

**Report
No. Wisepac 20190115**

**Climatic test with desiccant bags
“WisePower High-performance Desiccant”**

for

**Kunshan Wisepac Desiccant Co., Ltd
No. 97 Dianxing r.d., Dianshanhu Town
Jiangsu Province, China**

Project No.: 7201

Dortmund, 15 January 2019

General Information

Test Laboratory

VDZ GmbH
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Testing

Location: D - 44319 Dortmund
from: 12 November 2018
until: 7 January 2019
Test Engineers: Mr. Bernd Heinzl, Mr. Tolga Tepecik

Customer

Company: Kunshan Wisepac Desiccant Co., Ltd
Street: No. 97 Dianxing r.d., Dianshanhu Town
Location: Jiangsu Province, China
Responsible: Ms. Ye Mei
Telephone: +86 512 570 570 75/76/77/78

Specimens

Description: 40 x desiccant bags
Order Date: -
Delivery Date: 12 November 2018
State of Delivery: no visible damages
Identification: 7201

1. Scope

With 40 desiccant bags manufactured by Kunshan Wisepac, CN-Shanghai, a climatic test had to be subjected in order to evaluate the capability of the desiccant material to absorb moisture during transportation and storing in atmosphere.

The desiccant bags were stored in a climatic chamber for overall 56 days under a defined condition by 23 °C / 40 % RH. Each day the weight of bags were measured and the increase was noticed to find equilibrium. After completion of the test procedure, bags were examined visually. The detailed examination of the test samples will be done after return delivery of the desiccant bags by the specialists of the customer.

2. Test Specimens

For the tests the following specimens were available:

| Description | S/NO | Pieces |
|----------------------------|---------------------------------|--------|
| High-performance Desiccant | 5 g High-performance Desiccant | 5 |
| High-performance Desiccant | 10 g High-performance Desiccant | 5 |
| High-performance Desiccant | 25 g High-performance Desiccant | 5 |
| High-performance Desiccant | 50 g High-performance Desiccant | 5 |
| Montmorillonite Desiccant | MT-1U-TY | 5 |
| Montmorillonite Desiccant | MT-2U-TY | 5 |
| Montmorillonite Desiccant | MT-4U-TY | 5 |
| Montmorillonite Desiccant | MT-8U-TY | 5 |

Detailed specifications of the components and of the bags can be provided by the specialists of the manufacturer.

3. Test Procedure

In order to evaluate the capabilities of the desiccant bags to absorb moisture during transportation and storing the following test schedule was run:

| Test Schedule according to DIN 55473 (2015-12) | | |
|--|---|---|
| No. | Test Procedure | Test Levels |
| 1 | Climatic Test DIN EN 55473 (2015-12) | <ul style="list-style-type: none"> Climate condition: approx. 56 days +23 °C / 40 % RH |
| 2 | Weight of Test Specimen | <ul style="list-style-type: none"> In close intervals (approximately every 24 h) |

Climatic test

The start weight was measured before the desiccant bags were stored. The desiccant bags were stored in a climatic cabinet for 56 days at +23 °C / 40 % RH in dependence on test procedure DIN 55473 (2015-12). The weight was measured daily and the increase was noticed to find equilibrium.

4. Test Specifications

DIN 55473 (2015-12)

5. Test Results

At state of delivery no visible damages detected. All 40 desiccant bags were in good condition.

| 5 g | 7201_1 | 7201_2 | 7201_3 | 7201_4 | 7201_5 |
|-----------------------------------|---------|---------|---------|---------|---------|
| Total mass at start | 6.38 g | 5.93 g | 6.28 g | 5.88 g | 6.35 g |
| Total mass after 56 days | 11.60 g | 10.60 g | 11.50 g | 10.78 g | 12.34 g |
| Total increase mass after 56 days | 5.22 g | 4.67 g | 5.22 g | 4.90 g | 5.99 g |

| 10 g | 7201_1 | 7201_2 | 7201_3 | 7201_4 | 7201_5 |
|-----------------------------------|---------|---------|---------|---------|---------|
| Total mass at start | 12.10 g | 12.17 g | 12.00 g | 12.37 g | 11.90 g |
| Total mass after 56 days | 22.87 g | 22.22 g | 22.17 g | 23.38 g | 22.93 g |
| Total increase mass after 56 days | 10.77 g | 10.05 g | 10.17 g | 11.01 g | 11.03 g |

| 25 g | 7201_1 | 7201_2 | 7201_3 | 7201_4 | 7201_5 |
|-----------------------------------|---------|---------|---------|---------|---------|
| Total mass at start | 28.95 g | 33.93 g | 28.59 g | 28.37 g | 28.46 g |
| Total mass after 56 days | 56.77 g | 71.35 g | 59.70 g | 55.12 g | 53.88 g |
| Total increase mass after 56 days | 27.82 g | 37.42 g | 31.11 g | 26.75 g | 25.42 g |

| 50 g | 7201_1 | 7201_2 | 7201_3 | 7201_4 | 7201_5 |
|-----------------------------------|----------|----------|----------|----------|----------|
| Total mass at start | 54.23 g | 53.50 g | 54.64 g | 55.62 g | 55.92 g |
| Total mass after 56 days | 104.31 g | 111.09 g | 121.26 g | 124.56 g | 108.27 g |
| Total increase mass after 56 days | 50.08 g | 57.59 g | 66.62 g | 68.94 g | 52.35 g |

| 1 Einheit | 7201_1 | 7201_2 | 7201_3 | 7201_4 | 7201_5 |
|-----------------------------------|---------|---------|---------|---------|---------|
| Total mass at start | 37.00 g | 36.00 g | 36.50 g | 37.07 g | 36.69 g |
| Total mass after 56 days | 42.36 g | 40.91 g | 41.60 g | 42.25 g | 42.05 g |
| Total increase mass after 56 days | 5.36 g | 4.91 g | 5.10 g | 5.18 g | 5.36 g |

| 2 Einheit | 7201_1 | 7201_2 | 7201_3 | 7201_4 | 7201_5 |
|-----------------------------------|---------|---------|---------|---------|---------|
| Total mass at start | 69.31 g | 69.40 g | 69.06 g | 69.06 g | 69.25 g |
| Total mass after 56 days | 81.23 g | 81.43 g | 81.01 g | 81.00 g | 81.20 g |
| Total increase mass after 56 days | 11.92 g | 12.03 g | 11.95 g | 11.94 g | 11.95 g |

| 4 Einheit | 7201_1 | 7201_2 | 7201_3 | 7201_4 | 7201_5 |
|-----------------------------------|----------|----------|----------|----------|----------|
| Total mass at start | 132.36 g | 132.62 g | 132.18 g | 132.85 g | 133.03 g |
| Total mass after 56 days | 153.55 g | 153.84 g | 153.36 g | 154.02 g | 154.30 g |
| Total increase mass after 56 days | 21.19 g | 21.22 g | 21.18 g | 21.17 g | 21.27 g |

| 8 Einheit | 7201_1 | 7201_2 | 7201_3 | 7201_4 | 7201_5 |
|-----------------------------------|----------|----------|----------|----------|----------|
| Total mass at start | 273.59 g | 274.36 g | 273.68 g | 273.63 g | 273.56 g |
| Total mass after 56 days | 323.33 g | 324.48 g | 323.76 g | 323.60 g | 323.22 g |
| Total increase mass after 56 days | 49.74 g | 50.12 g | 50.08 g | 49.97 g | 49.66 g |

6. Conclusion

The desiccant bags will be able to absorb partly moisture for more than 50 days, according to test procedure.

The detailed examination of the test samples will be done by the specialists of the manufacturer. The results of this final examination are not part of this report.

Dortmund, 15 January 2019

Test Engineers:



Mr. Bernd Heinzl



Mr. Tolga Tepecik

7. Appendix

19 Figures: (photos and data sheets)

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