



## Cleaning and Disinfection for RHDV2

### Environmental Persistence of Rabbit Hemorrhagic Disease Calicivirus

- Rabbit Hemorrhagic Disease (RHD) calicivirus is spread by oral, nasal, and parenteral transmission. Fomites can also play a large role in transmission.
- The virus is present in urine and feces from infected rabbits; contaminated bedding can be a source of infection
- Contaminated foods can be a source of infection.
- The virus survives at pH 3.0, is stable at pH 4.5-10.5, but is inactivated at pH>12
- The virus can survive for long periods outside the host. For example:
  - Viable virus has been detected for as long as 105 days in its dried state on a fomite (cloth) at room temperature.
- Environmental temperature and protection by organic material are important factors in the survival of the virus
  - Virus may persist in chilled or frozen rabbit meat and the lengthy persistence of infective virus in carcasses may provide a reservoir of disease after outbreaks in the wild, as viable virus has been found in decaying tissue after 90 days outdoors.
  - At 50C (122F) the virus survives for 1 hour
  - It can remain viable for 22-35 days at 22C (72F) but only for 3-7 days at 37C (99F). It also survives freeze-thaw cycles.

### How should I clean and disinfect cages and equipment?

Remove all visible debris from items to be disinfected (cages, feeding equipment, waterers, etc.). Items made of wood are best discarded. Wash thoroughly with soap and water; rinse well and let dry. Submerge or saturate with disinfectant (spray or 10% household bleach solution (1 part bleach to 9 parts water)). Allow 10 minutes of contact, then rinse and let dry completely.

The RHD calicivirus is inactivated by 10 minutes of exposure to:

- Household bleach (sodium hypochlorite) at 1:10 dilution
- 1% Virkon-S (by DuPont)
- Sodium hydroxide (1%)
- Beta-propiolactone 0.2-0.5%



- Chlorine dioxide at 10 ppm concentration
- 2% One-stroke Environ® (Vestal Lab Inc., St. Louis, MO)

### Disinfectants

The RHD calicivirus is inactivated by sodium hydroxide (1%) or formalin (1-2%) as well as 1.0-1.4% formaldehyde or 0.2-0.5% beta-propiolactone at 4C (39F). Chlorine dioxide at 10 ppm concentration also kills this virus.

Other suggested disinfectants include sodium hypochlorite (1:10 dilution household bleach), substituted phenolics such as 2% One-stroke Environ® (Vestal Lab Inc., St. Louis, MO), and potassium peroxymonosulfate (e.g. 1% Virkon-S by DuPont).

Because calicivirus lacks the fatty envelope that most viruses have, its infectivity is NOT reduced by ether or chloroform and trypsin or quaternary ammonium compounds.

### References

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