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Date 13.06.2019
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Test Report No: 55264341
Version 1

Client: TEKOM Chemical Co., LTD
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Date of order: 13.05.2019

Sample received: 27.05.2019

Number of samples 1

Scope of investigation: Testing of screen cleaner winter according to DEKRA criteria

Project / reference: Screenwash -15°C Fin Tippa (mark 03)

Testing period: 27.05.2019 – 13.06.2019

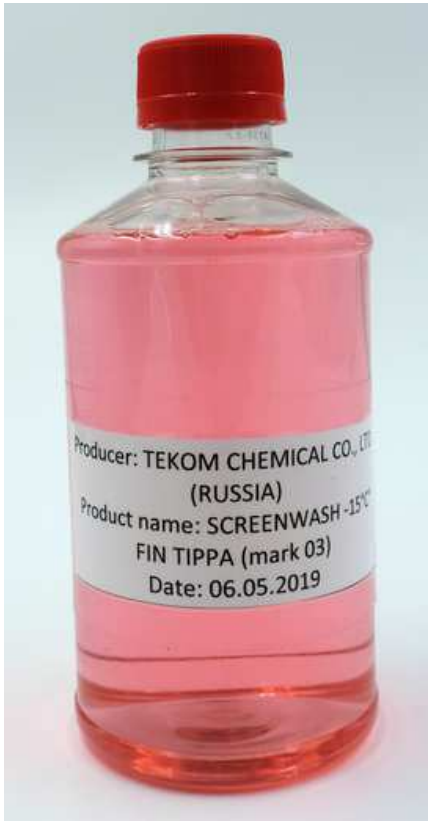
Test result:

- following pages -

Accredited Analytical Laboratory D-PL-11060-03-00 in Stuttgart and Halle (Saale)

1 Sample designation

No. of sample	Designation
55264341-1	Screenwash -15°C Fin Tippa (mark 03), date 06.05.2019

No. of sample	Sample picture
55264341-1	

* Test method not accredited

2 Polycarbonate compatibility (QMA 2001.1428)

Test method:

An uncoated polycarbonate bar is mounted into the test gadget, tempered to 80 °C and covered with the tested sample.

The testing is performed in three replicates.

Conditions:

- strain of the outer fibre: 1 % each
- sample amount: approx. 0,5 ml
- test duration: 48 hours at 80 °C

Test result:

No. of sample	Evaluation	Test method
55264341-1	no stress crackings	QMA 2001.1428

3 Rubber compatibility according to DEKRA test specification (QMA 2001.1425)

Test method:

Wiper materials and rubber seals for automotive applications are tempered at room temperature and covered with the test sample for 24 hours. Afterwards a visual examination of surface changes is carried out.

Test result:

No. of sample	Evaluation	Test method
55264341-1	no changes	QMA 2001.1425

* Test method not accredited

4 Lacquer compatibility according to DEKRA test specification (QMA 2001.1400)

Test method:

Lacquered plates with 2-K-lacquering (moonland grey metallic (OPEL) and black metallic (MB 189)) and Uni lacquering (dark blue (VW Y5L) and imola red II (BMW)) are covered with the test samples and tempered at room temperature and also at 50°C for 24 hours. Afterwards a visual examination of surface changes is carried out.

Test results:

4.1 grey, metallic (OPEL moonland grey)

4.1.1 at room temperature

No. of sample	Evaluation	Test method
55264341-1	no changes	QMA 2001.1400

4.1.2 at 50 °C

No. of sample	Evaluation	Test method
55264341-1	no changes	QMA 2001.1400

4.2 black, metallic (MB 189)

4.2.1 at room temperature

No. of sample	Evaluation	Test method
55264341-1	no changes	QMA 2001.1400

4.2.2 at 50 °C

No. of sample	Evaluation	Test method
55264341-1	no changes	QMA 2001.1400

* Test method not accredited

4.3 dark blue, uni (VW Y5L)

4.3.1 at room temperature

No. of sample	Evaluation	Test method
55264341-1	no changes	QMA 2001.1400

4.3.2 at 50 °C

No. of sample	Evaluation	Test method
55264341-1	no changes	QMA 2001.1400

4.4 red, uni (BMW imolared II)

4.4.1 at room temperature

No. of sample	Evaluation	Test method
55264341-1	no changes	QMA 2001.1400

4.4.2 at 50 °C

No. of sample	Evaluation	Test method
55264341-1	no changes	QMA 2001.1400

* Test method not accredited

5 Metal compatibility according to DEKRA test specification (QMA 2001.1443)

Test method:

Metals for automotive applications that are tempered at room temperature and also at 50°C are covered with the test sample for 24 hours. Afterwards a visual examination of surface changes is carried out.

5.1 Aluminium compatibility (anodized)

Test result:

No. of sample	Evaluation		Test method
	Room temperature	50 °C	
55264341-1	no changes	no changes	QMA 2001.1443

5.2 Aluminium compatibility (raw)

Test result:

No. of sample	Evaluation		Test method
	Room temperature	50 °C	
55264341-1	no changes	no changes	QMA 2001.1443

5.3 Material compatibility with copper

Test result:

No. of sample	Evaluation		Test method
	Room temperature	50 °C	
55264341-1	slight discoloration ¹	slight discoloration ¹	QMA 2001.1443

¹ not negatively evaluated yet

5.4 Material compatibility with brass

Test result:

No. of sample	Evaluation		Test method
	Room temperature	50 °C	
55264341-1	slight discoloration ¹	slight discoloration ¹	QMA 2001.1443

¹ not negatively evaluated yet

5.5 Material compatibility with steel

Test result:

No. of sample	Evaluation		Test method
	Room temperature	50 °C	
55264341-1	no changes	no changes	QMA 2001.1443

5.6 Material compatibility with stainless steel

Test result:

No. of sample	Evaluation		Test method
	Room temperature	50 °C	
55264341-1	no changes	no changes	QMA 2001.1443

5.7 Material compatibility with chromed steel

Test result:

No. of sample	Evaluation		Test method
	Room temperature	50 °C	
55264341-1	no changes	no changes	QMA 2001.1443

* Test method not accredited

6 Plastics compatibility according to DEKRA test specification (QMA 2001.1478)

Test method:

Various plastics and copolymeres are tempered at room temperature and also at 50°C and covered with the tested sample for 24 hours. Afterwards a visual examination of surface changes is carried out.

Test results:

6.1 Polyethylene (PE-HD)

No. of sample	Evaluation		Test method
	Room temperature	50 °C	
55264341-1	no changes	no changes	QMA 2001.1478

6.2 Polypropylene (PP)

No. of sample	Evaluation		Test method
	Room temperature	50 °C	
55264341-1	no changes	no changes	QMA 2001.1478

6.3 Polystyrene (PS)

No. of sample	Evaluation		Test method
	Room temperature	50 °C	
55264341-1	no changes	no changes	QMA 2001.1478

6.4 Polymethyl methacrylate (PMMA)

No. of sample	Evaluation		Test method
	Room temperature	50 °C	
55264341-1	no changes	no changes	QMA 2001.1478

6.5 Acrylonitril-Butadiene-Styrene (ABS)

No. of sample	Evaluation		Test method
	Room temperature	50 °C	
55264341-1	no changes	no changes	QMA 2001.1478

* Test method not accredited

6.6 Polyoxymethylene (POM)

No. of sample	Evaluation		Test method
	Room temperature	50 °C	
55264341-1	no changes	no changes	QMA 2001.1478

6.7 Polyvinyl chloride (PVC)

No. of sample	Evaluation		Test method
	Room temperature	50 °C	
55264341-1	no changes	no changes	QMA 2001.1478

6.8 Polyamide (PA)

No. of sample	Evaluation		Test method
	Room temperature	50 °C	
55264341-1	no changes	no changes	QMA 2001.1478

Hints:

The test results refer exclusively to the samples specified. A reproduction in excerpts of the test report must not be made without the written consent of the test laboratory. Chemical and material blanks are taken into account when determining the results. Samples will be stored for max. 6 months (for exceptions and specific storage times see QMH).

Stuttgart, 2019-06-13

DEKRA Automobil GmbH

Laboratory for Environmental and Product Analysis

Thilo Kunst

Project manager car chemistry and technical cleanliness

* Test method not accredited