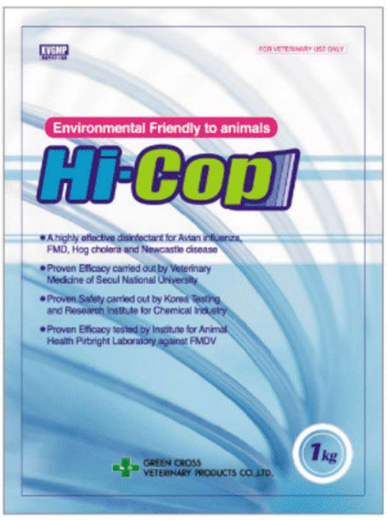
Environmental Friendly to animals

Hi-Cop

- A highly effective disinfectant for Avian influenza, FMD, Hog cholera and Newcastle disease
- Proven Efficacy carried out by Veterinary Medicine of Seoul National University
- Proven Safety carried out by Korea Testing and Research Institute for Chemical Industry
- Proven Efficacy tested by Institute for Animal Health Pirbright Laboratory against FMDV



GREEN CROSS
VETERINARY PRODUCTS CO.,LTD.

THE ULTIMATE BROAD SPECTRUM VIRUCIDAL DISINFECTANT

Why is Hi-Cop the No.1 choice for disinfection?

- A highly effective disinfectant for Avian influenza and FMD
- Powerful, broad spectrum disinfection effectiveness of triple salt and organic acid
- Friendly to animals and, Non irritant to skin, Non irritant to eyes
- No corrosive effects on mild or stainless steel when used as directed
- Good persistance of disinfection effectiveness
- A powder for easy storage, transportation and accurate dilution
- In the aqueous environment Hi-Cop will eventually degrade and should pose no problem to sewage treatment processes
- Proven Efficacy and Safety carried out by Veterinary Medicine of Seoul National University and Korea Testing and Research Institute for Chemical Industry
- Proven Efficacy tested by Institute for Animal Health Pirbright Laboratory against FMDV

Hi-Cop - Spectrum of Activity

Powerful - independently proven effective against all virus, bacteria and fungi affecting man and animals. Hi-Cop is proven effective at 1 : 5000 dilution against Avian influenza, 1 : 2000 dilution against FMD(Foot and mouth disease) and is powerful effective other viral families causing disease in birds & animals

Institute for Animal Health

Reply to Pirbright Laboratory
Direct Dial: 01483 231064
E-mail: ian.disinfectants@bbsrc.ac.uk

TEST REPORT

GENERAL TEST INFORMATION

Test Title Testing the efficacy of disinfectants against FMDV

Tests Conducted by: Yongjie Harvey

Project number: PIR 2011

Sponsor: Green Cross Veterinary Products Co., LTD
227-5, KUGAL-DONG GIHEUNG-GU
YONGIN-SI KYUNGGI-DO
KOREA

Test facility Institute for Animal Health
Pirbright Laboratory
Ash Road,
Pirbright,
Surrey,
GU24 0NF.

TEST SUBSTANCE IDENTITY

Test Substance Name: Hi-Cop

Lot/Batch(es): 414-1103

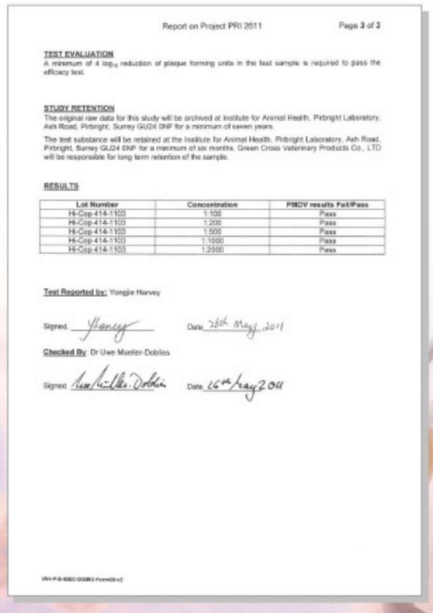
Date of manufacture: 24/01/2011

Expiry Date(s): 23/01/2013

Date disinfectant and paperwork received: 05/04/2011

TEST DATES

Start Date: 24/05/2011
End Date: 26/05/2011



Report on Project PIR 2011 Page 3 of 3

TEST EVALUATION

A minimum of 4 $\log_{10}$ reduction of plaque forming units in the test sample is required to pass the efficacy test.

STUDY RETENTION

The original raw data for this study will be archived at Institute for Animal Health, Pirbright Laboratory, Ash Road, Pirbright, Surrey GU24 0NF for a minimum of seven years.

The test substance will be retained at the Institute for Animal Health, Pirbright Laboratory, Ash Road, Pirbright, Surrey GU24 0NF for a minimum of six months. Green Cross Veterinary Products Co., LTD will be responsible for long term retention of the sample.

RESULTS

Lot Number	Concentration	PIRDV results Fail/Pass
Hi-Cop 414-1103	1:100	Pass
Hi-Cop 414-1103	1:200	Pass
Hi-Cop 414-1103	1:500	Pass
Hi-Cop 414-1103	1:1000	Pass
Hi-Cop 414-1103	1:2000	Pass

Test Reported by: Yongjie Harvey

Signed: Yhancy Date: 26th May 2011

Checked By: Dr Uwe Mueller-Doblies

Signed: Uwe Mueller-Doblies Date: 26th May 2011

Dilution Rate Test against *Foot and mouth disease*

Condition	Dilution Rate	Test Results	Final Dilution Rate
Hard water containing 1% FBS (foetal bovine serum)	1 : 100	PASS	1 : 2000
	1 : 200	PASS	
	1 : 500	PASS	
	1 : 1000	PASS	
	1 : 2000	PASS	

Disinfectant Efficacy Test Result Carried out by Institute for Animal Health Pirbright Laboratory

Dilution Rate Test against *Avian influenza*

Condition	Dilution Rate	Deactivation Potency (log10)			Final Dilution Rate
		Test 1	Test 2	Test 3	
Distilled water	1 : 2000	<0.50	<0.50	<0.50	1 : 5000
	1 : 2500	<0.50	<0.50	<0.50	
	1 : 3000	<0.50	<0.50	<0.50	
	1 : 4000	<0.50	<0.50	<0.50	
	1 : 5000	0.67	0.67	0.83	
	1 : 6000	>3.50	2.83	3.00	
	Potency against Pathogen	6.67	6.83	6.67	
	Efficasy Dilution Rate	1:5000	1:5000	1:5000	
Hard water	1 : 2000	<0.50	<0.50	<0.50	1 : 5000
	1 : 2500	<0.50	<0.50	<0.50	
	1 : 3000	0.83	<0.50	<0.50	
	1 : 4000	1.67	1.33	1.67	
	1 : 5000	2.83	2.50	2.00	
	1 : 6000	>3.50	>3.50	>3.50	
	Potency against Pathogen	6.67	6.67	6.50	
	Efficasy Dilution Rate	1:4000	1:5000	1:5000	

Dilution Rate Test against *New castle disease*

Condition	Dilution Rate	Deactivation Potency (logTCID50)			Final Dilution Rate
		Test 1	Test 2	Test 3	
Distilled water	1 : 1000	<0.50	<0.50	<0.50	1 : 2000
	1 : 1200	<0.50	<0.50	<0.50	
	1 : 1500	<0.50	<0.50	1.33	
	1 : 2000	2.00	1.67	1.83	
	1 : 2500	3.17	3.17	2.83	
	1 : 3000	3.33	>3.50	>3.50	
	Potency against Pathogen	6.67	6.67	6.25	
	Efficasy Dilution Rate	1:2000	1:2000	1:2000	
Hard water	1 : 1000	<0.50	1.00	0.67	1 : 2000
	1 : 1200	<0.50	1.33	0.83	
	1 : 1500	<0.50	1.67	1.67	
	1 : 2000	0.83	2.17	2.50	
	1 : 2500	2.50	3.00	3.17	
	1 : 3000	2.67	>3.50	>3.50	
	Potency against Pathogen	6.13	6.25	6.50	
	Efficasy Dilution Rate	1:2000	1:2000	1:2000	

Disinfectant Efficasy Test Result according to Protocol of *National Veterinary Research & Quarantine Service*
- Carried out by College of Veterinary Medicine of Seoul National University

Environmental Friendly to animals

Hi-Cop

Ingredients (each 1Kg contains)

- Triple salt (Potassium monopersulfate) 500g
- Malic acid 120g
- Citric acid 100g
- Sulphamic acid 50g
- Excipients ..... q.s

Indication

1) Routine disinfection and cleaning of animal shed,instruments, and site.
   - piggeries, cattle shed and poultry units.
2) Disinfection for various virus and bacteria.
   - Virus : FMD(Foot and Mouth disease), HCV(Hog cholera), NDV(Newcastle disease), AI(Avian influenza), and etc.
   - Bacteria : Salmonella choleraesuis and various bacteria.

Dosage and Administration

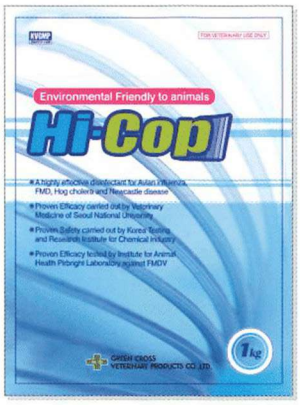
1) Recommended dilution for each disease

Disinfectant materials		Recommendation of dilution rate				
		General disease (Salmonella choleraesuis)	Specific disease			
			FMD (Foot and Mouth disease)	HCV (Hog cholera)	NDV (New castle disease)	AI (Avian influenza)
Organic water condition		1 : 90	1 : 2000	1 : 150	1 : 200	1 : 200
Hard water condition		1 : 1200		1 : 200	1 : 2000	1 : 5000
Disinfectant things of with more organic materials	foothold, entrance & exit door, barn bottom, stadium, transportation equipments (farming, animal transportation, excretion, hay, milk vehicle) out breaking place, farm vehicles, etc	90	2000	90	90	90
Disinfectant things of with less organic materials	inner or outer barn & barn equipments, driver's seat, paved way, etc.	1200		200	1200	1200

2) Applying method
   - First, cleansing an objective before applying disinfectant.
   - Inner and outer barn : spray hardly for all the surface (200~300㎖ per ㎡)
   - Cleansing and disinfection for barn equipment : spray hardly for whole wetting
   - Disinfection of barn space : spray dilution 1L per 100㎥ with lower pressure

GREEN CROSS VETERINARY PRODUCTS CO.,LTD.
438, JUNGBU-DAERO, GIHEUNG-GU, YONGIN-CITY, KYUNGGI-DO, KOREA.
Tel : 82-31-283-3423 **Fax** : 82-31-281-8814 **Homepage** : www. gcvp.co.kr

Hi-cop



Description

A highly effective disinfectant for Avian influenza, FMD, Hog cholera and Newcastle disease. Powerful, broad spectrum disinfection effectiveness of triple salt and organic acid.
No corrosive effects on mild or stainless steel when used as directed.
Good persistence of disinfection effectiveness.

Composition (Each 1kg contains)

- Triple salt ····· 500g
- Malic acid ····· 120g
- Anhydrous citric acid ····· 100g
- Sulphamic acid ····· 50g

Indication

- Routine disinfection and cleaning of animal shed, instruments, and site.
  - piggeries, cattle shed and poultry units.
- Disinfection for various virus and bacteria.
  - Virus : FMD(Foot and Mouth disease), HCV(Hog cholera), NDV(Newcastle disease), AI(Avian influenza), and etc.
  - Bacteria : Salmonella cholerasuis and various bacteria.

Administration and Dosage

- Recommended dilution for each disease

Disinfectant materials	Test Result	Recommendation of dilution rate				
		General disease (Salmonella choleraesuis)	Specific disease			
			HCV (Hog cholera)	NDV (New castle disease)	AI (Avian influenza)	FMD (Foot and Mouth disease)
	Organic water condition	1 : 90	1 : 150	1 : 200	1 : 200	1 : 2000
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Disinfectant things of with more organic materials	foothold, entrance & exit door, barn bottom, stadium, transportation equipments (farming, animal transportation, excretion, hay, milk vehicle) out breaking place, farm vehicles, etc	90	90	90	90	2000
Disinfectant things of with less organic materials	inner or outer barn & barn equipments, driver's seat, paved way, etc.	1200	200	1200	1200	

- Applying method
  - First, cleaning an objective before applying disinfectant.
  - Disinfection of inner or outer barn : spray hardly for all the surface (200~300mL per m^2)
  - Cleaning or disinfection for barn equipment : spray hardly for whole wetting
  - Disinfection of barn space : spray dilution 1L per $100m^3$ with lower pressure

Storage and Expiry Date

- Storage : Store in a cool, dry and dark place.
- Expiry : Effective for 36 months after manufactured date

Packing 1kg