



COMMERCIAL & SIDELINER KITS DK-162: READY TO FILL with 65% Formic Acid VACUUM SEAL and USE.

FILL & TRANSPORT FILLED KITS IN THICK PLASTIC LATCH BOXES INTO BEE YARDS.

Vacuum sealing ensures that the acid fully fills all pads. All your helper in the bee yard needs are toothpicks or staples, gloves, and a respirator. The pads don't drip.

UNUSED AND FILLED PADS IN KITS HAVE A SHELF LIFE OF 10 YEARS.

JUST KEEP THEM IN THEIR ORIGINAL BOX WITH THE BAG CLOSED, IN MODERATE TEMPERATURE OUT OF DIRECT SUN AND HIGH HEAT. MODERATE FREEZING UP TO -8° C 22° F IS NOT A PROBLEM.



COMMERCIAL OPERATORS WITH FOREIGN LABOR.

KITS are made in thick cardboard boxes lined with a poly bag. Inside are 5" pads cut with both ends open so no one can install them incorrectly. Each KIT will contain 162 - 5" pads, and will treat 54 hives with 3 pads and 81 with 2 pads. For more information on how, when, and the limits of using these pads see: HOME PAGE and TREATMENT SELECTION for your climate and type of operation.

SIDELINE BEEKEEPER: Anyone with 16 or more hives should use DK-162. By purchasing this kit, you are buying two years' worth of treatment at 95 cents a pad, plus the cost of 43 pounds of 65% acid. You will be able to treat 32 two story hives for one year by using 3 pads in August and 2 in April.

A- PURCHASE DRY KITS DIRECT FROM MITEGONE IN CANADA

Dry Kits can be shipped worldwide via Canada Post one kit at a time.

Dry Kits can be shipped to Canada and the USA via FedEx, in bundles of 4, 8, and 12 kits or a pallet of 72 kits. In Canada, acid filled kits in plastic latch boxes are available for purchase from our agents. For prices of kits and policies, just click on your country's flag on our website.

B - PURCHASE ACID IN LARGER VOLUMES AT HIGHER CONCENTRATIONS

You can purchase acid from Univar-industrial in tote that holds 1,000 liters in Canada, and 286 US gallons in the USA. This is approximately 2,700 lbs. of acid. Purchasing acid in higher volumes will make your treatment very affordable. In Canada & California 65% acid is available, but you are paying someone a lot of money for just adding water to the acid.

For example, if you need to treat 3,000 hives, you will need 6 barrels of 65% acid. In Canada, I can buy 85% acid in a large tank (tote) that is equivalent to five barrels. I will then thin that acid with water and will create a total of 6 barrels of 65% acid. The cost of purchasing 85% acid in a tote is \$1.46 per kg. If I were to buy it by the barrel, the cost would be 3 times as much \$4.56 per kg. You can see how I'm saving a lot of money.

The cost of formic acid in tote in the USA should be a third of the cost you pay for it by the barrel.

NEW; In 2020 I developed and found fittings to connect hose to elevated tote and designed way to thin acid into another tote. It took me 3 hours of doing actual thinning. **Call me for parts and formula.**

This eliminated one laborer from crew as now 43 lbs. of 65% acid is taped directly into the kit. Filler now fills the kits on scale. Helper prepare kits in latch boxes for filling, and move them to my station for vacuum sealing, and from there to storage. We made 60 kits in 3 hours. And we do not need 5 gal. pails for thinning. **YOU NEED EMTY OR PARTLY FILLED TOTTE.**

OLD; My crew of four men thin the tote of 85% acid to 65% acid using 20, five-gallon containers. We use these smaller five-gallon containers to thin, fill, and vacuum seal the kits. Empty containers are rotated back to thinning station to be filled with acid again.

This process fills 90 kits ready to go into beehives in 6-7 hours. In the USA, you can purchase the same quantity of 95% acid, which will fill 101 kits once the acid is thinned to 65%.

IN BOTH; You can thin and seal only the amount of kits that you need at the time of your treatment.

C - OLD; THINING ACID YOURSELF CAN SAVE YOU LOT OF MONEY

THINNING BY WEIGHT IS NOT A DIFFICULT. REMEMBER TO ALWAYS THIN ACID INTO WATER. Using a 5-gallon thinning containers from: SBS Plastic in Kansas 1-800-343-8133 will make things easy. They will ship you extra lids and 3/4" taps. To thin your acid into these square 5-gallon containers:

- For 85% acid, fill the container with 10.75 lbs. of water then fill the rest of the container with acid to a weight of 43 pounds. Ratio 1; 3
- For 95% acid, fill the container with 14.3 lbs. of water then fill the rest of the container with acid to a weight of 43 pounds. Ratio 1; 3.0075.



NOW YOU HAVE 65% ACID TO FILL YOUR KITS AND VACUUM SEAL THEM.

D – SAFTEY EQUIPMENT REQUIRED.

Respirator, goggles, long rubber gloves, rubber boots, rubber rain pants and jacket are required for everyone in your crew. At the thinning / filling station, have a hose with running water and two pails of water to rest the acid hose with valve in, and other in case of a spill. At the filling and sealing station, have a pail of water and pitcher to flush away any spills or to wash your hands, gloves, and used equipment. For detailed instructions on thinning acid using a submerged hose see *Acid Thinning* on our website.

E – PURCHASE PLASTIC LATCH BOXES

You will need as many plastic latch boxes as you need kits for your treatment. They are reusable. They are available at WALMART Sterilite No 1925 size 27 Qt. 16 1/2" x 13" x 12 1/4". Ensure that the latch box is the full height of the kit and has a latching lid and strong handles to carry the filled kits to your hives.

F - FILLING COMMERCIAL KIT DK-162 - BASIC RULES:

1) WORK AREA: All work must be done in the open air, not inside a building. Choose a space preferably in an open or drive through storage shed like you see on the picture above, where the roof provides shade cover from the sun, protects from wind and rain, but also provides a clean air draft.

2) OPENING THE KIT: The kit comes as shown in the picture. Please note where the folded top of the bag is. Also note that there is a piece of plastic or cardboard over the gap between the short sides of the box fold. It is protecting the bag from being cut by a knife when the kit is being opened.

LEAVE IT THERE. OUR CURRENT PRODUCT HAS THE CUT PROTECTORS ON BOTH SIDES. Some individuals do not read the instructions and think they have to cut the plastic bag to pour the acid in. **DO NOT CUT THE PLASTIC BAG.** If you do not see the folded top of the bag you are on **WRONG SIDE**. Close the box and open the other side. Then follow the old saying, “when everything fails read the instructions.”



!!! IMPORTANT!!! OPEN the kit on the side DIRECTED BY THE LABEL. Opening the kit on the WRONG SIDE will cut the bag and make the kit worthless.

F - FILLING COMMERCIAL KIT DK-162 WITH ACID:



1) FILLING FROM PREPARED KEGS. NEVER MOVE THE ACID FILLED CONTAINERS WITHOUT SECURELY INSTALLING FULL LIDS AND AIR VENT PLUG. DO NOT MOVE CONTAINERS WITH TAPS.

Acid filled kegs (after thinning) are only moved once they have been securely closed with a proper lid and a closed air vent. They are moved to the filling station where 43 pounds of 65% formic acid is all the acid required to fill all the pads in one kit.

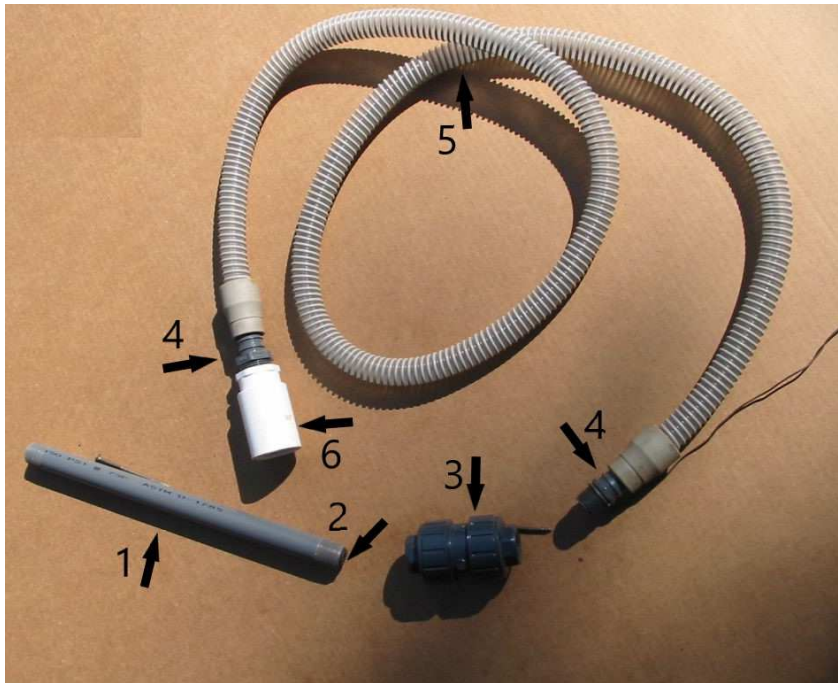
Place the acid filled keg so the lid is on the top. Then remove the lid and install a lid with tap. Please note that there is 10” of the PVC 5/8” clear hose inserted and glued on to the end of the tap. This allows for easy filling of the kits without splashing.

Now place the 43-pound square container of 65% formic acid with the tap securely installed over the open box of pads. Remove the black breather-hole plug from the keg and gently open the tap so there is a light / slow flow of acid. Let all acid pour into the kit. You may to tilt the container to fully empty it. Then stand the keg upright and re-install the breather plug, remove lid with tap throw it into a pail of water to clean it, and install the regular lid. Send the container back to the thinning station for refill.

IF YOU HAVE ACID AT 65% IN A BARREL OR TOTE THEN USE SUBMERGED HOSE OR ELEVATED TOTE WITH HOSE TO FILL THE KITS.DIRECTLY ON SCALE. BY 43 lbs.

G - CREATE A VACUUM SEALING ASSEMBLY AND STATION

Before vacuum sealing, gather all of the materials you will need to close the kit. You will need flat nose pliers, black 12" cable or zip ties with a 40-50-pound strength, and all of the materials needed to create a vacuum assembly. Available in all irrigation supplies.



CREATE VACUUM ASSEMBLY:

- 1-1/2" NPT nipple 12" long
- 2- Hard rubber plug with 1/8" hole pressed in the nipple to reduce vacuum flow.
- 3-1/2" NPT plastic Chemical resistant check valve, to retain vacuum after vacuum cleaner is shut off.
- 4- 1/2" NPT to 3/4 "hose connector to connect to #5 hose.
- 5-Used hose from CPAP Sleep Apnea machine. It is common and very flexible. Adapts easily to used fittings. With second #4 hose to 1/2" NPT connector and can be taken apart.
- 6-series of 1/2" NPT bushings and sleeves to increase diameter to fit into your old vacuum cleaner hose end.



CREATE VACUUM SEALING STATION

Here you see the whole station. The key to success is hanging the vacuum assembly on sturdy rope to a roof support, so the end of 12" nipple is 4" above top of filled pads.

Place a water pail on box beside the vacuum station. Connect the hose to an old vacuum cleaner. Have zip ties and flat nose pliers within reach.

At the top right of this picture is the station where the dry kits are set up for filling.

Below is a picture of a kit prepared for vacuum sealing by the operator.

H - VACUUM SEALING PROCESS FOR FILLED COMMERCIAL KIT DK-162

First, close the top of the bag around the 12" nipple, and put the zip tie around it. Tighten the zip tie lightly so that it can slide down when the vacuum begins. Then install a second zip tie in the same spot but leaving it very loose. It should be large enough that it can slide down with the bag as suction sucks air out of bag and the pads' air is replaced with acid. **START THE VACUM.**

As soon as you see the bag collapse and pull down, **STOP THE VACUUM** and tighten the lower zip tie as hard as you can using the flat nose pliers. The check valve will maintain the vacuum and keep the bag sealed. Then pull the nipple out of the bag. Put it in the water bucket (as it may have acid on, and in it), and tie the upper zip tie.

THE SEALING IS DONE.

I – CLOSE THE KIT AND PREPARE FOR TRANSPORT:

Extend whole "neck" of the bag through the lid of kit's box closing the cardboard box. Lay the "neck" on top of the label and close the plastic latch box with its own lid. Make sure the latch box handles are securely closed as you see in following pictures.

**PADS IN KITS
PREPARED LIKE
THIS HAVE
A SHELF LIFE OF
10 YEARS.**



**BEFORE OPENING AND BEFORE INSTALLING PADS INTO
YOUR HIVES.
STAND THE KIT UPSIDE DOWN FOR FEW MINUTES.**

