

National Bee Unit

FAQ 32

Prepared in association with
Bee Disease Insurance, Ltd.



The Food & Environment
Research Agency

Plastic hives

Disinfection and disposal



Since the inception of the moveable frame hive timber has been the preferred material because it is easily worked and readily available. Other materials have been used such as concrete, metal and various other sheet material often when timber has been in short supply or expensive. Most of these alternatives have been readily sterilized, as is timber, by using a blowlamp. With the development of plastics an acceptable alternative to timber has been available for over thirty years but only recently gained popularity in the UK, although commonly used in other areas of the world. This sheet is intended to give advise on cleaning, disinfection and disposal of plastic hives and components. Disinfection of other beekeeping equipment and wooden components is contained in FAQ 31 'Disinfection'

Please note that the scraping, cleaning and disinfecting processes can damage plastics. Before carrying out any of this test on a small piece or area to ensure it is suitable and will not cause damage. Cleaning and disinfecting agents can also be injurious to humans and other animals so take suitable safety precautions such as eye protection, wearing rubber gloves, etc., also safely dispose of any used disinfectants.

Fera, the National Bee Unit and Bee Disease Insurance will accept no responsibility for any injury or damage whatsoever caused.

1. How should I clean off equipment?

First remove any adhering comb, wax or lumps of propolis ensuring they fall onto pieces of newspaper or cardboard so that it can be burnt subsequently. It may be necessary to use a scraper to do this so select a suitable plastic one to reduce the risk of damaging the plastic surface. When this task is completed the equipment needs to be scrubbed clean using warm water and washing soda. (See item 2) Getting the equipment clean is important as it will remove a lot of the disease pathogens and enable the disinfectant that you use to work effectively. Open-ended 'Correx' type plastic sheet is difficult to clean inside so it is best sealed prior to use. This does not of course apply to any harborage traps that may be used as it defeats their objective. These can be disposed of in a suitable manner when necessary.

P. T. O.

National Bee Unit

Food and Environment Research Agency

Sand Hutton, York. YO41 1LZ

Telephone 01 904 462 510 e mail nbu@fera.gsi.gov.uk NBU Web site: www.nationalbeeunit.com

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2. How can I clean propolis off?

Soaking and scrubbing in a solution of domestic washing soda in water with a dash of washing up liquid is very effective at dissolving propolis and cleaning plastics. It needs to be fairly strong: about 1 kilogram to 5 liters of water. Methylated spirit will also dissolve propolis.

3. What disinfectants are suitable?

The known efficacy of specific disinfectants acting on pathogens affecting bee colonies is inexact. However it is known that to destroy the spores of American Foul Brood a disinfectant containing a hypochlorite is required. Check the container label for details. Sodium hypochlorite is present at a concentration of about 3% in domestic bleach. Research has shown that immersion for twenty minutes in a solution of 0.5% sodium hypochlorite kills American foulbrood spores and other bacteria. In this case you therefore need to make a solution of one part of household bleach to five parts of water. Before doing so check the container label, as you may need to adjust the ratio. It is essential that bacterial spores are in direct contact with the solution, so any items must be thoroughly clean. After treatment components should be thoroughly rinsed in clean water.

4. How do I disinfect the components?

Small components can be immersed in a container such as a plastic bucket or washing up bowl. Large components such as brood boxes need a large container for total immersion. If only one or two boxes are to be sterilized a shallow tray just larger than the longest side and about three inches deep can be used to immerse each side of the box in turn. If this is not possible a good scrub with the solution on a clean surface will probably reduce the bacterial load to a level where it will become a low infection risk.

5. What do I do with Queen excluders?

First scrapping off the worst hive residues and then scrubbing clean in a washing soda solution should clean up excluders. (See item 2) Plastic excluders can then be disinfected along with the other hive components. If the excluder is metal it can be cleaned off and then disinfected or scorched off using a blowlamp being especially careful not to melt any solder that may have been used on joints. A wire brush is often useful to clean off wire excluders.

6. Is radiation suitable?

This is probably the most effective method of disinfection but it needs to be carried out by a specialist plant. Equipment needs to be delivered on secure pallets so this method tends to be only viable in bulk quantities. If choosing to use the radiation method, infected combs must not be treated if disease signs are present as these would remain indistinguishable visually from infectious untreated disease signs. For further information contact a specialist company.

7. How can I dispose of damage parts?

Like any product plastic hives become unserviceable because of damage or wear. When this occurs they need to be disposed of safely. If the plastic has not been in contact with infectious disease then it may be suitable for recycling. Your Local Authority can give advice about this, which tends to vary according to authority and region. Uninfected material can also be disposed of in landfill sites but this facility may not be available in the future. Landfill is not an option for infectious material as it may remain exposed for some time and even be exposed in the future when it will become a source of infection for bees in the vicinity. Plastics must not be burnt except in a specialist plant. Specialist companies dealing with the disposal of infected plastic materials normally require plastics to be divided according to type before acceptance. They should be contacted for further information.

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