

TEST REPORT: 7191260871-CHM21-05-TSL

Date: 13 JUL 2021

Tel: +65 6973 6154

Client's Ref: 5487697

Email: zhou.xiao@tuvsud.com

Note: This report is issued subject to the Testing and Certification Regulations of the TÜV SÜD Group and the General Terms and Conditions of Business of TÜV SÜD PSB Pte Ltd. In addition, this report is governed by the terms set out within this report.



PSB Singapore

Add value.
Inspire trust.

SUBJECT

Evaluation of "Latex Powder Free Gloves, Chlorinated (Y000207999)" Sample for suitability to be used in contact with foods according to BfR Recommendation XXI

CLIENT

SRI TRANG GLOVES (THAILAND) PUBLIC COMPANY LIMITED
110 Kanchanawanit Rd, T.Patong, A. Hatyai
Songkhla, Thailand 90230

Attn : Miss Natthatida Promsila

SAMPLE SUBMISSION DATE

05 May 2021

DESCRIPTION OF SAMPLE

One packet of glove sample labelled as follows was received.

No	Product Description
1	Latex Powder Free Gloves, Chlorinated (Y000207999)

DATE OF ANALYSIS

25 May 2021 – 12 Jul 2021



TÜV SÜD PSB

Laboratory:
TÜV SÜD PSB Pte. Ltd.
15 International Business Park
TÜV SÜD @ IBP
Singapore 609937

Phone: +65-6778 7777
E-mail: info.sg@tuvsud.com
<https://www.tuvsud.com/en-sg>
Co. Reg : 199002667R

Regional Head Office:
TÜV SÜD Asia Pacific Pte. Ltd.
15 International Business Park
TÜV SÜD @ IBP
Singapore 609937
TÜV®



METHOD OF TEST

The sample was analysed for the following tests according to BfR Recommendation XXI. *Commodities based on Natural and Synthetic Rubber – 2.3 Category 3.*

1. Preparation of Test Specimen

Only the exterior of the glove sample was performed for the test.

2. Global Migration Content with Aqueous Food Simulant (DI Water, 3% Acetic Acid & 10% Ethanol)

According to BfR Recommendation XXI with reference to EN 1186-9:2002 – Test Methods for overall migration into aqueous food simulants by article filling.

The residue from the above 3% Acetic Acid was further extracted with Hexane for the organic components.

3. Specific Migration Content using Aqueous Food Simulant (DI Water)

According to BfR Recommendation XXI with reference to EN 1186-9:2002 – Test Methods for overall migration into aqueous food simulants by article filling.

a) Specific Migration of Formaldehyde

The simulants extracts was analysed by UV Spectrophotometer after derivatisation with Acetylacetone.

b) Specific Migration of Primary Arylamines and Secondary Arylamines

The stimulant was extracted by organic solvent and analysed by Gas Chromatography Mass Spectrometry after proper treatment.

c) Specific Migration of Nitrosamines

The stimulant was extracted by organic solvent and analysed by Gas Chromatography combined with the Nitrogen Chemiluminescence Detector after proper treatment.

4. Lead and Zinc content

According to BfR Recommendation XXI, sample analysis was conducted by acid digestion, followed by ICP-Optical Emission Spectrometry (ICP-OES).

RESULTS

Table 1 : Global Migration Content with Food Simulant for the “Latex Powder Free Gloves, Chlorinated (Y000207999)” Sample

Type of Simulant	Testing Condition	Surface Area (dm ²)	Volume of Extractant (ml)	Global Migration (mg/dm ²)	BfR XXI Category 3 Requirement for Global Migration (mg/dm ²)
1. DI Water	40°C, 10mins	4.21	210	<1.0	10 max
2. 3% Acetic Acid	40°C, 10mins	4.25	210	17.2	50 max
3. 10% Ethanol	40°C, 10mins	4.24	210	<1.0	10 max

RESULTS (Cont'd)**Table 2 : Global Migration Content with Food Simulant for the “Latex Powder Free Gloves, Chlorinated (Y000207999)” Sample**

Type of Simulant	Testing Condition	Surface Area (dm ²)	Volume of Extractant (ml)	Global Migration of Organic Components (mg/dm ²)	BFR XXI, 2.3 Category 3 Requirement for Global Migration of Organic Components (mg/dm ²)
1. 3% Acetic Acid	40°C, 10mins	4.25	50	<1.0	10 max

Table 3: Specific Migration of Formaldehyde in Food Simulant for “Latex Powder Free Gloves, Chlorinated (Y000207999)” Sample

Type of Simulant	Testing Condition	Volume of Extractant (ml)	Specific Migration Content of Formaldehyde (µg/ml)	BfR XXI Category 3 Requirement for Specific Migration Content (µg/ml)
Distilled Water	40 °C, 10 mins	210	Not Detected ^a	< 3

a) The method detection limit was 1 µg/ml.

Table 4: Specific Migration of Primary Arylamines in Food Simulant for “Latex Powder Free Gloves, Chlorinated (Y000207999)” Sample

Type of Simulant	Testing Condition	Volume of Extractant (ml)	Specific Migration Content of Primary Arylamines (µg/l)	BfR XXI Category 3 Requirement for Specific Migration Content (µg/l)
Distilled Water	40 °C, 10 mins	210	Not Detected ^b	< 20

b) The method detection limit was 10 µg/l.

Table 5: Specific Migration of Secondary Arylamines in Food Simulant for “Latex Powder Free Gloves, Chlorinated (Y000207999)” Sample

Type of Simulant	Testing Condition	Volume of Extractant (ml)	Specific Migration Content of Secondary Arylamines (mg/l)	BfR XXI Category 3 Requirement for Specific Migration Content (mg/l)
Distilled Water	40 °C, 10 mins	210	Not Detected ^c	< 1

c) The method detection limit was 0.01 mg/l.



RESULTS (Cont'd)

Table 6: Specific Migration of Nitrosamines in Food Simulant for “Latex Powder Free Gloves, Chlorinated (Y000207999)” Sample

Type of Simulant	Testing Condition	Volume of Extractant (ml)	Specific Migration Content of Nitrosamines ($\mu\text{g}/\text{dm}^2$)	BfR XXI Category 3 Requirement for Specific Migration Content ($\mu\text{g}/\text{dm}^2$)
Distilled Water	40 °C, 10 mins	210	0.03	< 1

d) The method detection limit was 0.02 mg/l.

Table 7: Lead and Zinc Contents for “Latex Powder Free Gloves, Chlorinated (Y000207999)” Sample

Test	Results (%)	BfR XXI Category 3 Requirement (%)
1. Lead, Pb	< 0.001	< 0.003
2. Zinc, Zn	0.5	< 3.0

Based on the above results, the “Latex Powder Free Gloves, Chlorinated (Y000207999)” sample met the requirement under BfR Recommendation XXI *Commodities based on Natural and Synthetic Rubber* – 2.3 Category 3.

MS TAN SER LING
TECHNICAL EXECUTIVE

DR XIAO ZHOU
PRODUCT MANAGER
MICROCONTAMINATION DIAGNOSIS
CHEMICAL & MATERIALS

TEST REPORT: 7191260871-CHM21-05-TSL

13 JUL 2021



PSB Singapore

Please note that this Report is issued under the following terms :

1. This report applies to the sample of the specific product/equipment given at the time of its testing/calibration. The results are not used to indicate or imply that they are applicable to other similar items. In addition, such results must not be used to indicate or imply that TÜV SÜD PSB approves, recommends or endorses the manufacturer, supplier or user of such product/equipment, or that TÜV SÜD PSB in any way "guarantees" the later performance of the product/equipment. Unless otherwise stated in this report, no tests were conducted to determine long term effects of using the specific product/equipment.
2. The sample/s mentioned in this report is/are submitted/supplied/manufactured by the Client. TÜV SÜD PSB therefore assumes no responsibility for the accuracy of information on the brand name, model number, origin of manufacture, consignment or any information supplied.
3. Nothing in this report shall be interpreted to mean that TÜV SÜD PSB has verified or ascertained any endorsement or marks from any other testing authority or bodies that may be found on that sample.
4. This report shall not be reproduced wholly or in parts and no reference shall be made by the Client to TÜV SÜD PSB or to the report or results furnished by TÜV SÜD PSB in any advertisements or sales promotion.
5. Unless otherwise stated, the tests were carried out in TÜV SÜD PSB Pte Ltd, 15 International Business Park TÜV SÜD @ IBP Singapore 609937.
6. The tests carried out by TÜV SÜD PSB and this report are subject to TÜV SÜD PSB's General Terms and Conditions of Business and the Testing and Certification Regulations of the TÜV SÜD Group.

Effective 26 January 2021

