TEST REPORT

APPLICANT	:	**GUANGZHOU TOP-BOND ENVIRONMENTAL TECHNOLOGY CO.，LTD**
ADDRESS	:	E501, NO. 5 FACTORY BUILDING, NO. 9, LAN YU 4TH STREET, HUANGPU DISTRICT, GUANGZHOU CITY
TESTED SAMPLE DESCRIPTION	:	UV ADHESIVE
TESTED ITEM NO.	:	YS-33221
AGE REQUESTED ON APPLICATION FORM	:	NOT PRESENT
SAMPLE RECEIVED DATE	:	NOV. 18, 2022
TEST PERIOD	:	NOV. 25, 2022 TO MAR. 01, 2023
REMARK	:	Subcontracting test, see test report CSTBB2022120015, generated by CCIC Huatongwei International Inspection（Suzhou）Co., Ltd.

**********FOR FURTHER DETAILS, PLEASE REFER TO THE FOLLOWING PAGE(S)**********

SIGNED FOR AND ON BEHALF OF
EUROFINS PRODUCT TESTING HONG KONG LTD.

Alex Fung
General Manager

中国认可
国际互认
检测
TESTING
CNAS L13034

Skin Irritation Test

Extraction Method

Final Report

Verification

Report Number: CSTBB2022120015

Article Name: YS-33221

Method Standard: ISO 10993-23:2021

Sponsor

Guangzhou TOP-BOND Environmental Technology CO.，Ltd

E501, No. 5 factory building, No. 9, Lan Yu 4th Street, Huangpu district, Guangzhou City

Test Facility

CCIC Huatongwei International Inspection（Suzhou）Co., Ltd.

Room 101, Building G, Ruoshui Road 388, Suzhou, Jiangsu, China

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Notices

1. Please apply for rechecking within 15 days of receiving the report if there is any objection.
2. Any erasure or without special testing seal renders the report null and void.
3. The report is only valid when signed by the persons who edited, checked and approved it.
4. The report is only responsible for the test results of the tested samples.
5. The report shall not be reproduced except in full without the written approval of the company.

Abstract

In this study, we took New Zealand white Rabbits to observe the skin irritation of the test article according to ISO 10993-23:2021.

The test article were extracted by 0.9 % Sodium Chloride Injection and Sesame Oil. Apply 0.5 ml extracts of test article or control to 2.5 cm×2.5 cm absorbent gauze patches, and then apply the patch soaked with the extract of test article or control directly to the skin on each side of each rabbit, and then wrap the application sites with a bandage for a minimum of 4 h. At the end of the contact time, remove the dressing. The describe and score the skin reaction for erythema and oedema for each application site at each time interval. Record the appearance of each application site at (1±0.1) h, (24±2) h, (48±2) h and (72±2) h following removal of the patches.

The results showed that the rabbits in the negative control group (0.9 % Sodium Chloride Injection, Sesame Oil) retained a normal appearance throughout the test and showed no skin irritants. A severe skin reactions for erythema and oedema were shown in the positive control group (SDS). While in test article group, the response of skin on testing side did not exceed that on the control side. The skin reactions for erythema and oedema were not observed in test article group.

Based on the above results, it can be concluded that under the experimental conditions, the test article has no skin irritation on rabbits.

Study Verification and Signature

Protocol Number	SST2211037902BB
Protocol Effective Date	2022-11-18
Technical Initiation Date	2022-11-18
Technical Completion Date	2022-11-25
Final Report Completion Date	2023-03-01

Personnel	Betty Zhuang	2023-03-01
		Date Completed
Approved	Study Director	2023-03-01
		Date Completed
Supervisory	Test Facility Manager	2023-03-01
		Date Completed

CCIC Huatongwei International Inspection (Suzhou) Co., Ltd.

Quality Assurance Statement and GLP Statement

Quality Assurance Statement

The Quality Assurance Unit conducted inspections on the following dates. The findings were reported to the Study Director and to the HTW's Management.

The final report was reviewed to assure that the report accurately describes the methods and standard operating procedures. The reported results accurately reflect the raw data of the nonclinical study conducted per the protocol.

Phase Inspected	Date	Study Director	Management
Experiment	2022-11-18	2022-11-18	2022-11-18
Raw Data	2022-11-25	2022-11-25	2022-11-25
Final Report	2023-03-01	2023-03-01	2023-03-01

The findings of these inspections have been reported to Management and the Study Director.

Hongxia Li — 2023-03-01

Quality Assurance — Date

GLP Statement

This study was conducted in compliance with current U.S. Food and Drug Administration regulations set forth in 21 CFR, Part 58.

The sections of the regulations not performed by or under the direction of HTW, exempt from this Good Laboratory Practice Statement, included characterization and stability of the test article and its mixture with carriers, 21 CFR, Part 58.105 and 58.113.

Vicky. Zi — 2023-03-01

Study Director — Date

1.0 Purpose

To evaluate the potential skin irritation caused by test article contact with the skin surface of rabbits and extrapolating the results to humans, but it does not establish the actual risk of irritation.

2.0 Reference

Biological evaluation of medical devices-Part 23: Tests for irritation (ISO 10993-23:2021)

Biological evaluation of medical devices-Part 2: Animal welfare requirements (ISO 10993-2:2006)

Biological evaluation of medical devices-Part 12: Sample preparation and reference materials (ISO 10993-12:2021)

3.0 Test and control articles

Groups	Test article	Negative Control Article(Polar)	Negative Control Article(Non-Polar)	Positive Control
Name	YS-33221	0.9% Sodium Chloride Injection(SC)	Sesame Oil (SO)	Sodium dodecyl sulfate (SDS)
Manufacturer	Not Provided	Guangxi Yuyuan Pharmaceutical Co., Ltd	Ji'an Lv yuan natural flavor oil refinery	Solarbio
Size	Not Provided	500 ml	25kg	500 g
Model	UVadhesive	/	/	/
Lot Batch#	See package	H21121903	2022.02.14	1019Y032
Test Article Material	Not Provided	/	/	/
Physical State	Solid	Liquid	Liquid	Solid
Color	Not Provided	Colorless	Light yellow	White
Package material	Not Provided	/	/	/
Sterilized or Not	Not Sterilized	/	/	/
Concentration	/	0.9 %	/	working concentration 10 %
Surface (cm^2)	/	/	/	/
Weight (g)	/	/	/	/
Storage Condition	Room Temp.	Room Temp.	Room Temp.	Room Temp.
Note：The information about the test article was supplied by the sponsor wherever applicable.				

4.0 Identification of test system

4.1 Test animal

Species: New Zealand white Rabbit

Number: 6 Sex:

either sex

Weight: >2 kg

Health status: Healthy, not previously used in other experimental procedures. Female animals were nul liparous and not pregnant.

Animal identification: Ear tattoo

Cages: Stainless steel cage

Acclimation Period: 7 days under the same conditions as for the actual test

4.2 Justification of test system

The rabbit is specified as an appropriate animal model for evaluating potential skin irritants by the c urrent testing standards. Positive control 10% sodium dodecyl sulfate has been substantiated at HTW with this method. To ensure the sensitivity of the experimental system, the positive control article should be v erified every six months.

5.0 Animal management

Animal purchase: Wuxi hengtai experimental animal breeding co. LTD SCXK (SU) 2020-0003

Feed: Experimental rabbits were fed a maintenance diet, Wuxi hengtai experimental animal breeding co., LTD

Water: Drinking water met the Standards for Drinking Water Quality GB 5749-2006

Animal room temperature: 18-26 ℃

Animal room relative humidity: 30 %-70 %

Lights: 12 hours light/dark cycle, full-spectrum lighting

Personnel: Associates involved were appropriately qualified and trained

Selection: Only healthy, previously unused animals were selected

There were no known contaminants present in the feed, water, or bedding expected to interfere with the test data

6.0 Equipment

Constant Temperature Vibrator (SHB007), Electronic scale (SHB020)

7.0 Experiment design

7.1 Sample preparation

The extracts of test article will be prepared according to the following steps:

<table>
<tr><td colspan="2">Aseptic Sampling</td><td colspan="4">Extraction in sterile vessels</td></tr>
<tr><td>Sampling Manner</td><td>Actually sampling</td><td>Ratio</td><td colspan="2">Reagent</td><td>Condition</td><td>pH</td></tr>
<tr><td rowspan="2">Random</td><td>4.0 g</td><td rowspan="2">0.2g:1ml</td><td>SC</td><td>20.0 ml</td><td rowspan="2">50°C / 72 h/ 60rpm</td><td>5.5</td></tr>
<tr><td>4.0 g</td><td>SO</td><td>20.0 ml</td><td>/</td></tr>
</table>

The state of the leaching solution did not change visually after the leaching was advanced. The extraction solution and the pH value should not been adjusted, filtered, centrifuged, diluted and other processes before used. The control solution was prepared under the same conditions. The extraction of the test article could be stored at

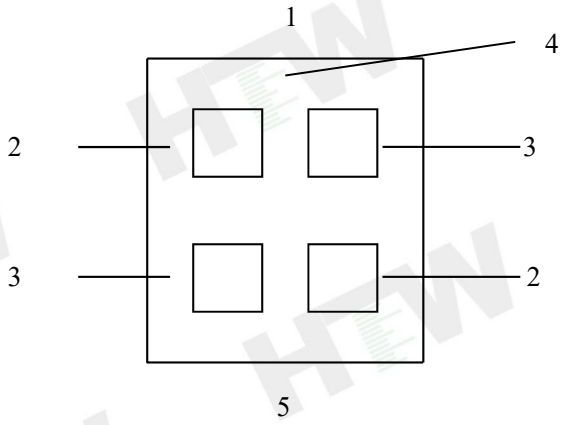
room temperature for no more than 24 h. No particulates or color changes were observed in pre- and post-extraction, the color and pH of the extraction solution did not change before and after use, and the pH value was 5.5, the status of the extract was shown in the table below.

Vehicle	Time Observed	Extracts	Condition of Final Extracts		
			Color	Clear or Not	Particulates
0.9% Sodium Chloride Injection(SC)	Before Extraction	Test article	Colorless	Clear	None
		Negative Control	Colorless	Clear	None
	After Extraction	Test article	Colorless	Clear	None
		Negative Control	Colorless	Clear	None
Sesame Oil (SO)	Before Extraction	Test article	Light yellow	Clear	None
		Negative Control	Light yellow	Clear	None
	After Extraction	Test article	Light yellow	Clear	None
		Negative Control	Light yellow	Clear	None

7.2 Test method

Use the rabbits with healthy intact skin. Fur was generally clipped within 24 h to 4 h of testing on the backs of the rabbits, a sufficient distance on both sides of the spine for application and observation of all test sites (approximately 10 cm×15 cm).

Apply 0.5 ml extract (s) of test article or control to 2.5 cm×2.5 cm absorbent gauze patches, and then apply the patch soaked with the extract of test article or control directly to the skin on each side of each rabbit as shown in Figure 1, and then wrap the application sites with a bandage (semi-occlusive or occlusive) for a minimum of 4 h. At the end of the contact time, remove the dressing.



1- Cranial end, 2- Test site, 3- Control site, 4- Clipped dorsal region, 5- Caudal end

Figure1 Location of skin application sites

8.0 The results observed

The Describe and score the skin reaction for erythema and oedema according to the scoring system given in Table 1 for each application site at each time interval. Record the appearance of each application site at (1±0.1) h, (24±2) h, (48±2) h and (72±2) h following removal of the patches.

Table 1 Classification System for Skin Reaction

Erythema and Eschar Formation:	Numerical Grading
No erythema	0
Very slight erythema (barely perceptible)	1
Well-defined erythema	2
Moderate erythema	3
Severe erythema (beet redness) to eschar formation preventing grading of erythema	4
Edema Formation:	
No edema	0
Very slight edema (barely perceptible)	1
Well-defined edema (edges of area well-defined by definite raising)	2
Moderate edema (raised approximately 1mm)	3
Severe edema (raised more than 1mm and extending beyond exposure area)	4
Maximal possible score for irritation	8
Irritation Response Categories in the Rabbit	
Response Category	Mean score
Negligible	0 to 0.4
Slight	0.5 to 1.9
Moderate	2 to 4.9
Severe	5 to 8

9.0 Evaluation criteria

Use only (24±2) h, (48±2) h and (72±2) h observations for calculation.

After the 72 h grading, all erythema grades plus oedema grades (24±2) h, (48±2) h and (72±2) h were totalled separately for each test article and blank for each animal. The primary irritation score for an animal was calculated by dividing the sum of all the scores by 6 (two test/observation sites, three time points).

To obtain the primary irritation index for the test article, add all the primary irritation scores of the individual animals and divide by the number of animals.

When blank or negative control was used, calculate the primary irritation score for the controls and subtract that score from the score using the test material to obtain the primary irritation score.

10.0 Results of the test

All animals were survived and no abnormal signs were observed during the study. According to what observed, the response of skin on testing side did not exceed that on the control side. Thus, the primary irritation index for the test article was calculated to be 0. See table 2.

11.0 Conclusion

Based on the above results, it can be concluded that under the experimental conditions, the test article has no skin irritation on rabbits.

12.0 Compliance

US FDA Good Laboratory Practice Regulations 21 CFR 58, effective June 20, 1979, as amended 52 FR 33780,

Sept. 4, 1987, and subsequent amendments

Standard operating procedure of CCIC Huatongwei International Inspection (Suzhou) Co., Ltd.

13.0 Record

All raw data pertaining to this study and a copy of the final report are retained in designated Huatongwei archive.

14.0 Confidentiality agreement

Statements of confidentiality were as agreed upon prior to study initiation.

15.0 Protocol amendment/deviations

There were no amendments or deviations that occurred during the course of this study.

Table 2 Skin irritation response observation

Reagent	Rabbit No.	Pretest weight (kg)	Finished Weight (kg)	Group	Reaction	Interval (hours): score=left/right			
						1±0.1h	24±2 h	48±2 h	72±2 h
SC	1	2.19	2.33	Test Article	Erythema and eschar	0/0	0/0	0/0	0/0
					Oedema	0/0	0/0	0/0	0/0
				Negative Control	Erythema and eschar	0/0	0/0	0/0	0/0
					Oedema	0/0	0/0	0/0	0/0
	2	2.20	2.37	Test Article	Erythema and eschar	0/0	0/0	0/0	0/0
					Oedema	0/0	0/0	0/0	0/0
				Negative Control	Erythema and eschar	0/0	0/0	0/0	0/0
					Oedema	0/0	0/0	0/0	0/0
	3	2.13	2.32	Test Article	Erythema and eschar	0/0	0/0	0/0	0/0
					Oedema	0/0	0/0	0/0	0/0
				Negative Control	Erythema and eschar	0/0	0/0	0/0	0/0
					Oedema	0/0	0/0	0/0	0/0
Primary irritation index						0			
SO	4	2.12	2.26	Test Article	Erythema and eschar	0/0	0/0	0/0	0/0
					Oedema	0/0	0/0	0/0	0/0
				Negative Control	Erythema and eschar	0/0	0/0	0/0	0/0
					Oedema	0/0	0/0	0/0	0/0
	5	2.20	2.31	Test Article	Erythema and eschar	0/0	0/0	0/0	0/0
					Oedema	0/0	0/0	0/0	0/0
				Negative Control	Erythema and eschar	0/0	0/0	0/0	0/0
					Oedema	0/0	0/0	0/0	0/0
	6	2.13	2.35	Test Article	Erythema and eschar	0/0	0/0	0/0	0/0
					Oedema	0/0	0/0	0/0	0/0
				Negative Control	Erythema and eschar	0/0	0/0	0/0	0/0
					Oedema	0/0	0/0	0/0	0/0
Primary irritation index						0			

Table 3 Positive control

Rabbit No.	Group	Reaction	Interval (hours): score=left site/right site			
			1±0.1 h	24±2 h	48±2 h	72±2 h
1	Positive Article Group	Erythema and eschar	2/1	2/2	3/2	3/3
		Oedema	1/2	2/2	2/3	3/4
	Solution Control Group	Erythema and eschar	0/0	0/0	0/0	0/0
		Oedema	0/0	0/0	0/0	0/0
2	Positive Article Group	Erythema and eschar	1/2	2/2	3/3	3/4
		Oedema	2/2	2/3	3/3	3/3
	Solution Control Group	Erythema and eschar	0/0	0/0	0/0	0/0
		Oedema	0/0	0/0	0/0	0/0
3	Positive Article Group	Erythema and eschar	1/1	2/1	3/2	3/3
		Oedema	1/2	1/2	2/3	3/4
	Solution Control Group	Erythema and eschar	0/0	0/0	0/0	0/0
		Oedema	0/0	0/0	0/0	0/0
Primary irritation index			5.2			

Positive control performed once every six months see CSTBB22090001P1 (Finish date：2022-09-02)