garden Composter is intended for the composting of garden and toilet waste. Its volume is about 900 litres. A bottom basket of aluminium, to prevent rodents from entering the composter, is available as an option. Colour green. Dimensions 106 x 154 x 92 cm (d x w x h). Dimensions of the bottom basket 107 x 154 x 4 cm (d x w x h).

Product no. 5720



Most of the problems that may be encountered result from using the wrong type of litter. Make sure the bag bears the label "Biolan"!

## Is the composting not successful?

Only the end result matters! Does the waste turn to cover soil?

### THE COMPOSTER NEITHER GETS WARM NOR SMELLS UNPLEASANT

Ensure that the mass is sufficiently moist by looking through the emptying doorway and turning the surface (see paragraph 3).

#### The humidity is suitable

- The composting has not yet started (see paragraph 2.2). The micro-organism population needs some time to develop.
  - Continue the filling as usual.
- The amount of waste is too small to generate the high temperature required. The waste is burning more slowly. The key factor is, whether the waste has the time to mature to the cover soil phase (see paragraph 4.1) before the emptying.
  - If you wish to speed up the composting process, add some nitrogen, such as for example the Biolan Natural Fertilizer Grains.
    - Compost has decayed to a point, where the hot phase is already over. Empty some mass from the composter and continue the filling.

#### The compost mass is too dry

- Sprinkle with plenty of warm water.
- Return the too-dry waste from the bottom to the composter after having sprinkled it first.
- Subsequently, make sure that the mass remains sufficiently moist.

### THE COMPOSTER DOES NOT WARM UP AND SMELLS ROTTEN

#### Biodegradable bags have been used without opening

The micro-organisms lack oxygen

- Tear the bags properly open using the Compostmixer. As required, add some litter in the waste.
- Subsequently pour the contents of the bag in the composter separately.

#### The compost mass is too tight

- Generously apply the Biolan Compost and Toilet Bulking Material. Mix the bedding and the mass.
- Subsequently use the litter more generously and make sure while filling, that for example grass, rootcrop peels or leaves do not make tight layers.

### THE COMPOSTER IS HOT AND SMELLS OF AMMONIA

The nitrogen content of the composter is too high compared with its carbon content

- Apply a thick layer of Biolan Compost and Toilet Bulking Material to the surface.
- Subsequently use the litter more generously.

### FLIES IN THE COMPOST

- If the compost smells, add some Biolan Compost and Toilet Bulking Material generously, simultaneously mixing the compost with the Compostmixer and in future use the litter more generously.
- Turn the surface layer deeper into the compost. The fly maggots die at a temperature of about 43 °C.
- Apply a layer about 2 cm thick to the surface. Subsequently make sure particularly to cover the meat and fish leftovers properly.
- Rinse the inner walls and the cover of the composter carefully with hot water in order to destroy the eggs and maggots. If you exterminate the flies by spraying, use pyrethrin, such as Raid or Bioruiskute S, which decomposes in the compost.

### ANTS IN THE COMPOSTER

The composter provides the ants with feed and a cosy environment, which may make it difficult to keep them away. The ants usually like to stay in the lower part of the composter during the cooling phase. Make sure that the composter is not too dry. You disturb the relative comfort of the ants by emptying small batches of compost regularly. The ants are not harmful to the composting process.

Presence of mould, fungi and various creeps are characteristic of a well-functioning composter!

**Please visit [www.biolan.fi](http://www.biolan.fi) → Environmental products for more information about composting.**

## Matters related to the guarantee

The main components of the Biolan Composter 220 (parts 1–6) have a guarantee of five years.

1. The guarantee is valid from the date of purchase and covers possible defects in material and workmanship. The guarantee does not cover possible indirect damages.
2. Biolan Oy retains the right to decide about repairing or replacing the damaged part at its discretion.
3. Any damages resulting from careless or forcible handling of the device, failure to observe the Operating Instructions, or normal wear are not covered by this guarantee.
4. The buyer must present a duly filled guarantee certificate or a detailed purchase receipt when submitting claims under the guarantee.

For matters related to the guarantee, please consult Biolan Oy directly.

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# BIOLAN®