UNIVERSITY OF MINNESOTA

Swine Disease Eradication Center

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# PEDV Viral Stability and Disinfectant Use as Compared to TGEV and PRRSV

| | PEDv (cell culture adapted historical strain) | TGEv (FS772/70 cloned strain) | PRRSv (ATCC VR 2332) |
|---|---|---|---|
| **Family** | Coronaviridae | Coronaviridae | Arteriviridae |
| **Temperature** | Moderately stable at 50°C, lost infectivity at ≥ 60°C | Stable for 1 hour at 37°C at pH 4.0 and 8.0 | Completely inactivated in 45 minutes at 56°C |
| **pH** | Stable between pH 5.0 and 9.0 at 4°C and between 6.5 and 7.5 at 37°C | Stable at pH 5.0 to 8.0 at 4°C, pH. 6.5 at 37°C | Stable at pH 5.0 to 7.0 |
| **Effective Disinfectants** | *Phenols*: Tek-Trol ; 1Stroke Environ; *Peroxygen*: Virkon S; *Chlorine*: Chlorox; *Combination product*: Synergize | *Chlorhexadines*: Nolvasan, Nolvasan S; *Quaternary Ammonium:* Roccal D Plus; *Phenols:* Biophen, 1 Stroke Environ, Pheno-Tek II, Tek-Trol; *Peroxygens:* Virkon S | *Peroxygens:* Vikron S *Quaternary Ammonium:* Biosentry 904; *Combination Product:* Synergize; *(Others as well)* |
| **References** | Park SJ, et al. Arch Virol (2013)]; Veterinary Microbiology, 20 (1989) 131 – 142; Pospishil A, et al. J Swine Health Prod (2002)10(2) 81-85 | Hofmann M. et al., Vet Microbiol (1989) 20, 131-142; Pocock et al. Arch Virol (1975) 49, 239-247. | Benfield et al. J Vet. Diagn. Invest. (1992) 4, 127-133, Van Alstine et al. J Vet. Diagn. Invest. (1993) 5, 621-622; Dee, et al. Can J Vet Res (2005) 69(1)64-70. |

## PEDV Stability

PEDV totally lost its infectivity when heated > 60°C for 30 min, whereas its titer remained relatively stable when exposed to 50°C for the same time (reduction of 0.4 loglo PFU ml-1, compared with control). Thermoinactivation kinetics at 50°C are demonstrated in Fig. 2. Viral infectivity decreased steadily for 1.1 loglo h-1 and was reduced to 0.05% of the original value after 3 h of heating, again indicating that PEDV is moderately stable at 50 ° C.

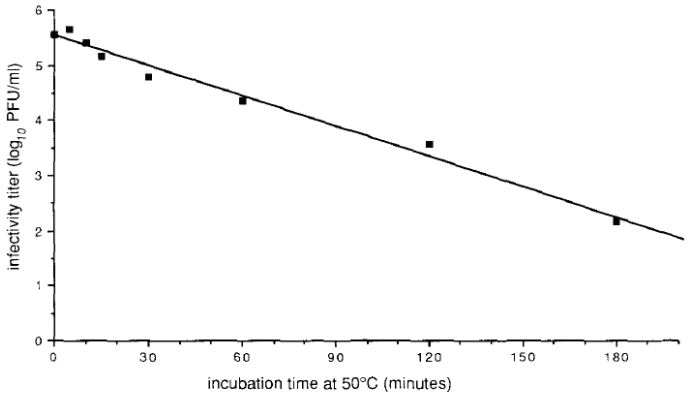


Fig. 2. Thermoinactivation kinetics of PEDV at 50 °C.

From:

Hoffman M, Wyler R. Quantitation, biological and physicochemical properties of cell culture-adapted porcine epidemic diarrhea coronavirus (PEDV). Vet Microbiol. 1989 Jun;20(2):131-42