# ENV Test Report

# SHIPPING TEST

# TRAKYA PACK - PULP MOLDING EOOD PACKED PRODUCT Model: UNIGLASS BOTTLE PACKAGING (2 CONFIGURATION)

Add value.
Inspire trust.

## In accordance with ISTA 3A:2018

Prepared for: TRAKYA PACK - PULP MOLDING EOOD
Woodrow Wilson Street, 12
4006 PLOVDIV (BULGARIA)

ENV-V200220022737B-000

| SIGNATURE | | | |
|---|---|---|---|
| GIANLUIGI PONZETTO<br>19.11.2026 13:57:41 UTC | | | |
| **NAME** | **JOB TITLE** | **RESPONSIBLE FOR** | **EDITING DATE** |
| Gianluigi Ponzetto | Technical Reviewer | Authorised Signatory | 2026-11-18 |

Signatures in this approval box have checked this document in line with the requirements of TÜV SÜD document control rules.
The above date represents Test Report editing date. Test Report issue date corresponds with the digital signature affixing date.

**EXECUTIVE SUMMARY**
N°5 UNIGLASS BOTTLE PACKAGING (2 CONFIGURATION) were tested and found to be compliant with ISTA 3A:2018 for the tests detailed in section 1.3.

**DISCLAIMER AND COPYRIGHT**
The results of this Test Report refer only to the tested sample as received and tested in the sequence indicated, where prescribed. They are valid for the time and conditions of test, unless otherwise specified.
The integral reproduction of the present Test Report is allowed; the partial reproduction must be authorized in writing by the Laboratory.
The result of functional test is based on what the Client declared and it is not responsibility of the CAB.

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# 1 Report Summary

## 1.1 Report Modification Record

Alterations and additions to this report will be issued to the holders of each copy in the form of a complete document.
In case of subsequent revisions, the current Test Report replaces the previous versions.
The date below represents Test Report editing date. Test Report issue date corresponds with the digital signature affixing date.

| Issue | Description of Change | Date of Editing |
|---|---|---|
| 0 | First Issue | 2026-11-18 |

## 1.2 Introduction

| | |
|---|---|
| Applicant | TRAKYA PACK - PULP MOLDING EOOD – Yasen Yanakiev |
| Manufacturer | TRAKYA PACK - PULP MOLDING EOOD |
| Model Number(s) | UNIGLASS BOTTLE PACKAGING (2 CONFIGURATION) |
| Manufacturer Declared Variant(s) | N/A |
| Serial Number(s) | N/A |
| Hardware Version(s) | N/A |
| Software Version(s) | N/A |
| Number of Samples Tested | 5 |
| Test Specification/Issue/Date | ISTA 3A:2018 |
| Test Plan/Issue/Date | N/A |
| Date of Receipt of E.U.T. | 2026-08-28 |
| Sample Identification Code | 1069860 6÷10 |
| Start of Test | 2026-10-08 |
| Finish of Test | 2026-10-08 |
| Name of Engineer(s) | Riccardo Mendo |
| Customer Witness(es) to test | None |
| Related Document(s) | N/A |

## 1.3 Brief Summary of Results

A brief summary of the tests carried out in accordance with ISTA 3A:2018 is shown below.

| Section | Specification Clause | Test Description | Verdict | Comments/Base Standard |
|---|---|---|---|---|
| Configuration: Packaged products | | | | |
| § 2.1 | ISTA 3A:2018 | DROP | PASS | No breaks or aesthetical issues have been detected during the test by naked eye visual inspection (see performance criteria at §1.5.6) |
| § 2.2 | ISTA 3A:2018 | RANDOM WITH AND WITHOUT TOP LOAD | PASS | No breaks or aesthetical issues have been detected during the test by naked eye visual inspection (see performance criteria at §1.5.6) |
| § 2.3 | ISTA 3A:2018 | DROP | PASS | No breaks or aesthetical issues have been detected during the test by naked eye visual inspection (see performance criteria at §1.5.6) |

For performance criteria applied to give result below see paragraph 1.5.6

### 1.4 Customer Supplied Form

See paragraph 1.2 where are indicated sample information provided by the Client. On these information the CAB has no responsibility.

### 1.5 Product Information

#### 1.5.1 Technical Description

The Equipment under test (E.U.T.) were packed products containing bottle of wine.

#### 1.5.2 E.U.T. Port/Cable Identification

N/A

#### 1.5.3 Test Configuration

Size [mm]: 410x280x150 (h)
Weight [kg]: 3,2

#### 1.5.4 Mode(s) of Operation

N/A

#### 1.5.5 Monitoring of Performance

None

#### 1.5.6 Performance Criteria

After the test, the EUT has been subjected to a visual inspection and no detachment of the parts has been observed.
The inspection has been carried out by the Test Engineer who has observed the unit from all sides at a distance of 0.5 m without using any kind of equipment.
The criteria by which the results are expressed are given in the standards and/or in the client specification listed in paragraph 1.3 of this technical report.

### 1.6 Deviations from the Standard

No deviations from the applicable test standard were made during testing.

## 1.7 E.U.T. Modification Record

The table below details modifications made to the E.U.T. during the test program.

The modifications incorporated during each test are recorded on the appropriate test pages.

| Modification State | Description of Modification still fitted to E.U.T. | Modification Fitted By | Date Modification Fitted |
|---|---|---|---|
| UNIGLASS BOTTLE PACKAGING (2 CONFIGURATION) | | | |
| N/A | As supplied by the customer | N/A | N/A |

## 1.8 Test Location

TUV Italia conducted the following tests at our Volpiano Test Laboratory.

| Test Name | Name of Engineer(s) |
|---|---|
| Shipment test | Riccardo Mendo |

Office Address:

TUV Italia, Via Brandizzo 123, 10088 Volpiano (TO), Italy

## 1.9 External Tests

None

## 1.10 Sampling Plan

TUV Italia does not carry out sampling and is not responsible for any sampling carried out by the customer.

# 2 Test Details

## 2.1 DROP

### 2.1.1 Specification Reference

ISTA 3A:2018

### 2.1.2 Equipment Under Test and Modification State

UNIGLASS BOTTLE PACKAGING (2 CONFIGURATION)

### 2.1.3 Date of Test

2026-10-08

### 2.1.4 Test Method

The samples have been placed on the drop machine and allowed to fall freely following the test severities below and as shown in ANNEX A:

**Test Severities**

Relevant specification: ISTA 3A:2018

| Drop Number | < 32 kg (70 lb) | 32-70 kg (70-150 lb) | Standard, Flat, Elongated, Small (not in bag) |
|---|---|---|---|
| 1 | 460 mm (18 in) | 300 mm (12 in) | Edge 3-4 |
| 2 | 460 mm (18 in) | 300 mm (12 in) | Edge 3-6 |
| 3 | 460 mm (18 in) | 300 mm (12 in) | Edge 4-6 |
| 4 | 460 mm (18 in) | 300 mm (12 in) | Corner 3-4-6 |
| 5 | 460 mm (18 in) | 300 mm (12 in) | Corner 2-3-5 |
| 6 | 460 mm (18 in) | 300 mm (12 in) | Edge 2-3 |
| 7 | 460 mm (18 in) | 300 mm (12 in) | Edge 1-2 |
| 8 | 910 mm (36 in) | 600 mm (24 in) | Face 3 |
| 9 | 460 mm (18 in) | 300 mm (12 in) | Face 3 |

### 2.1.5 Environmental Conditions

| | |
|---|---|
| Ambient Temperature | Min: + 23,4 °C<br>Max: + 24,5 °C |
| Relative Humidity | Min: 54,7 %<br>Max: 57,7 % |

### 2.1.6 Specification Limits

According to the specification clause.

### 2.1.7 Test Results

Performance assessment of the E.U.T. made during this test has observed no breaks or aesthetical issues have been detected during the test by visual inspection.

### 2.1.8 Test Location and Test Equipment Used

This test was carried out in ENV Laboratory TUV Italia, Via Brandizzo 123, 10088 Volpiano (TO), Italy

All equipment shown in table below are in their valid calibration period during all test campaign of this Test Report.

| Device no. | Designation | Model | Manufacturer |
|---|---|---|---|
| DPM_74 | DROP MACHINE | ACCUDROP 160 | MTLAB |
| FLE_109 | ANALOG FLEXOMETER | 33-684 | STANLEY |

### 2.1.9 Operator

This test was carried out by Riccardo Mendo.

## 2.2 RANDOM WITH AND WITHOUT TOP LOAD

### 2.2.1 Specification Reference

ISTA 3A:2018

### 2.2.2 Equipment Under Test and Modification State

UNIGLASS BOTTLE PACKAGING (2 CONFIGURATION)

### 2.2.3 Date of Test

2026-10-08

### 2.2.4 Test Method

The sample has been placed on the vibrating table and subjected to a random vibration with the following profiles, durations, and directions.

**Test Severities**

Relevant specification: ISTA 3A:2018

OVER THE ROAD

| Frequency (Hz) | PSD Level, $g^2$/Hz |
|---|---|
| 1.0 | 0.0007 |
| 3.0 | 0.02 |
| 5.0 | 0.02 |
| 7.0 | 0.001 |
| 12.0 | 0.001 |
| 15.0 | 0.004 |
| 24.0 | 0.004 |
| 28.0 | 0.001 |
| 36.0 | 0.001 |
| 42.0 | 0.003 |
| 75.0 | 0.003 |
| 200.0 | 0.000004 |

$G_{rms}$ 0,53

Duration: 60 min with face 3 down with load
30 min with face 4 down with load
30 min with face 6 down

PICK UP AND DELIVERY

| Frequency (Hz) | PSD Level, $g^2$/Hz |
|---|---|
| 1.0 | 0.001 |
| 3.0 | 0.035 |
| 4.0 | 0.035 |
| 7.0 | 0.0003 |
| 13.0 | 0.0003 |
| 15.0 | 0.001 |
| 24.0 | 0.001 |
| 29.0 | 0.0001 |
| 50.0 | 0.0001 |
| 70.0 | 0.002 |
| 100.0 | 0.002 |
| 200.0 | 0.00005 |

$G_{rms}$ 0,46

Duration: 30 min with face 3 down

The dynamic top loads have been calculated with the formula reported below:

| **Top-Load Formulas TL** | | **Metric Units (m and kg)** | **English Units (in and lb)** |
|---|---|---|---|
| Top-Load **(TL–H)** with **face 3** down | | (2.7 – H) x L x W x 100 | (108 – H) x L x W x 0.0035 |
| Top-Load **(TL–W)** with **face 4** down | | (2.7 – W) x L x H x 100 | (108 – W) x L x H x 0.0035 |
| Top-Load **(TL–L)** with **face 6** down | | (2.7 – L) x W x H x 100 | (108 – L) x W x H x 0.0035 |
| **Where** | **Represents** | | |
| TL | Total Weight of the Top-Load Apparatus | Kilograms (kg) | Pounds (lb) |
| 2.7 **and** 108 | Height of typical trailer | Meters (m) | Inches (in) |
| H | Height of shipping unit | Meters (m) | Inches (in) |
| L | Length of shipping unit | Meters (m) | Inches (in) |
| W | Width of shipping unit | Meters (m) | Inches (in) |
| 100 **and** 0.0035 | Loading Factor: 50% of the average density of freight* | 100 kg/m$^3$ | 0.0035 lb/in$^3$ |

| **Top-Load weight (TL) for any Axis** | |
|---|---|
| Determine the Top-Load weight to be used for each axis by comparing the calculated TL against the following statements. | |
| **IF the calculated Top-Load for an axis is …** | **THEN …** |
| Less than 11kg (25 lb) | **Do not use** a Top-Load during vibration testing. |
| 11 kg (25 lb) to 140 kg (300 lb) | Use the calculated Top-Load (TL) rounded up to the next closest increment of **2 kg (5 lb)** for that axis.<br>*Examples*:<br>If the calculated Top-Load is 21 kg you would round up and use 22 kg as the Top-Load;<br>If the calculated Top-Load is 32 lb you would round up and use 35 lb as the Top-Load. |
| Greater than 140 kg (300 lb) | Use 140 kg (300 lb) as the Top-Load (TL). |

| **TOP LOAD ON FACE 1** | **TOP LOAD ON FACE 2** | **TOP LOAD ON FACE 5** |
|---|---|---|
| 30 kg | 15 kg | NO TOP LOAD |

### 2.2.5 Environmental Conditions

| | |
|---|---|
| Ambient Temperature | Min: + 23,4 °C<br>Max: + 24,5 °C |
| Relative Humidity | Min: 54,7 %<br>Max: 57,7 % |

### 2.2.6 Specification Limits

According to the specification clause.

### 2.2.7 Test Results

Performance assessment of the E.U.T. made during this test has observed no breaks or aesthetical issues have been detected during the test by visual inspection.

### 2.2.8 Test Location and Test Equipment Used

This test was carried out in ENV Laboratory TUV Italia, Via Brandizzo 123, 10088 Volpiano (TO), Italy

All equipment shown in table below are in their valid calibration period during all test campaign of this Test Report.

| Device no. | Designation | Model | Manufacturer |
|---|---|---|---|
| VBT_36 | SHAKER | 443-100-20 | SERVOTEST |
| CTR_190 | CONTROL SYSTEM | SPIDER-81 | CRYSTAL INSTRUMENTS |
| ACC_162 | ACCELEROMETER | 352C34 | PCB PIEZOTRONICS |

### 2.2.9 Operator

This test was carried out by Riccardo Mendo.

## 2.3 DROP

### 2.3.1 Specification Reference

ISTA 3A:2018

### 2.3.2 Equipment Under Test and Modification State

UNIGLASS BOTTLE PACKAGING (2 CONFIGURATION)

### 2.3.3 Date of Test

2026-10-08

### 2.3.4 Test Method

The samples have been placed on the drop machine and allowed to fall freely following the test severities below and as shown in ANNEX A:

**Test Severities**

Relevant specification: ISTA 3A:2018

| Drop Number | Drop Height | | | Test Specimen | |
|---|---|---|---|---|---|
| | < 32 kg (70 lb) | 32-70 kg (70-150 lb) | Small (in a bag) | Standard, Flat, Elongated | Small (in a bag) |
| 10 | 460 mm (18 in) | 300 mm (12 in) | 610 mm (24 in) | Edge 3-4 | Face 4 |
| 11 | 460 mm (18 in) | 300 mm (12 in) | 610 mm (24 in) | Edge 3-6 | Face 1 |
| 12 | 460 mm (18 in) | 300 mm (12 in) | 610 mm (24 in) | Edge 1-5 | Face 2 |
| 13 | 460 mm (18 in) | 300 mm (12 in) | 610 mm (24 in) | Corner 3-4-6 | Face 3 |
| 14 | 460 mm (18 in) | 300 mm (12 in) | 610 mm (24 in) | Corner 1-2-6 | Face 1 |
| 15 | 460 mm (18 in) | 300 mm (12 in) | 610 mm (24 in) | Corner 1-4-5 | Face 2 |
| 16 | 910 mm (36 in) | 600 mm (24 in) | 610 mm (24 in) | Most critical or damage-prone flat orientation | Face 4 |
| 17 | 460 mm (18 in) | 300 mm (12 in) | NA | **Standard:** Face 3 on hazard<br>**Flat or Elongated:** Face 2 on hazard | NA |

### 2.3.5 Environmental Conditions

| | |
|---|---|
| Ambient Temperature | Min: + 23,4 °C<br>Max: + 24,5 °C |
| Relative Humidity | Min: 54,7 %<br>Max: 57,7 % |

### 2.3.6 Specification Limits

According to the specification clause.

### 2.3.7 Test Results

Performance assessment of the E.U.T. made during this test has observed no breaks or aesthetical issues have been detected during the test by visual inspection.

### 2.3.8 Test Location and Test Equipment Used

This test was carried out in ENV Laboratory TUV Italia, Via Brandizzo 123, 10088 Volpiano (TO), Italy

All equipment shown in table below are in their valid calibration period during all test campaign of this Test Report.

| Device no. | Designation | Model | Manufacturer |
|---|---|---|---|
| DPM_74 | DROP MACHINE | ACCUDROP 160 | MTLAB |
| FLE_109 | ANALOG FLEXOMETER | 33-684 | STANLEY |

### 2.3.9 Operator

This test was carried out by Riccardo Mendo.

# 3 Test Equipment Information

## 3.1 General Test Equipment Used

All equipment shown in table below are in their valid calibration period during all test campaign of this Test Report.

| Device no. | Designation | Model | Manufacturer |
|---|---|---|---|
| ACC_162 | Uniaxial accelerometer | 352C34 | PCB Piezotronics |
| CTR_190 | 8-channel control system for Servotest 443-100-20 | Spider-81 | Crystal Instruments |
| VBT_36 | Servohydraulic Vibrator Servotest | 443-100-20 | Servotest |
| DPM_74 | Drop Machine MTLAB | ACCUDROP 160 | MTLAB |
| FLE_109 | Analog flexometer | 33-684 | Stanley |

# 4 Incident Reports

No incidents reports were raised.

# 5 Measurement Uncertainty

Declared uncertainties are obtained with factor k=2 except if otherwise specified. For a 95% confidence level, the measurement uncertainties for defined systems are:

| Test Name and/or measurement type/unit | Measurement Uncertainty |
|---|---|
| VIBRATION - Acceleration spectral density | ± 1,2 dB |
| VIBRATION – OVER THE ROAD - Acceleration spectral density R.M.S. value of acceleration | ± 0,03 g |
| VIBRATION – PICK UP AND DELIVERY - Acceleration spectral density R.M.S. value of acceleration | ± 0,02 g |
| TEMPERATURE (Ambient) | ± 2,3 °C |
| RELATIVE HUMIDITY (Ambient) | ± 7,0 % |
| WEIGHT | ± 2,0 % |
| HEIGHT | ± 0,7 mm |

Measurement Uncertainty Decision Rule

The decision rule "Binary statement for simple acceptance" according to ILAC-G8 and IEC Guide 115 will be applied.
The level of risk to false accept and false reject items is described on ILAC-G8.

**ANNEX A**

PHOTO 1/21



DROP

PHOTO 2/21



DROP

PHOTO 3/21



DROP

PHOTO 4/21



DROP

PHOTO 5/21



DROP

PHOTO 6/21



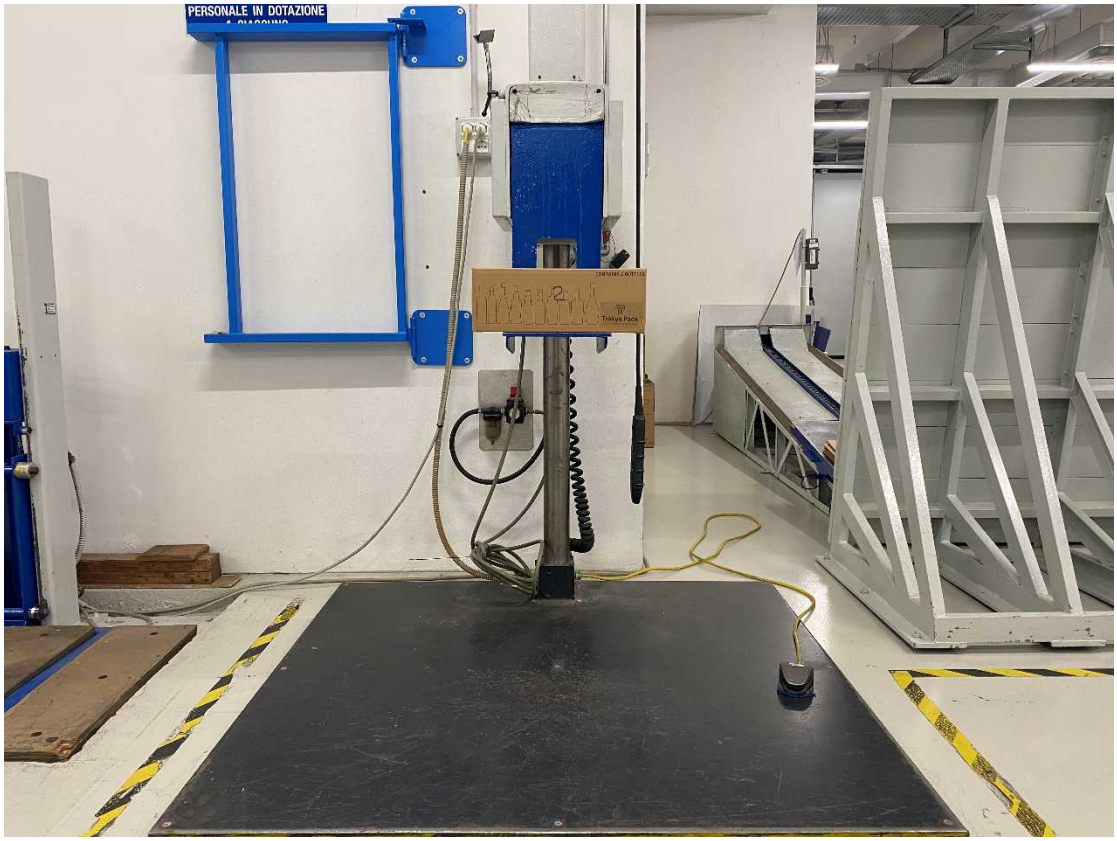

DROP

PHOTO 7/21



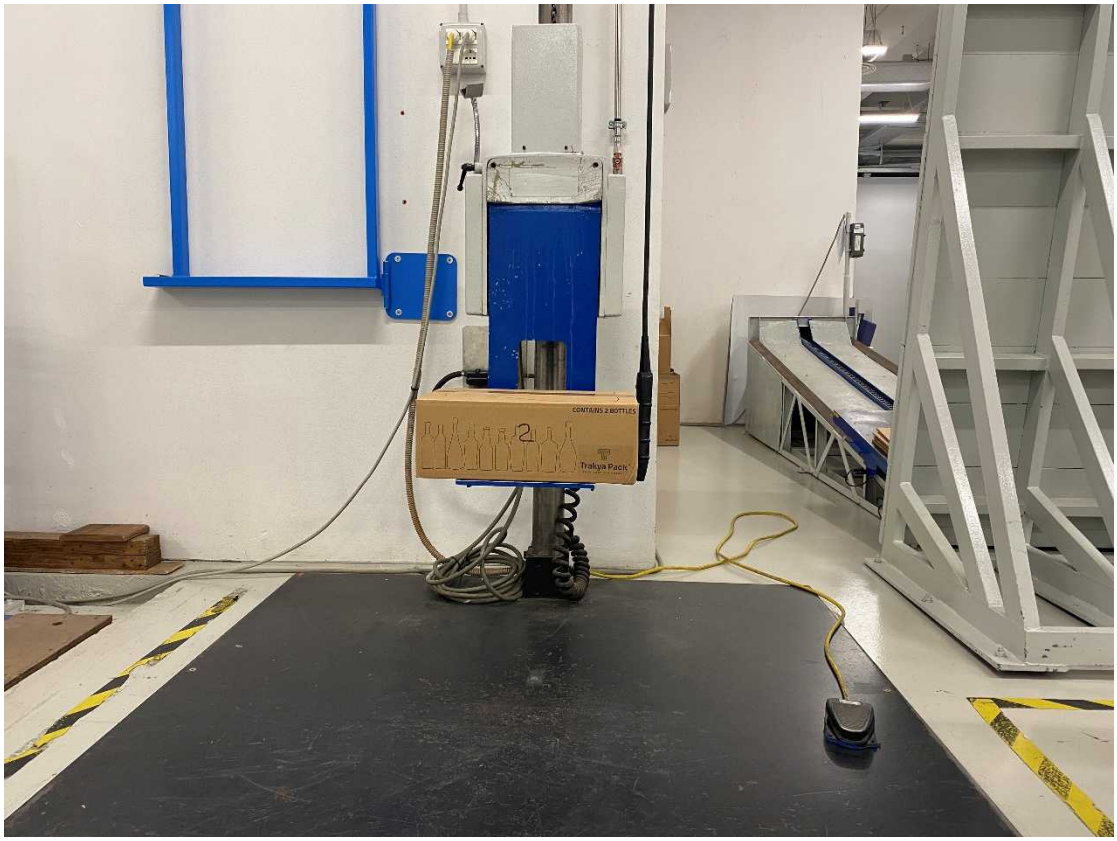
DROP

PHOTO 8/21




DROP

PHOTO 9/21




DROP

PHOTO 10/21




RANDOM WITH TOP LOAD ON FACE 1

PHOTO 11/21




RANDOM WITH TOP LOAD ON FACE 2

PHOTO 12/21



RANDOM WITHOUT TOP LOAD ON FACE 5

PHOTO 13/21



RANDOM WITHOUT TOP LOAD – FACE 3 DOWN

PHOTO 14/21



DROP

PHOTO 15/21




DROP

PHOTO 16/21



DROP

PHOTO 17/21



DROP

PHOTO 18/21



DROP

PHOTO 19/21



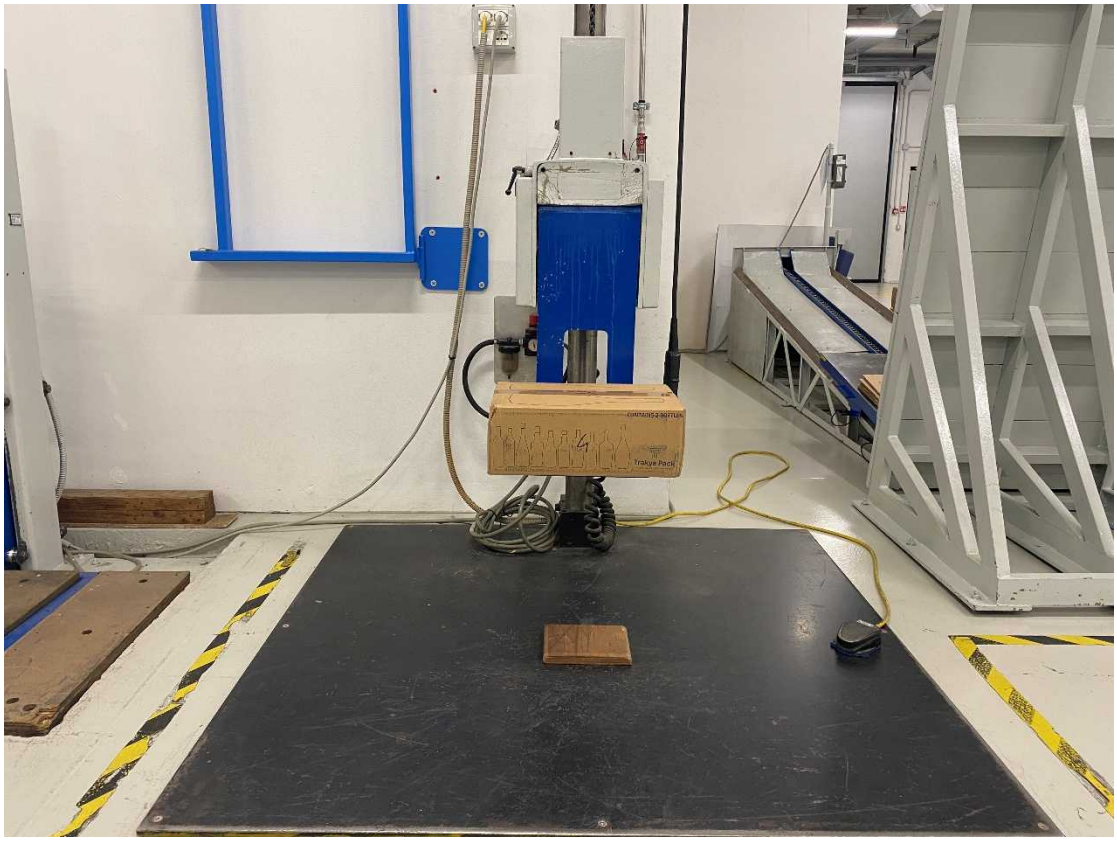
DROP

PHOTO 20/21




DROP

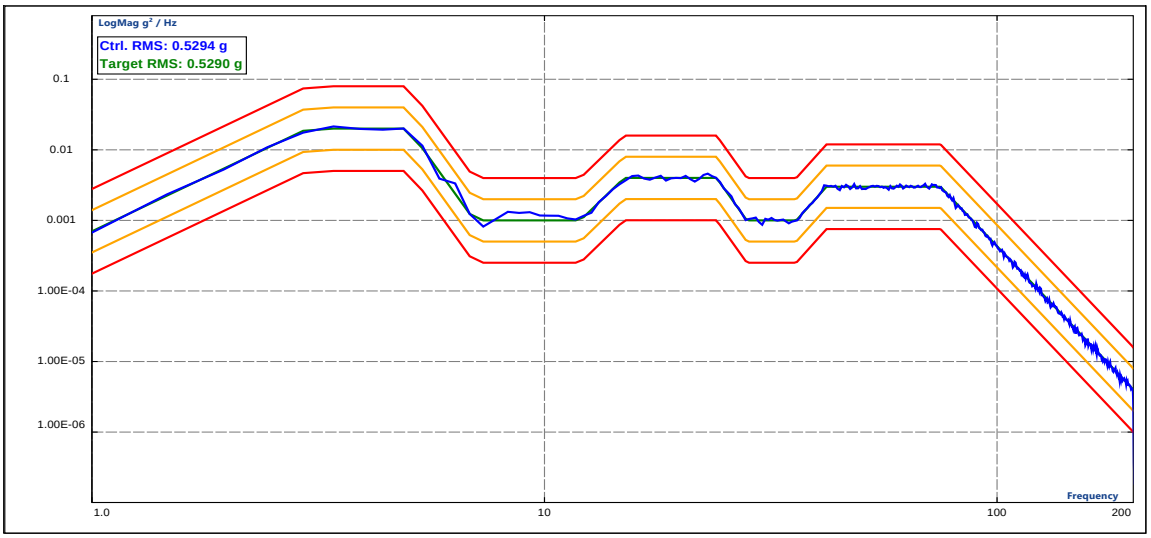
PHOTO 21/21



DROP

ANNEX 1/4

CUSTOMER: TRAKYA PACK
TEST: OVER THE ROAD WITH TOP LOAD ON FACE 1



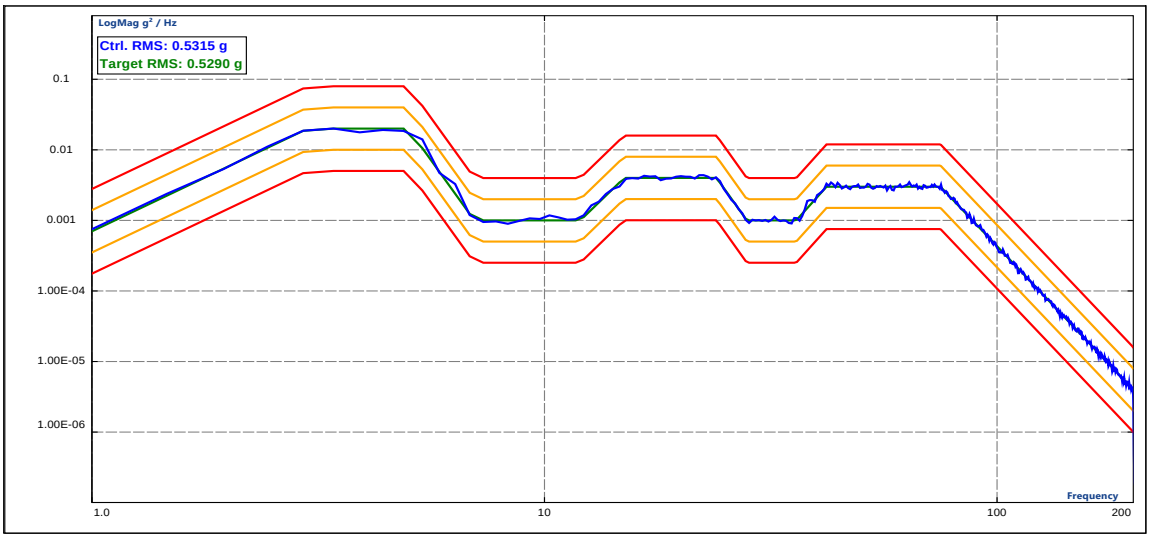

Level: 100.00 %
Velocity Pk: 0.343 m/s
DOF: 128
Full level elapsed time: 01:00:00

Drive Pk: 5.758 V
Control RMS: 0.529 g
Remaining Time: 00:00:00

Est. disp. (PkPk): 36.713 mm
Target RMS: 0.529 g
Total elapsed time: 01:01:19

ANNEX 2/4

CUSTOMER: TRAKYA PACK
TEST: OVER THE ROAD WITH TOP LOAD ON FACE 2



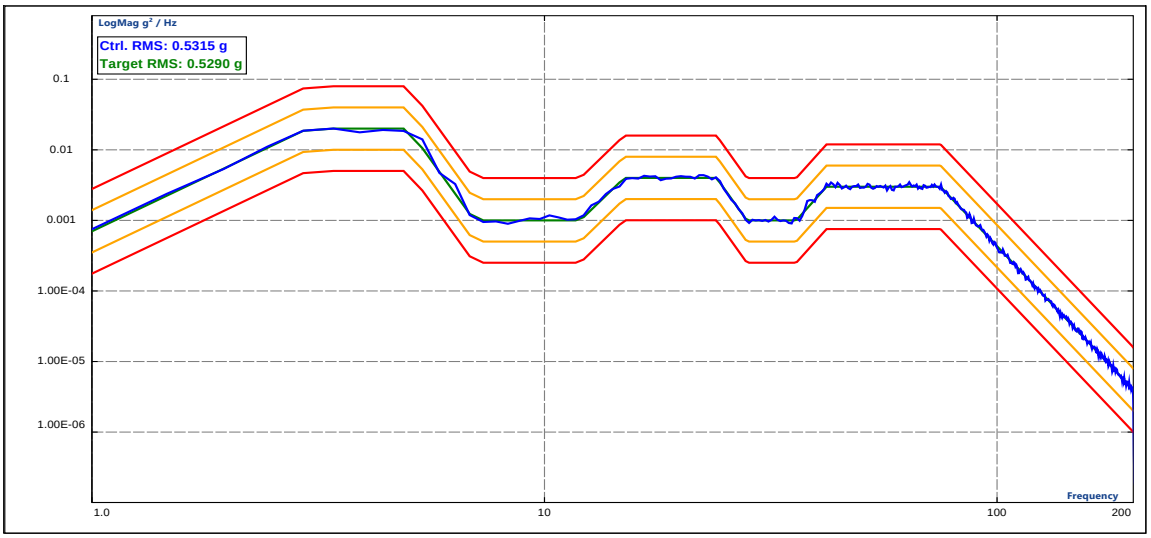

Level: 100.00 %
Velocity Pk: 0.341 m/s
DOF: 128
Full level elapsed time: 00:30:00

Drive Pk: 5.632 V
Control RMS: 0.531 g
Remaining Time: 00:00:00

Est. disp. (PkPk): 36.863 mm
Target RMS: 0.529 g
Total elapsed time: 00:31:19

ANNEX 3/4

CUSTOMER: TRAKYA PACK
TEST: OVER THE ROAD WITHOUT TOP LOAD ON FACE 5



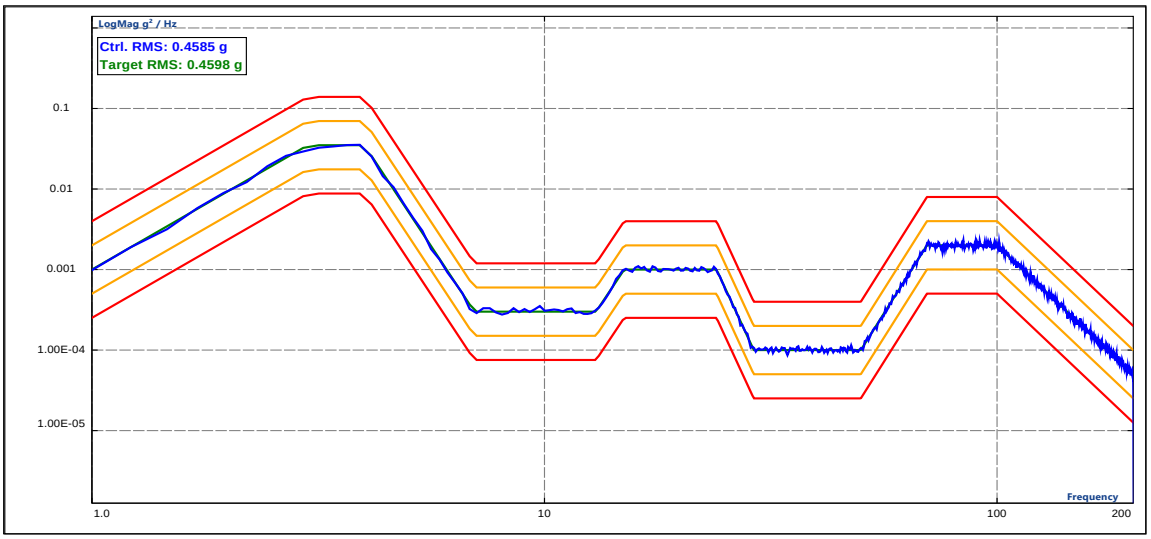

Level: 100.00 %
Velocity Pk: 0.336 m/s
DOF: 128
Full level elapsed time: 00:30:00

Drive Pk: 4.071 V
Control RMS: 0.526 g
Remaining Time: 00:00:00

Est. disp. (PkPk): 35.741 mm
Target RMS: 0.529 g
Total elapsed time: 00:31:19

ANNEX 4/4

CUSTOMER: TRAKYA PACK
TEST: PICK UP AND DELIVERY – FACE 3 DOWN




Level: 100.00 %
Velocity Pk: 414.981 mm/s
DOF: 128
Full level elapsed time: 00:30:00

Drive Pk: 3.425 V
Control RMS: 0.459 g
Remaining Time: 00:00:00

Est. disp. (PkPk): 51.327 mm
Target RMS: 0.460 g
Total elapsed time: 00:31:41

**END of TEST REPORT**