MIKROLAB GMBH
Laboratory for applied microbiology

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31.07.2011

Test report B11ML1245-4B/1260-2B

Evaluation of the effectiveness of

Oprezan

Testvirus:	Bovine Viral Diarrhea Virus (BVDV) (Surrogate of HCV)
Method:	according to the guideline of DVV and RKI (dating 01.08.2008)

Sponsor:
BAB GENCEL İlaç ve Kimya San. Ltd.Şti.
Turan Güneş Bulvan
No: 69/B Çankaya Ankara
TURKEY

Norderoog 2, D-28259 Bremen
Tel.: +49 (0) 421-27819102, Fax: +49 (0) 421-2760283
MikroLab.GmbH@t-online.de, http://www.mikrolab-gmbh.de

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Reason: Moldsign Signature
Location: Moldova

1. Identification of test laboratory

MikroLab GmbH, Norderoog 2, D-28259 Bremen

2. Identification of sample

Name of product	Oprezan
Manufacturer	BAB GENCEL İlaç ve Kimya San. Ltd. Şti.
Application	surface disinfection
Lot no.	Op 20018 and Ox 20001
Expiry date	04.05.2014 and 22.06.2013
Date of production	04.05.2011 and 22.06.2011
substance(s) and concentration(s) in 100 g	sodium percarbonate > 50 % tetraacetylendiamine > 35 %
Appearance and odour	clear, colourless liquid; product specific
pH-value (s) (in hard water)	undiluted: 8.94 (20°C)
Conditions of storage	room temperature in the dark (area with limited access)
Date of receipt at laboratory	23.05.2011 and 24.06.2011

3. Materials

3.1 Culture medium and reagents

- Eagle's Minimum Essential Medium with Earle's BSS (EMEM, Lonza Group Ltd., catalogue no. BE12-125F)
- Fetal calf serum (Biochrom AG, article no. S 0115)
- 1.4 % Formaldehyde solution (Chemisch-technologisches Laboratorium Dr. Melzer, D-28199 Bremen)
- Aqua bidest. (Fresenius Kabi Deutschland, article no. P2N 1636071)
- PBS (Invitrogen, article no. 18912-014)

3.2 Virus and cells

BVDV strain NADL (VR-534) was obtained from Dr. Stephanie Bendtfeld, Institute of Virology at the School of Veterinary Medicine Hannover (Tierärztliche Hochschule, D-30559

Hannover). Prior to inactivation assays, the virus was passaged once in *primary bovine kidney cells* and five times in *KOP-R cells* (primary cells from bovine oropharyngeal tissue). *KOP-R cells* originated from the Friedrich-Löffler-Institut, Bundesforschungsinstitut für Tiergesundheit (formerly Bundesforschungsanstalt für Viruskrankheiten der Tiere, isle of Riems) (Dr. R. Riebe, catalogue no. RIE 244). In the inactivation assays *ekl cells* (embryonal cells from bovine lung tissue) were used. These cells originated from Mrs. A. Kyas (Henkel KGaA, D-40191 Düsseldorf).

3.3 Apparatus, glassware and small items of equipment

- CO_2 incubator, Nunc GmbH & Co. KG, model QWJ 350
- Agitator (Vortex Genie Mixer, type G 560E)
- pH measurement 315i (WTW, article no. 2A10-100) -
Centrifuge (Sigma-Aldrich-Chemie GmbH, type 113)
- Microscope (Olympus, type CK 30) -
Centrifuge 5804 R (Eppendorf AG) - Water
bath (JULABO, Julabo U 3)
- Adjustable and fixed-volume pipettes (Eppendorf AG)
- Transferpettor® (Brand GmbH & Co. KG, Wertheim, Germany)
- Polysterol 96-well microtitre plates (Nunc GmbH & Co. KG, Wiesbaden, Germany)
- Cell culture flasks (Nunc GmbH & Co. KG, Wiesbaden, Germany)
- Sealed test tubes (Sarstedt AG & Co., Nümbrecht, Germany)
- MicroSpin™ S-400 HR columns (GE Healthcare, Freiburg, Germany)

4. Experimental conditions

Test temperature	20°C ± 0.5°C
Concentration of test product	0.05 % (non-active range) and 0.5 %
Contact times	5, 15, 30 and 60 minutes
Interfering substance	fetal calf serum (FCS)
Procedure to stop action of disinfectant	immediate dilution and gel filtration
Diluent	water of standardised hardness
Virus strain	BVDV strain NADL
Date of testing	23.05.2011 - 31.07.2011
End of testing	31.07.2011

5. Methods

5.1 Preparation of test virus suspension

For the preparation of the test virus suspension, *KOP-R cells*, which were cultivated with Eagle's Minimum Essential Medium (EMEM) supplemented with L-glutamine, sodium pyruvate and 10 % or 2 % fetal calf serum (FCS), were infected with BVDV (stock virus suspension). As soon as cells showed a constant cytopathic effect, they were subjected to a rapid freeze/thawing procedure. This was followed by low-speed centrifugation (10 min and 1000 x g) in order to sediment cell debris. After aliquotation, test virus suspension was stored at -80°C.

5.2 Preparation of disinfectant (dilutions)

The test product was evaluated as 0.05 % and 0.5 % solutions. Due to the addition of test virus suspension and interfering substance these concentrations had to be multiplied by a factor of 1.25.

The powder was solved in one litre of water of standardised hardness and diluted immediately before the inactivation.

5.3 Inactivation assays and controls

Tests were carried out in accordance with the DVV and RKI guideline (1). Eight parts by volume of the disinfectant were mixed with one part by volume of test virus suspension and one part by volume of Aqua bidest. In tests with interfering substance, instead of Aqua

bidest., one part by volume of fetal calf serum was added. Immediately at the end of the chosen exposure time, activity of the disinfectant was stopped by serial dilutions.

Due to a more convenient handling and due to a limited amount of test virus suspension, the volumes in the inactivation assay were 0.1 ml test virus suspension, 0.1 ml interfering substance (FCS) and 0.8 ml test product.

Virus controls were incorporated after the longest exposure time. One part by volume of test virus suspension was mixed with nine parts by volume of Aqua bidest. or with one part by volume of FCS and eight parts by volume of Aqua bidest.

Since the cytotoxicity did not allow following the reduction of residual infectivity titre over the range of four $\log_{10}$-steps, ready to use MicroSpin™ S-400 HR columns were used in order to remove the cytotoxic agents according to the instructions of the manufacturer. Virus controls with and without MicroSpin™ S-400 HR columns were included.

A control was carried out with one part by volume of test virus suspension, four parts by volume of PBS (0.1 M, pH value 7.0) and five parts by volume of 1.4 % formaldehyde solution. 5, 15 and 30 minutes were chosen as contact times.

For determination of cytotoxicity of the disinfectant, two parts by volume of Aqua bidest. were mixed with eight parts by volume of the disinfectant, diluted with ice-cold EMEM and inoculated onto permissive cells. Values are given as $\log_{10}CD_{50}$/ml (in analogy to $\log_{10}TCID_{50}$/ml).

Inactivation tests were carried out in sealed test tubes in a water bath at 20°C ± 0.5°C. Aliquots were retained after appropriate exposure times, and the residual infectivity was determined.

The inactivation experiments were run in two independent assays (two different days).

A control of efficiency for suppression of disinfectant activity was not included since at the end of the exposure time dilutions were done immediately.

Furthermore, a cell control was incorporated.

5.4 Determination of infectivity

Infectivity was determined by means of end point dilution titration in a micro-procedure. For this, samples were diluted with ice-cold EMEM and 100 µl of each dilution were placed in 8 wells of a sterile polystyrene flat bottomed microtitre plate. 100 µl of *ekl cells* were added into the plates one day earlier. Suspension was adjusted to reach approximately 10-15 x 10^3 cells per well. Incubation was at 37°C in a CO_2-atmosphere (5.0 % CO_2 - content). Finally, cultures were observed for cytopathic effects for ten days of inoculation. The infective dose ($TCID_{50}$) (with 95 % level of confidence) was calculated according to the method of Spearman (2) and Kärber (3) with the following formula:

$$- \log_{10}TCID_{50} = X_0 + 0.5 - \sum r/n$$

meaning

X_0 = $\log_{10}$ of the lowest dilution with 100 % positive reaction
r = number of positive determinations of lowest dilution step with 100 % positive and all higher positive dilution steps
n = number of determinations for each dilution step.

5.5 Calculation and verification of virucidal activity

The virucidal activity of the test disinfectant was evaluated by calculating the decrease in titre in comparison with the control titration without disinfectant (virus control). The difference is given as reduction factor (RF).

According to the guideline (Leitlinie) of DVV/RKI, a disinfectant or a disinfectant solution at a particular concentration is having virus-inactivating efficacy if within the recommended exposure period the titre is reduced at least by four $\log_{10}$ steps.

6. Results

6.1 Determination of cytotoxicity

In parallel with the inactivation tests, the cytotoxicity of Oprezan (0.05 % and 0.5 %) and 0.7 % formaldehyde was measured.

The formaldehyde solution was toxic for the *ekl cells* in the 1:1,000 dilutions. This corresponded to a $\log_{10}CD_{50}$/ml of 4.50 (Table 1).

Examinations also showed that Oprezan achieved a $\log_{10}CD_{50}$/ml of 2.50 and 3.50, respectively (0.5 %) and ≤ 1.50 (0.05 %), respectively (Table 1). After treatment with the columns, the cytotoxicity of the test product (0.5 %) was reduced to ≤ 1.50.

These tests to measure cytotoxicity are imperative, because in this manner the lower detection threshold for non-inactivated BVDV could be determined.

6.2 Virus-inactivating properties of formaldehyde control

Formaldehyde (0.7 %) reduced the BVDV titre after five and 15 minutes by ≥ 1.00 ± 0.35 and ≥ 1.50 ± 0.48 $\log_{10}$ steps. After 30 and 60 minutes reduction factors of ≥ 1.75 ± 0.35 and ≥ 1.88 ± 0.18 were measured (Table 5).

6.3 Virus-inactivating properties of disinfectant

Results of inactivation assays are demonstrated in tables 2 to 7 (raw data s. appendix). Oprezan was examined as 0.05 % and 0.5 % solution. 5, 15, 30 and 60 minutes were chosen as exposure times in these experiments.

Oprezan was active against BVDV as 0.5 % solution after 15 minutes of exposure time. The reduction factors were ≥ 3.88 ± 0.25 and ≥ 5.00 ± 0.48 (assays without soil load) and ≥ 4.38 ± 0.26, ≥ 4.13 ± 0.18 and ≥ 5.25 ± 0.44 (assays with FCS) (tables 4, 5 and 6) (mean values ≥ 4.44 ± 0.27 (without soil load) and ≥ 4.59 ± 0.18 (with soil load)). This corresponded to an inactivation of ≥ 99.99 % thus demonstrating an activity against BVDV.

Additionally, the product was examined as 0.05 % solution in the presence of FCS for demonstrating the non-active range. After 60 minutes no sufficient reduction of virus titre was detectable. The reduction factor was 2.50 ± 0.44 at this time point (table 7).

- Dr. J. Steinmann -
Wiss. Techn. Leiter der MikroLab GmbH

7. Quality control

The Quality Assurance of the results was maintained by performing the determination of the virus-inactivating properties of the disinfectant in accordance with Good Laboratory Practice regulations:

1) Chemicals Act of Germany, Appendix 1, dating of 01.08 1994 (BGBl. I, 1994, page 1703). Appendix revised at 14. 05. 1997 (BGBl. I, 1997, page 1060).
2) OECD Principles of Good Laboratory Practice (revised 1997); OECD Environmental Health and Safety Publications; Series on Principles of Good Laboratory Practice and Compliance Monitoring - Number 1. Environment Directorate, Organization for Economic Co-operation and Development, Paris 1998.

The plausibility of the results was additionally confirmed by controls incorporated in the inactivation assays.

8. Records to be maintained

All testing data, protocol, protocol modifications, the final report, and correspondence between MikroLab GmbH and the sponsor will be stored in the archives at MikroLab GmbH.

9. Literature

1. Leitlinie der Deutschen Vereinigung zur Bekämpfung der Viruskrankheiten (DVV) e.V. und des Robert Koch-Institutes (RKI) zur Prüfung von chemischen Desinfektionsmitteln auf Wirksamkeit gegen Viren in der Humanmedizin (in der Fassung vom 1. August 2008)
Bundesgesundheitsbl., 51, 2008, 936-445

2. Spearman, C.: The method of `right or wrong cases` (constant stimuli) without Gauss's formulae.
Brit J Psychol; 2 1908, 227-242

3. Kärber, G.: Beitrag zur kollektiven Behandlung pharmakologischer Reihenversuche.
Arch Exp Path Pharmak; 162, 1931, 480-487

Table 1: Cytotoxicity of Oprezan and 0.7 % formaldehyde

before treatment	conc.	soil load	dilutions 10^{-1}	10^{-2}	10^{-3}	10^{-4}	10^{-5}
product	0.5%	Aqua bidest.	t	(t)	-	-	-
product	0.5%	10.0% FCS	t	(t)	-	-	-
product	0.05%	Aqua bidest.	n.d.	n.d.	n.d.	n.d.	n.d.
product	0.05%	10.0% FCS	-	-	-	-	-
formaldehyde	0.7%	PBS	t	t	t	-	-
after treatment	**conc.**	**soil load**	**dilutions 10^{-1}**	**10^{-2}**	**10^{-3}**	**10^{-4}**	**10^{-5}**
product	0.5%	Aqua bidest.	-	-	-	-	-
product	0.5%	10.0% FCS	-	-	-	-	-

t = cytotoxic n.d. = not done

Table 2: Inactivation of BVDV by Oprezan (0.5 %) and formaldehyde (0.7 %) in a quantitative suspension test at 20°C (1st assay)

Product	Conc.	Interfering substance	$Log_{10}TCID_{50}$/ml with 95% level of confidence after				Reduction factor with 95% level of confidence after				≥ 4 log_{10} reduction after
			5 min	15 min	30 min	60 min	5 min	15 min	30 min	60 min	
test product	0.5%	Aqua bid.	≤3.50±0.00	≤3.50±0.00	≤3.50±0.00	≤3.50±0.00	≥3.38±0.37	≥3.38±0.37	≥3.38±0.37	≥3.38±0.37	≥ 5 min
test product	0.5%	10.0% FCS	n.d.	n.d.	n.d.	n.d.	n.a.	n.a.	n.a.	n.a.	n.a.
Controls	**Conc.**	**Interfering substance**	$Log_{10}TCID_{50}$/ml with 95% level of confidence after				Reduction factor with 95% level of confidence after				≥ 4 log_{10} reduction after
			5 min	15 min	30 min	60 min	5 min	15 min	30 min	60 min	
formaldehyde	0.7%	PBS	n.d.	n.d.	n.d.	n.d.	n.a.	n.a.	n.a.	n.a.	n.a.
virus control	n.a.	Aqua bid.	n.d	n.d.	n.d.	6.88±0.37	n.a.	n.a.	n.a.	n.a.	n.a.
virus control	n.a.	FCS	n.d.	n.d.	n.d.	n.d.	n.a.	n.a.	n.a.	n.a.	n.a.
interference control PBS	n.a.	-	n.d.	n.d.	n.d.	n.d.	n.a.	n.a.	n.a.	n.a.	n.a.
interference control disinf.	n.a.	Aqua bid.	n.d.	n.d.	n.d.	n.d.	n.a.	n.a.	n.a.	n.a.	n.a.
interference control disinf.	n.a.	10.0% FCS	n.d.	n.d.	n.d.	n.d.	n.a.	n.a.	n.a.	n.a.	n.a.

n.d. = not done n. a. = not applicable

Table 3: Inactivation of BVDV by Oprezan (0.5 %) and formaldehyde (0.7 %) in a quantitative suspension test at 20°C (2nd assay)

Product	Conc.	Interfering substance	$Log_{10}TCID_{50}$/ml with 95% level of confidence after 5 min	15 min	30 min	60 min	Reduction factor with 95% level of confidence after 5 min	15 min	30 min	60 min	≥ 4 log_{10} reduction after
test product	0.5%	Aqua bid.	n.d.	n.d.	n.d.	n.d.	n.a.	n.a.	n.a.	n.a.	n.a.
test product	0.5%	10.0% FCS	≤3.13±0.37	≤2.50±0.00	≤2.50±0.00	n.d.	≥3.13±0.57	≥3.75±0.44	≥3.75±0.44	n.a.	≤ 15 min
Controls	**Conc.**	**Interfering substance**	$Log_{10}TCID_{50}$/ml with 95% level of confidence after 5 min	15 min	30 min	60 min	Reduction factor with 95% level of confidence after 5 min	15 min	30 min	60 min	≥ 4 log_{10} reduction after
formaldehyde	0.7%	PBS	n.d.	n.d.	n.d.	n.d.	n.a.	n.a.	n.a.	n.a.	n.a.
virus control	n.a.	Aqua bid.	n.d.	n.d.	n.d.	n.d.	n.a.	n.a.	n.a.	n.a.	n.a.
virus control	n.a.	FCS	n.d.	n.d.	n.d.	6.25±0.44	n.a.	n.a.	n.a.	n.a.	n.a.
interference control PBS	n.a.	-	n.d.	n.d.	n.d.	n.d.	n.a.	n.a.	n.a.	n.a.	n.a.
interference control disinf.	n.a.	Aqua bid.	n.d.	n.d.	n.d.	n.d.	n.a.	n.a.	n.a.	n.a.	n.a.
interference control disinf.	n.a.	10.0% FCS	n.d.	n.d.	n.d.	n.d.	n.a.	n.a.	n.a.	n.a.	n.a.

n.d. = not done n. a. = not applicable

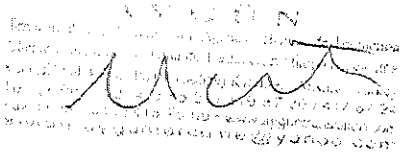

Table 4: Inactivation of BVDV by Oprezan (0.5 %) and formaldehyde (0.7 %) in a quantitative suspension test at 20°C (after treatment with columns) (2nd assay)

Product	Conc.	Interfering substance	$Log_{10}TCID_{50}$/ml with 95% level of confidence after				Reduction factor with 95% level of confidence after				≥ 4 log_{10} reduction after
			5 min	15 min	30 min	60 min	5 min	15 min	30 min	60 min	
test product	0.5%	Aqua bid.	2.75±0.00	n.d.	n.d.	n.d.	3.25±0.55	n.a.	n.a.	n.a.	> 5 min
test product	0.5%	10.0% FCS	≤2.38±0.41	≤1.50±0.00	≤1.50±0.00	n.d.	≥3.50±0.55	≥4.38±0.26	≥4.38±0.26	n.a.	15 min
Controls	**Conc.**	**Interfering substance**	$Log_{10}TCID_{50}$/ml with 95% level of confidence after				Reduction factor with 95% level of confidence after				≥ 4 log_{10} reduction after
			5 min	15 min	30 min	60 min	5 min	15 min	30 min	60 min	
formaldehyde	0.7%	PBS	n.d.	n.d.	n.d.	n.d.	n.a.	n.a.	n.a.	n.a.	n.a.
virus control	n.a.	Aqua bid.	n.d	n.d.	n.d.	6.00±0.45	n.a.	n.a.	n.a.	n.a.	n.a.
virus control	n.a.	FCS	n.d.	n.d.	n.d.	5.88±0.37	n.a.	n.a.	n.a.	n.a.	n.a.
interference control PBS	n.a.	-	n.d.	n.d.	n.d.	n.d.	n.a.	n.a.	n.a.	n.a.	n.a.
interference control disinf.	n.a.	Aqua bid.	n.d.	n.d.	n.d.	n.d.	n.a.	n.a.	n.a.	n.a.	n.a.
interference control disinf.	n.a.	10.0% FCS	n.d.	n.d.	n.d.	n.d.	n.a.	n.a.	n.a.	n.a.	n.a.

n.d. = not done n. a. = not applicable

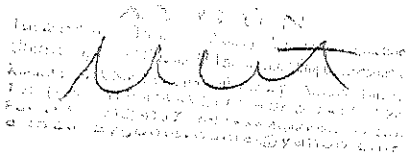

Table 5: Inactivation of BVDV by Oprezan (0.5 %) and formaldehyde (0.7 %) in a quantitative suspension test at 20°C (3rd assay)

Product	Conc.	Interfering substance	$Log_{10}TCID_{50}$/ml with 95% level of confidence after				Reduction factor with 95% level of confidence after				≥4 log_{10} reduction after
			5 min	15 min	30 min	60 min	5 min	15 min	30 min	60 min	
test product	0.5%	Aqua bid.	≤3.13±0.45	≤2.50±0.00	n.d.	n.d.	≥3.25±0.52	≥3.88±0.25	n.a.	n.a.	≥ 15 min
test product	0.5%	10.0% FCS	n.d.	≤2.50±0.00	≤2.50±0.00	n.d.	n.a.	≥4.13±0.18	≥4.13±0.18	n.a.	15 min
Controls	Conc.	Interfering substance	$Log_{10}TCID_{50}$/ml with 95% level of confidence after				Reduction factor with 95% level of confidence after				≥4 log_{10} reduction after
			5 min	15 min	30 min	60 min	5 min	15 min	30 min	60 min	
formaldehyde	0.7%	PBS	≤5.38±0.25	≤4.88±0.41	≤4.63±0.00	≤4.50±0.00	≥1.00±0.35	≥1.50±0.48	≥1.75±0.35	≥1.88±0.18	≥ 60 min
virus control	n.a.	Aqua bid.	n.d	n.d.	n.d.	6.38±0.25	n.a.	n.a.	n.a.	n.a.	n.a.
virus control	n.a.	FCS	n.d.	n.d.	n.d.	6.75±0.35	n.a.	n.a.	n.a.	n.a.	n.a.
interference control PBS	n.a.	-	n.d.	n.d.	n.d.	6.75±0.35	n.a.	n.a.	n.a.	n.a.	n.a.
interference control disinf.	n.a.	Aqua bid.	n.d.	n.d.	n.d.	6.50±0.00	n.a.	n.a.	n.a.	n.a.	n.a.
interference control disinf.	n.a.	10.0% FCS	n.d.	n.d.	n.d.	6.63±0.25	n.a.	n.a.	n.a.	n.a.	n.a.

n.d. = not done n. a. = not applicable

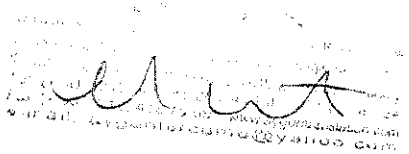

Table 6 : Inactivation of BVDV by Oprezan (0.5 %) and formaldehyde (0.7 %) in a quantitative suspension test at 20°C (3rd assay) (after treatment with columns)

Product	Conc.	Interfering substance	$Log_{10}TCID_{50}$/ml with 95% level of confidence after				Reduction factor with 95% level of confidence after				≥ 4 log_{10} reduction after
			5 min	15 min	30 min	60 min	5 min	15 min	30 min	60 min	
test product	0.5%	Aqua bid.	3.50±0.00	≤1.63±0.25	n.d.	n.d.	3.13±0.41	≥5.00±0.48	n.a.	n.a.	15 min
test product	0.5%	10.0% FCS	n.d.	≤1.63±0.00	≤1.50±0.00	n.d.	n.a.	≥5.25±0.44	≥5.38±0.26	n.a.	15 min
Controls	**Conc.**	**Interfering substance**	**$Log_{10}TCID_{50}$/ml with 95% level of confidence after**				**Reduction factor with 95% level of confidence after**				**≥ 4 log_{10} reduction after**
			5 min	15 min	30 min	60 min	5 min	15 min	30 min	60 min	
formaldehyde	0.7%	PBS	n.d	n.d.	n.d.	n.d	n.a.	n.a.	n.a.	n.a.	n.a.
virus control	n.a.	Aqua bid.	n.d	n.d.	n.d.	6.63±0.41	n.a.	n.a.	n.a.	n.a.	n.a.
virus control	n.a.	FCS	n.d.	n.d.	n.d.	6.88±0.37	n.a.	n.a.	n.a.	n.a.	n.a.
interference control PBS	n.a.	-	n.d.	n.d.	n.d.	n.d.	n.a.	n.a.	n.a.	n.a.	n.a.
interference control disinf.	n.a.	Aqua bid.	n.d.	n.d.	n.d.	n.d.	n.a.	n.a.	n.a.	n.a.	n.a.
interference control disinf.	n.a.	10.0% FCS	n.d.	n.d.	n.d.	n.d.	n.a.	n.a.	n.a.	n.a.	n.a.

n.d. = not done n. a. = not applicable

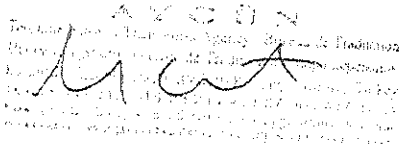

Table 7 : Inactivation of BVDV by Oprezan (0.05 %) and formaldehyde (0.7 %) in a quantitative suspension test at 20°C

Product	Conc.	Interfering substance	$Log_{10}TCID_{50}$/ml with 95% level of confidence after				Reduction factor with 95% level of confidence after				≥ 4 log_{10} reduction after
			5 min	15 min	30 min	60 min	5 min	15 min	30 min	60 min	
test product	0.05%	Aqua bid.	n.d.	n.d.	n.d.	n.d.	n.a.	n.a.	n.a.	n.a.	n.a.
test product	0.05%	10.0% FCS	4.50±0.35	4.75±0.33	4.25±0.33	4.13±0.37	2.13±0.43	1.88±0.41	2.38±0.41	2.50±0.44	> 60 min
Controls	**Conc.**	**Interfering substance**	$Log_{10}TCID_{50}$/ml with 95% level of confidence after				Reduction factor with 95% level of confidence after				≥ 4 log_{10} reduction after
			5 min	15 min	30 min	60 min	5 min	15 min	30 min	60 min	
formaldehyde	0.7%	PBS	n.d.	n.d.	n.d.	n.d.	n.a.	n.a.	n.a.	n.a.	n.a.
virus control	n.a.	Aqua bid.	n.d	n.d.	n.d.	n.d.	n.a.	n.a.	n.a.	n.a.	n.a.
virus control	n.a.	FCS	n.d.	n.d.	n.d.	6.63±0.25	n.a.	n.a.	n.a.	n.a.	n.a.
interference control PBS	n.a.	-	n.d.	n.d.	n.d.	n.d.	n.a.	n.a.	n.a.	n.a.	n.a.
interference control disinf.	n.a.	Aqua bid.	n.d.	n.d.	n.d.	n.d.	n.a.	n.a.	n.a.	n.a.	n.a.
interference control disinf.	n.a.	10.0% FCS	n.d.	n.d.	n.d.	n.d.	n.a.	n.a.	n.a.	n.a.	n.a.

n.d. = not done n. a. = not applicable