GLP STUDY REPORT

TEST FACILITY

STC (Dongguan) Company Limited
68 Fumin Nan Road,
Dalang, Dongguan, Guangdong,
China. (Zip code 523770)

SPONSOR

Chinchex Limited.
12F, WING FAT LOONG INDUSTRIAL BUILDING 136 WAI YIP ST, KWUN TONG HONG.

CONFIDENTIAL

STUDY TITLE

Skin Sensitization Test of Chinchex bed bugs insecticide using ISO 10993-10:2021 Test Methods Guinea Pig Maximization Test, Sesame oil Extract

TEST ARTICLE NAME

Chinchex bed bugs insecticide

TEST ARTICLE IDENTIFICATION

CP-MD-4949
CSD NO.: CL20220407196

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Summary

The test article, Chinchex bed bugs insecticide, was evaluated for the potential to cause delayed dermal contact sensitization in the closed-patch test. This study was conducted based on the requirements of ISO 10993-10:2021, Biological evaluation of medical devices - Part 10: Tests for skin sensitization. The test articles were extracted in Sesame oil. Each extract was directly applied to 10 test animals for 6 hours, 3 times a week for 3 weeks. The control group was treated with the same method of Sesame oil, and 5 animals per group. Following a recovery period, the test and control animals received a challenge patch of the appropriate the test sample for 6 hours. All sites were scored for dermal reactions at 24 and 48 hours after patch removal.

The test article extracts showed no evidence of causing delayed dermal contact sensitization in the guinea pig. The test article was not considered a sensitizer in the closed-patch test.

Study Director Approval: _____

Eva Liao

Test Facility Management Approval: _____

Yena Zhuang

Statement of GLP Compliance

There were no deviations to the provisions of the FDA Good Laboratory Practice (GLP) Regulations (21 CFR, Part 58) and OECD Series on Principles of Good Laboratory Practice (GLP) noted during the course of the study.

Study Director: _____ 2022.06.21
Eva Liao Date

1. Introduction

1.1 Purpose

The purpose of this study was to evaluate the potential of the test articles to cause delayed dermal contact sensitization in the closed-patch test.

1.2 Testing Guidelines

This study was conducted based on the requirements of the International Organization for Standardization 10993-10:2021, Biological evaluation of medical devices - Part 10: Tests for skin sensitization.

1.3 Dates

Test Article Received:	2022.04.18
Treatment Started:	2022.05.10
Observations Concluded:	2022.06.10

1.4 GLP Compliance

The study initiated by protocol signature on 2022.04.24 was conducted in accordance with the provisions of the FDA Good Laboratory Practice (GLP) Regulations, 21 CFR 58 and OECD Series on Principles of Good Laboratory Practice (GLP). A Statement of Quality Assurance Activities was issued with this report.

2. Identification of Test and Control Articles

The test articles provided by the sponsor were identified and handled as described below:

Table 1 - Test Article

Name	Chinchex bed bugs insecticide
Size	N/A
CAS	N/A
Model	N/A
Lot	OOL12123
Initial State	Not Sterilized
Strength, Purity and Composition	SILICON DIOXIDE
Color	WHITE
Physical Description of the Test Article	DUST
Manufacture Date	2021.02
Expiration Date	N/A

Table 2 - Negative Control Article

Name	Sesame oil (SO)
Purity, Composition, and Other Characteristics	SO: Composition: CAS No.: 8008-74-0

Table 3-Reagents

Name	Brand	Lot
SO	HENRY LAMOTTE	1000015882

3. Test System

3.1 Test System and Justification of Test System

Species:	Guinea pig (Caviaporcellus)
Strain:	FMMU
Source:	Guangzhou huadu district huadongxinhua animal farm
Sex:	Male
Age:	Young adult
Acclimation Period:	Minimum 5 days
Number of Animals:	30
Identification Method:	Name card, ear tag

3.2 Justification of Test System

The albino guinea pig (animal) has been used historically for sensitization studies (Magnusson and Kligman, 1970). The guinea pig is believed to be the most sensitive animal model for this type of study. This study was referred to the semiannually positive control test report, which confirmed guinea pig strain sensitivity to known sensitizer l-chloro-2, 4-dinitrobenzene (DNCB) in the STC.

4. Facility &Personnel

4.1 Facility

DGMD Guinea pig room
STC (Dongguan)
68 Fumin Nan Road, Dalang,
Dongguan, Guangdong,
China. (Zip code 523770)

4.2 Personnel

Associates involved in this study was appropriately qualified and trained.
Test Facility Management: Yena Zhuang
Study Director: Eva Liao

Quality Assurance Unit: Jason Huang
Veterinary: Cassie Lin
Technicians: Chachi Li

5. Animal Management

5.1 Husbandry, Housing and Environment

Conditions conformed to STC Standard Operating Procedures. Animals were housed in groups in stainless steel or plastic suspended cages identified by a card indicating the animal numbers, test code, sex, animal code and date dosed.

The animal housing room is conventional system lab. The lab animal using license: SYXK(Guangdong province)2019-0159.The animal housing room temperature and relative humidity were monitored daily. The temperature for the room was set to 18-26℃ and the relative humidity was set to 40-70%. There were no significant temperature or relative humidity excursions that adversely affected the health of the animals.

The light cycle was controlled (12 hours light, 12 hours dark).

5.2 Food, Water and Contaminants

Food: Laboratory animal formula feed (Guinea pig), Jiangsu Xietong Pharmaceutical Bio-engineering Co., Ltd., was provided daily.

Water: The water quality met the "Sanitary standard for drinking water" (GB5749-2006)

Food and water meet animal welfare requirements. No contaminants present in the feed and water impacted the results of this study.

5.3 Personnel

Associates involved in this study were appropriately qualified and trained.

5.4 Veterinary Care

Standard veterinary medical care was provided in this study.

5.5 IACUC

This procedure has been approved by the STC Institutional Animal Care and Use Committee (IACUC), and is reviewed at least annually by the same committee.

5.6 Selection

Only healthy, previously unused animals were selected.

6. Method(DGMD-DOP-EXP-013-1B and DGMD-DOP-EXP-028-1B)

6.1 Test and Control Article Preparation

The following information was completed based on the sponsor providing the information to STC. Mix the test article by the proportion of 1:5 with sesame oil, make it moistened sufficiently. Sesame oil was used directly as negative control.

6.2 Test Procedure

6.2.1 Induction

On the first day of treatment, the animals were weighed and arbitrarily assigned to a treatment group as shown below.

SO	Test	10
	Control	5

Administer the test sample by topical application to the clipped left upper back region of each animal using appropriate patches soaked. Remove the restrainer of any occlusive dressings and patches after (6 ± 0.5) h. Perform this procedure on three days a week for three weeks. Treat the control animals similarly, using the 0.9% sodium chloride injection alone.

6.2.2 Challenge

At (14 ± 1) d after the last induction application, challenge all test and control animals with the test sample. Administer the test sample by a single topical application to a clipped untested area of each animal using appropriate patches

soaked in the test sample extraction vehicle. Remove the restrainer and occlusive dressings and patches after (6 ±0.5) h.

6.2.4 Laboratory Observations

1. Animals were observed daily for general health.
2. Body weights were recorded at pretreatment.
3. Observations for dermal reactions were conducted at 24 and 48 hours after challenge patch removal. Dermal reactions were scored in accordance with the criteria shown below:

Table 7 - Test Scoring

Patch test reaction	Grading scale
No visible change	0
Discrete or patchy erythema	1
Moderate and confluent erythema	2
Intense erythema and/or swelling	3

All times and temperatures reported herein are approximate and are within ranges established by the external standards described in the References section of this report and/or STC standard operating procedures.

7. Evaluation

The responses from the challenge phase were compared within the test animal group and between test and control conditions. In the final analysis of data, consideration was given to the overall pattern, intensity, duration and character of reactions of the test as compared to the control conditions. The control conditions are (1) the control vehicle on the test animals, (2) the test extract on the control animals, and (3) the control vehicle on the control animals. Statistical manipulation of data was not applicable to this study. Grades of 1 or greater observed in the test group generally indicated sensitization, provided that grades of less than 1 were observed on the control animals. If grades of 1 or greater were noted on control animals, then the reactions

of test animals that exceeded the most severe control reaction were considered to be due to sensitization.

8. Results

8.1 Clinical Observations and Body Weight Data

All animals were clinically normal throughout the study. The clinical observations and individual body weights at pretreatment are presented in Appendix 1.

8.2 Dermal Observations

No evidence of sensitization of test extracts group was observed. Individual results of dermal scoring for the challenge phase are presented in Appendix 2.

Moderate and intense dermal reactions of positive group were observed. Individual results of dermal scoring for the challenge phase are presented in Appendix 3.

9. Conclusion

The test article extracts showed no evidence of causing delayed dermal contact sensitization in the guinea pig. The test article was not considered a sensitizer in the closed-patch test.
Results and conclusions apply only to the test article tested. Any extrapolation of these data to other articles is the sponsor's responsibility.

10. Quality Assurance

Inspections were conducted at intervals adequate to assure the integrity of the study in conformance with 21 CFR 58.35(b)(3) and OECD Series on Principles of Good Laboratory Practice (GLP) No 4: Quality Assurance and GLP. The final report was reviewed for conformance to Section 58.185, Subpart J, of the GLP Regulations and OECD Series on Principles of Good Laboratory Practice (GLP). A Statement of Quality Assurance Activities was issued with the report.

11. Records

All raw data pertaining to this study and a copy of the final report are retained in designated STC archive files in accordance with STC SOPs. All of the files are storage in DGSTC MD Archiving room.

This includes:

- ✓ Agreement of Medical Devices Testing including the Study director assignment (DGMD/888/01 Rev04)
- ✓ Study plan and study plan training record (DGMD-FORM-OAP-001-3A and DGMD-FORM-OAP-002-3A)
- ✓ Final report
- ✓ All raw data and observations(DGMD-FORM-EXP-012-1-2Aand DGMD-FORM-EXP-028-1-1B)
- ✓ Samples of test and reference items and test sample login form (DGMD-FORM-ART-001-2B)
- ✓ The Records of test system management: Animal quarantine (DGMD-FORM-ANI-002-3A and DGMD-FORM-ANI-003-3A)
- ✓ The Records of test system usage: Animal quality certificate and Animal ethical review records (DGMD-FORM-ANI-001-3A)
- ✓ Records of critical reagent: Saline and Oil (DGMD-FORM-MAT-001-3A)
- ✓ Records of all inspections performed by Quality Assurance Program (DGMD-FORM-QAU-002-3B and DGMD-FORM-COE-004-3A）
- ✓ All relevant correspondence/communication (especially for multi- site studies)
- ✓ Records of qualifications training, experience and job descriptions of personnel in the study (this will be archived in Personnel technical file)
- ✓ Records and reports of the maintenance and calibration of apparatus (this will be archived in the equipment file)
- ✓ Validation documentation for computerized systems (this will be archived in the equipment file)

- ✓ Master schedules in use at the time of the study (this will be archived in the facility management file)
- ✓ Historical file of all Standard Operating Procedures (this will be archived in the facility management file)
- ✓ Environmental monitoring records (this will be archived in the animal lab management file)

12. ISO Compliance

All procedures were compliance to ISO 17025.

13. References

Code of Federal Regulations (CFR), Title 21, Part 58, Good Laboratory Practice for Nonclinical Laboratory Studies

OECD Series on Principles of Good Laboratory Practice (GLP)

International Organization for Standardization (ISO) 10993-1, Biological evaluation of medical devices -Part 1: Evaluation and testing within a risk management process (2018).

International Organization for Standardization (ISO) 10993-2, Biological evaluation of medical devices -Part 2: Animal welfare requirements (2006).

International Organization for Standardization (ISO) 10993-10, Biological evaluation of medical devices -Part 10: Tests for skin sensitization (2021).

International Organization for Standardization (ISO) 10993-12, Biological evaluation of medical devices -Part 12: Sample preparation and reference materials (2021).

International Organization for Standardization/International Electrotechnical Commission (ISO/IEC)17025, General requirements for the competence of testing and calibration laboratories (2017).

Appendix 1 - Clinical Observations and Individual Body Weight Data

Treatment Group	Animal number	Individual Observation	
		Pretreatment Body weight(g)	Clinical Observations
Test	1	457.8	Healthy
	2	428.5	Healthy
	3	389.3	Healthy
	4	406.2	Healthy
	5	416.4	Healthy
	6	322.7	Healthy
	7	346.2	Healthy
	8	309.4	Healthy
	9	317.8	Healthy
	10	357.3	Healthy
Control	1	311.4	Healthy
	2	347.0	Healthy
	3	318.4	Healthy
	4	316.5	Healthy
	5	319.2	Healthy

Appendix 2 - Dermal Reactions Following Challenge Exposure

Treatment Group	Animal number	Dermal reaction			
		24 hour score		48 hour score	
		Control Site	Test Extract Site	Control Site	Test Extract Site
Test	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	0	0	0	0
	5	0	0	0	0
	6	0	0	0	0
	7	0	0	0	0
	8	0	0	0	0
	9	0	0	0	0
	10	0	0	0	0
Control	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	0	0	0	0
	5	0	0	0	0

Appendix 3 - Periodic Positive Control Study for the Closed-patch Test

What was tested:

1 -chloro-2, 4-dinitrobenzene (DNCB)

Dates

Treatment Started: 2022.05.10

Observations Concluded: 2022.06.10

Purpose:

A periodic positive control study was conducted for the closed-patch test to meet the following objectives: 1) confirm the methodology in ISO 10993-10, Biological Evaluation of Medical Devices - Part 10: Tests for Irritation and Skin Sensitization, 2) substantiate the potential of DNCB to cause delayed dermal contact sensitization, 3) verify proper training of the technicians performing these studies, and 4) substantiate the susceptibility of the guinea pig strain to dermal contact sensitization.

Methods:

The test utilized young adult, nulliparous and not pregnant, female and male FMMU guinea pigs supplied by Guangzhou huadu district huadongxinhua animal farm. The weight at study initiation ranged from 300 grams to 500 grams. A 0.1% (w/w) concentration of DNCB in ethanol was patched to five test guinea pigs in an attempt to induce sensitization. The ethanol vehicle was similarly patched to five control guinea pigs. Following a recovery period, the test and control animals received a challenge patch of 0.1% (w/w) DNCB in ethanol and ethanol alone. All sites were scored for dermal reactions at 24 and 48 hours after patch removal. The patch sites were graded using the scale:

Patch test reaction	Grading scale
No visible change	0
Discrete or patchy erythema	1
Moderate and confluent erythema	2
Intense erythema and swelling	3

Results

All of the five animals demonstrated a positive sensitization response to the known sensitizer, DNCB. None of the control animals demonstrated a sensitization response. The results are shown below:

Treatment Group	Animal number	Dermal reaction		Results (+) or (-)
		24 hour score	48 hour score	
		Test	Test	
Test	1	1	1	+
	2	2	1	+
	3	2	2	+
	4	2	1	+
	5	1	1	+
Control	1	0	0	-
	2	0	0	-
	3	0	0	-
	4	0	0	-
	5	0	0	-

Conclusion:

The known sensitizer DNCB produced evidence of causing delayed dermal contact sensitization in the guinea pig. Therefore, the following objectives were met: 1) the methodology in ISO 10993-10, Biological Evaluation of Medical Devices, Part 10: Tests for Irritation and Skin Sensitization was confirmed, 2) the potential for DNCB to cause delayed contact sensitization was substantiated, 3) proper training of the technicians performing this study design was verified and 4) the susceptibility of the guinea pig strain to sensitization was substantiated.

Appendix 4 – Photograph of Test Articles

Statement of Quality Assurance Activities

Phase Inspected	Date Inspected	Study Director Notification Date	Management Notification Date
Study Plan Review	2022.04.24	2022.04.24	2022.04.24
Onsite Inspection:Animal acclimatization	2022.05.10	2022.05.10	2022.05.10
Onsite Inspection:Test substance application 1st day	2022.05.10	2022.05.10	2022.05.10
Onsite Inspection:Observation conclude	2022.06.10	2022.06.10	2022.06.10
Study Data Review	2022.06.21	2022.06.21	2022.06.21
Final Report Review	2022.06.21	2022.06.21	2022.06.21

Based on a review of this study, it has been concluded that this report accurately describes the methods and standard operating procedures, and that the reported results accurately reflect the raw data of the study. This study has been reviewed in accordance with the provisions of the FDA Good Laboratory Practice Regulations (21 CFR, Part 58) and OECD Series on Principles of Good Laboratory Practice (GLP).

Quality Assurance Unit Representative: Jason

Jason Huang

2022.06.21
Date

******* ENDOFSTUDY REPORT *******

Conditions of Issuance of Test Reports

1. All samples and goods are accepted by The STC (Dongguan) Company Limited (the "Company") solely for testing and reporting in accordance with the following terms and conditions. The Company provides its services on the basis that such terms and conditions constitute express agreement between the Company and any person, firm or company requesting its services (the "Clients").

2. Any report issued by the Company as a result of this application for testing service (the "Report") shall be issued in confidence to the Clients and the Report will be strictly treated as such by the Company. It may not be reproduced either in its entirety or in part and it may not be used for advertising or other unauthorized purposes without the written consent of the Company. The Clients to whom the Report is issued may, however, show or send it, or a certified copy thereof prepared by the Company to his customer, supplier or other persons directly concerned. Subject to clause 3,the Company will not, without the consent of the Clients, enter into any discussion or correspondence with any third party concerning the contents of the Report, unless required by the relevant governmental authorities, laws or court orders.

3. The Company shall be at liberty to disclose the testing-related documents and/or files anytime to any third-party accreditation and/or recognition bodies for audit or other related purposes. No liabilities whatsoever shall attach to the Company's act of disclosure.

4. The Company shall not be called or be liable to be called to give evidence or testimony on the Report in a court of law without its prior written consent, unless required by the relevant governmental authorities, laws or court orders.

5. The results in Report apply only to the sample as received and do not apply to the bulk, unless the sampling has been carried out by the Company and is stated as such in the Report.

6. When a statement of conformity to a specification or standard is provided, the ILAC-G8 Guidance document (and/or IEC Guide 115 in the electrotechnical sector) will be adopted as a decision rule for the determination of conformity unless it is inherent in the requested specification or standard, or otherwise specified in the Report.

7. In the event of the improper use the report as determined by the Company, the Company reserves the right to withdraw it, and to adopt any other additional remedies which may be appropriate.

8. Sample submitted for testing are accepted on the understanding that the Report issued cannot form the basis of, or be the instrument for, any legal action against the Company.

9. The Company will not be liable for or accept responsibility for any loss or damage howsoever arising from the use of information contained in any of its Reports or in any communication whatsoever about its said tests or investigations.

10. Clients wishing to use the Report in court proceedings or arbitration shall inform the Company to that effect prior to submitting the sample for testing.

11. Subject to the variable length of retention time for test data and report stored hereinto as to otherwise specifically required by individual accreditation authorities, the Company will only keep the supporting test data and information of this test report for a period of six years. The data and information will be disposed of after the aforementioned retention period has elapsed. Under no circumstances shall we provide any data and information which has been disposed of after the retention period. Under no circumstances shall we be liable for damages of any kind, including (but not limited to) compensatory damages, lost profits, lost data, or any form of special, incidental, indirect, consequential or punitive damages of any kind, whether based on breach of contract of warranty, tort (including negligence), product liability or otherwise, even if we are informed in advance of the possibility of such damages.

12. Issuance records of the Report are available on the internet at www.stc.group. Further enquiry of validity or verification of the Reports should be addressed to the Company.