

EVAPORATOR UNIVERSAL R

Long-term evaporator for formic acid
Order-No. 30026

Operating Instructions

Please follow these operating instructions exactly, since only then a successful treatment can be guaranteed!

PLEASE NOTE: The manufacturer assumes no liability for damages resulting from failure to observe these instructions!

The use of the evaporator is at one's own risk!

Before using formic acid in concentrations greater than 60%, observe the local regulations ("Imminent Danger").

When applying formic acid in concentrations greater than 60% use a one size smaller U-Wick and fill the Bottle with only ¾ of the amount stated in the table below.

Check the contents of the packaging for completeness before using the Evaporator. A bag [Order no. 30026] contains one Evaporator incl. Plastic Frame.

Name/Description	Order-No.	Scope of Supply	Plastic Frame		
Operating Instructions		1	Screw Unit	31035	1
Bottle	31037	1	Fleece Cloth / Gauze	31043	1
Base Plate	31038	1	U-Wicks card	30010	1/2
Wick Holder	30022	1	(includes one U-Wick each small / medium / large)		
Cap	31012	1	Screw, stainless ø3x12		2

NASSENHEIDER Evaporator universal is a long-term evaporator for the continuous evaporation of formic acid 60% ad us. vet. for the varroosis (*Varroa destructor*) treatment of the honey bee (*Apis mellifera*). **NASSENHEIDER Evaporator** is bee drug approved in Germany in conjunction with formic acid 60% ad us. vet. (published in Federal Law Gazette No. 31 dated 11th July 2000).

The high effectiveness of the **NASSENHEIDER Evaporator** has been proven in numerous scientific tests - for further information check our homepage.

The formic acid long-term treatment ensures the successful treatment of Varroa mites even in the already sealed brood.

Areas of application

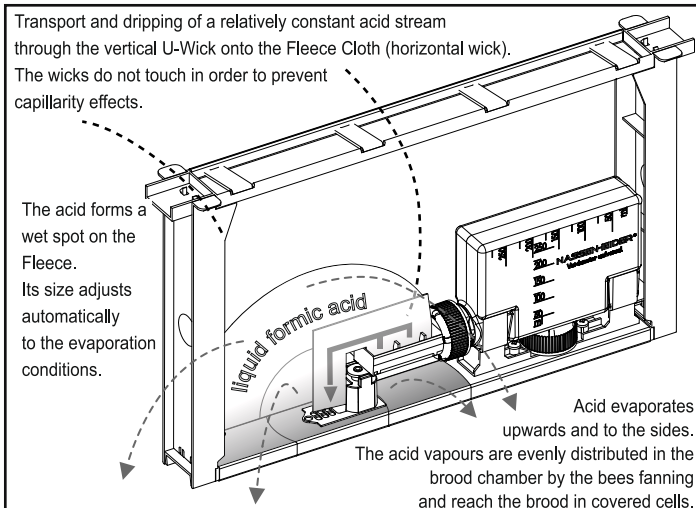
Varroa mite (*Varroa destructor*) of the honey bee (*Apis mellifera*).

Counter indications

Do not use during the yield. Use only after the last honey harvest of the year. The waiting time to the next honey harvest is determined automatically by hibernation. No treatment may take place in the spring.

Functional principle of the Evaporator

The vertical U-Wick sucks the formic acid [FA] and transports it downwards onto the Fleece Cloth via the U-shaped leg, where it drips off and evaporates. The holed Foot ensures that the U-Wick and Fleece Cloth are not touching (prevention of capillarity effects). In this way, an almost constant volume flow of formic acid is transported and evaporated. The spot on the Fleece Cloth is larger or smaller depending on temperature and humidity. The evaporation surface regulates itself automatically.



Caution is advised during the use of formic acid treatment:

1. Always wear protective gloves, goggles, rubber apron and rubber boots when filling the Bottle as well as when inserting it into the bee colony!
2. Only fill the Evaporator outdoors.
3. Keep a bucket of water close by.
4. Keep formic acid out of reach of children.
5. The solution causes chemical burns, do not inhale vapour.
6. If substance gets in contact with eyes, rinse eyes thoroughly with water and consult a doctor!
7. In the event of an accident or if feeling unwell immediately consult a doctor.

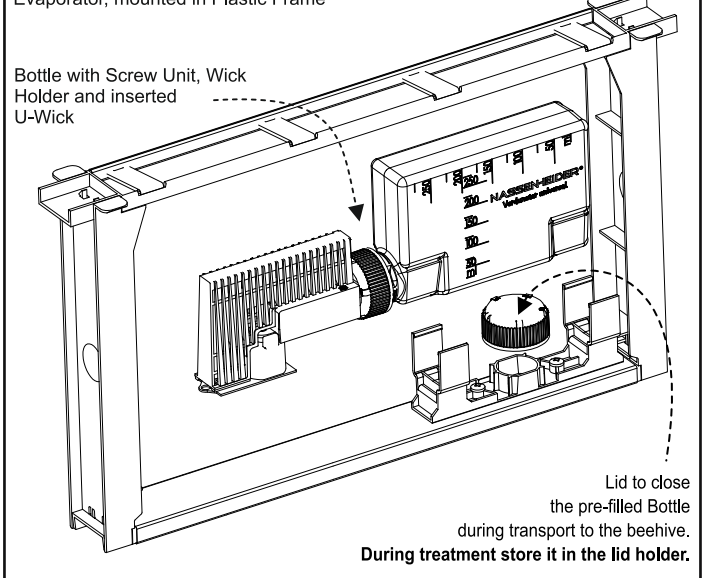


Conditions for a successful treatment:

1. **Minimum treatment duration of 10-14 days has to be adhered to.**
Otherwise the acid would not work across a complete brood cycle!
The treatment across a longer period, however, is not harmful.
2. Closing the lattice floor during treatment with the appropriate plates and foam strips.
3. Honey harvest and removal of the honey super before starting the treatment.
4. Normal opening of the entrance hole according to the hives size.
5. Hives in a windy location are not ideal, therefore:
- move the entrance hole away from the main wind direction
- or use a hedge or fence as wind break.
6. Observe mite fall during treatment: If the mite fall does not sink significantly after 14 days of treatment (e.g. due to reinvasion from a neighbouring hive), then treatment has to be extended or repeated after a short break.
7. For frames and hives only use stainless steel screws, nails and wire for long-term use.

Set-up of Evaporator

Evaporator, mounted in Plastic Frame



Treatment process

At the apiary:

2. **Filling of Bottle with formic acid 60% ad.us.vet. as per table:**

Colony size/ hive type	Daily doses	Filling requirement
6-9 honey-combs/Offshoot	15 ml +/-20% (small Wick)	180ml
DNM/Zander One chamber	20 ml +/-20% (medium Wick)	240 ml
Dadant DNM/Zander Two chamber	25 ml +/-20% (large Wick)	300 ml (marking at Bottleneck)

Use of 85% Formic acid:

In certain areas, the application of 85% formic acid [FA] is permitted (e.g. "Imminent Danger").

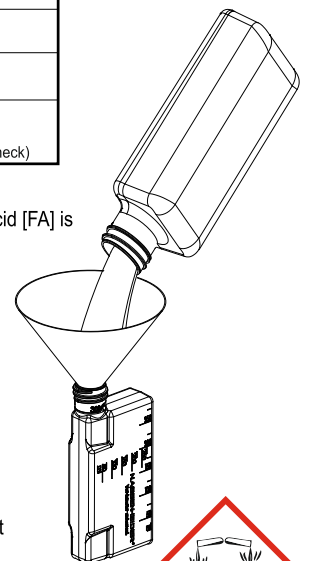
If so in the area of use it is recommended to use of 85% FA for the last treatment in fall.
(see table "Treatment concept throughout the year" on page 2).

Attention: When using 85% formic acid make sure to

- use a one size smaller U-Wick
- fill the Bottle with ¾ less

2. Transport of the Bottles to the hives

- For this purpose close the Bottles securely and position them in an enclosed, acid-resistant plastic box for safety reasons.



Attention: Adhere by all means to the safety precautions (see page 1 lower left)!



The use of the evaporator is at one's own risk!

3. Mounting the Screw-Unit

- Wear protective gloves.
- Put on Screw-Unit straight.
- Insert the tab between 2 snap-in lugs as anti-rotation device.
- Tighten the Union Nut firmly onto the Bottle.
- The Cap can be stored in the Cap holder on the Base Plate.

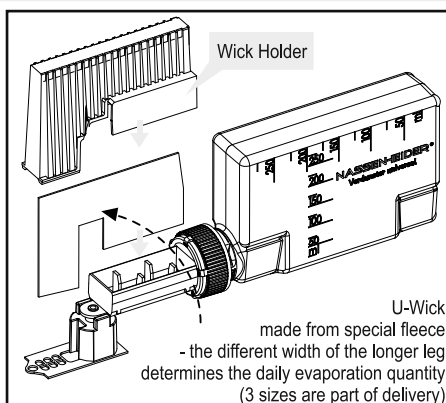
Insert the tab between 2 snap-in lugs.

Tighten Union Nut firmly!

Attention:
Assembly has to be carried out in vertical position (see figure)!

4. Selection of U-Wick as per hive type

Colony size/ hive type	U-Wick
6-9 Honeycombs/ Offspring	Size 1 (small)
DNM/Zander or similar One chamber	Size 2 (medium)
Dadant DNM/Zander or similar Two chamber	Size 3 (large)



Put U-Wick straight into the Outlet of the Screw-Unit.

5. Put Wick Holder over the U-Wick and Outlet until it clicks softly into place.

Attention: Never put Wick Holder over a wet U-Wick.

6. Clip mounted Evaporator into the Base Plate

from above until it clicks softly into place.

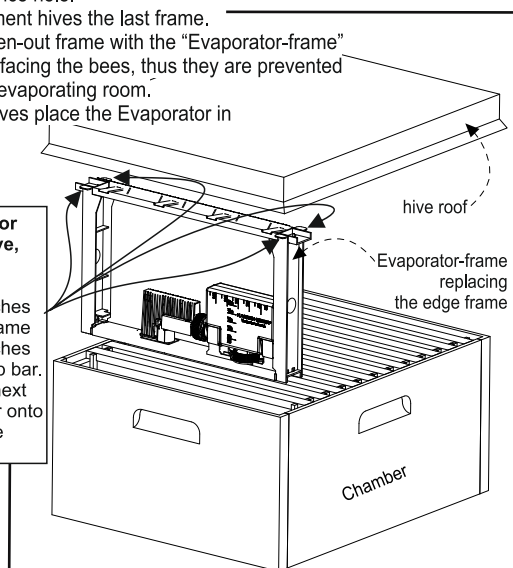
Make sure the Evaporator sits upright in the frame. Make sure U-Wick and Fleece Cloth are not touching (ca. 2 mm gap).

7. Placing frame with Evaporator in hive:

- Remove the roof of the hive and remove an edge frame
- i.e. in warm hives the frame furthest away from entrance hole.
- i.e. in rear treatment hives the last frame.
- Substitute the taken-out frame with the "Evaporator-frame" with the fly gauze facing the bees, thus they are prevented from entering the evaporating room.
- In two chamber hives place the Evaporator in the upper level.
- Close the hive.
- Close lattice floor.

Placing the Evaporator Frame into bigger hive, e.g. Dadant:

Instead of the two catches at the long ends the frame is held by the four catches along the side of its top bar. One side hangs onto next honey frame, the other onto the divider sheet or the hives wall.



8. Evaporator remains in beehive for at least 10-14 days.

9. After 2 days check the evaporation quantities

Check and calculate the daily evaporation quantities of formic acid according to the scale. Compare to required daily doses in table on page 1. If necessary, correct by larger U-Wick for more acid or smaller U-Wick for less acid.

Please note:

The Wick size is adjusted to the hive size. The daily evaporation rate can increase slightly (up to 50%) depending on the weather and the behaviour of the bee colonies. This increase in evaporation is, however, not harmful to the bees!

Treatment concept throughout the year

Period	Action	Additional information
April	Hang drone frame next to the brood nest. Then regularly cut out the freshly covered drone brood.	This measure reduces Varroa infestation significantly throughout summer.
June	Mite control is recommended by counting the natural mite deaths on the Varroa floor: At about June 20th count fallen mites twice for one week.	Take out the last honeycomb and if necessary add enhanced feed in ideally one work step. Do not restrict the brood nest by giving winter feed too early.
Mid July after the last honey harvest	1. Treatment with 60% formic acid [FA]	- hang Evaporator frame - close lattice floor
Then	Feed	e.g. with feeder frame
Mid to Late September	2. Treatment with 60%FA	
October (4 weeks later)	3. Treatment ("final mite removal") with 85% formic acid highest day temperature > 10°C!	If strong infestation is suspected or reinvasion (e.g. due to robbing)
When using higher concentrated FA (>60%) use a one size smaller U-Wick and fill the Bottle with ¼ less!		
November	To check if treatment has been successful: There should be no more than 1 dead mite per day. With successful "final mite removal" much better results should be achieved.	

Durability of the U-Wicks and Fleece Cloth

The U-Wicks should last at least 1-2 years, i.e. up to six treatment cycles. They mustn't be kinked, always handle U-Wicks with care! Do not put Wick Holder over wet U-Wick! The Fleece Cloth's durability relies strongly on the activity of the bees. It can be replaced easily by screwing off the Base Plate and loosening the click-strips on the top bar.

The use of the evaporator is at one's own risk!

Additional information

Please refer to the current information incl. FAQ list on the homepage of the manufacturer: www.nassenheider.com
Homepage of the inventor, Mr. Bruno Becker: www.bienen-becker.de

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