



4VAP

(Professional oxalic acid vaporizer)

INSTRUCTION MANUAL



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What you need

- Oxalic Acid vaporizer – 4VAP
- Oxalic Acid (OA) crystals
- Measuring cup for crystals
- Mask approved for Oxalic Acid fumes (for example this one from 3M OV/N95)
- Acid resistant gloves
- Eye protection – protection glasses
- Cloths to block entrances

Safety instructions

- Always wear your mask, eye protection and gloves.
- Avoid skin contact with crystals, as this may cause burns.
- More information on oxalic acid safety data sheet
- **Use only with a grounded 3-pin socket !!! 4VAP must not be used in wet environments and in the rain!**

Operating instructions

- 4VAP is best used from the back of the hive, where a small hole is drilled in the back of the bottom. This hole is needed to insert the vaporizer tube. Using the hole in the back of the hive at this location is the easiest because it eliminates the inconvenience of flying bees. The friction between the tube and the drilled hole also holds the vaporizer in place during evaporation, allowing you to prepare another dose.
 - You can also use 4VAP from the front of the hive, where you insert 4VAP into the eye in the upper attachment and evaporate the acid.
1. Connect the vaporizer to a 230 V, 50Hz power supply. It takes approximately 2 minutes to reach operating temperature. When the red value on the display shows a temperature of 220 °C, 4VAP is ready for use.
 2. Insert the appropriate amount of acid into the white Teflon cap (recess). Use 1 gram of acid per one extension 39x24cm. Turn the vaporizer 180 ° upside down so that the open inlet of the vaporizer chamber faces the ground.

3. Take a white Teflon cap with poured acid and push it from below onto the inlet of the evaporation chamber.
Attention, the evaporation chamber is very hot !!!



4. Insert an inverted 4VAP (up the base) into the beehive opening, then turn the vaporizer 180 ° to the right and click on the cap. The acid falls from the cap into the evaporation chamber and begins to evaporate. This will cause the temperature to drop to approximately 205 °C to 215 °C. The temperature starts to rise very quickly again. When it reaches 220 °C again, the evaporation is completed and you can move to the next hive. This whole cycle takes about 20 seconds!

5. After evaporation, all hive openings need to be sealed for approx. 10 minutes. It is not uncommon for the chamber temperature to rise above 230 °C to 250 °C during treatment. This is normal and within the tolerances of the device.

Conditions of use

- Carry out the treatment in still air at ambient temperatures above 5 °C.
- For better contact of bees with the substance, apply it in the evening.
- It can be applied only in the inter-bed period or in the case of compartments and swarms from which no honeycombs will be taken.
- The application does not work under the capped fetus.
- After 7 - 10 days, repeat the whole process at least 3 times.
- Repeat the procedure for three weeks, as acid fumes do not affect the mites in the fetal cells..
- The next day after treatment, count the number of mites on the hive pad. Mites fall down after application for another 2-3 weeks.
- Spring healing can be done only after the first flight of bees.

- Another application is recommended in the period from May to June.
- Autumn retreatment can only be performed during the period without bee brood in the months of November to December.
- The treatment should be combined with the evaporation of formic acid using equipment designed for this purpose.

NOTE: At lower ambient temperatures, for example in autumn, the fumes are more visible.

After finishing work

- **Disconnect the device from the power supply.**
- After completing the treatment, clean with warm water the evaporation chamber of acid residues - when the chamber is still warm but not hot. Make sure that the water also flows through the copper tube. This prevents the tube from becoming clogged with acid.
- If the tube becomes blocked during use, use a steel wire, for example, to clean it.

Evaporation temperature change

The correct value of the evaporator chamber temperature of this vaporizer is set to 220 °C to 230 ° C. However, you can change it as follows:

1. Switch on the vaporizer. The top line of the display (red numbers) shows the current evaporator chamber temperature. The bottom line of the display (green numbers) shows the preset temperature of the evaporation chamber.
2. To change the temperature setting, press the "SET" setting button on the left and then press the up and down arrows to set the value to the desired temperature.
3. Press the "SET" button again. This saves the new temperature setting.



Electrical device safety instructions

Electrical connection

ATTENTION! Before putting the device into operation, make sure that the voltage and frequency indicated on the type plate correspond to the value of the mains used. The mains supply from which the device is supplied must be grounded in accordance with regulations and protected by at least a 10-amp L-type circuit breaker. This device is equipped with a network cable that has ground conductor and circuit breaker in the form of a mains plug.

ATTENTION! If in doubt about the suitability of your socket, make sure it is properly grounded. If you are unsure, have it checked by a qualified electrician.

ATTENTION ! The device may only be operated if it is connected to a power supply using a residual current device as a residual current device.

Electrical grounding

In the event of an electrical short (short circuit), grounding guarantees the path of least resistance to electric current and reduces the risk of electric shock. This device is equipped with a power cord that has a ground wire and a power plug in the form of a power plug. The plug must be inserted into a connection socket that complies with all local regulations and is properly installed and grounded in accordance with them.

Do not make changes to the supplied plug. If it does not fit into your electrical socket, have a proper electrical socket installed by a qualified electrician. Improper connection of the ground wire may result in a risk of electric shock. A wire with green insulation (with or without yellow stripes) is a ground wire.

With the assistance of a qualified electrician, check the ground wires if you do not fully understand the grounding instructions or if you are not sure that the device is properly grounded. Protection against dangerous contact with non-living parts is performed by automatic disconnection from the source according to Article 6.3.1 of EN 60 204-1.

WARNING!

Damaged power lines must be replaced immediately by a qualified specialist! Operation with damaged supply cables is life-threatening and therefore prohibited! Children and adolescents are not allowed to operate this device!

Disconnect the power cord from the mains before carrying out any maintenance work on the 4VAP. Be careful not to confuse the yellow-green wire with the phase wire! The electrical connection may only be carried out by a specialist with the appropriate electrical qualification.

Power extension cable

Make sure the extension cord is in good condition. If you use an extension cord, make sure that it has a sufficient cross-section to carry the current that the product will need. The plug and socket

of the extension cable must be connected to the ground conductor, which must always be part of the extension cable. In the event of damage or wear, replace the extension cable. A wire with green insulation (with or without yellow stripes) is a ground wire.

Technical parameters

- DIMENSIONS (LxHxW) : 35x10x8 cm
- WEIGHT: 930 g
- TEMPERATURE RANGE: 0°C až 250°C
- ELECTRIC POWER : 250 W
- POWER SOURCE : mains 230V, 50Hz, 1,08A
- SUPPLY CABLE LENGTH : 1,5 m
- MATERIAL : evaporation chamber -Cu a Al
handle - insulator – plastic

Package contents

- 1x vaporizer - 4VAP
- 2x white teflon cap
- 1x measuring cup for crystals(1gram)
- 1x teflon tube 5cm (temperature cover of the copper outlet tube)
- 1x instruction manual