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Date 06.03.2017

Test Report: 55255786-1

Version 1

Client:	Autoland J. Kisielewski & J. Moranski Sp.j. ul. Mickiewicza 28 43250 PAWLOWICE POLEN via DEKRA Certification Sp. z.o.o. Miroslaw Hanc Plac Solny 20 50-063 Warszawa
Date of order:	14.02.2017
Sampled by:	not known
Sample received:	14.02.2017
Number of samples	1
Scope of investigation:	Testing of screen cleaner winter according to DEKRA criteria
Project / reference:	Koncentrat Zimowego Plynu do Spryskiwaczy -20 (1:1)
Testing period:	14.02.2017 – 06.03.2017

Test result:

- following pages -

DAkkS-accredited Analyses Laboratory D-PL-11060-03-00 in Stuttgart and Halle.

1 Sample designation

No. of sample	Designation
55255786-1	Koncentrat zimowego Płynu do Spryskiwaczy -60

No. of sample	Sample picture
55255786-1	

☐ 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
55255786-1	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
55255786-1	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℃ 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
55255786-1	no changes	QMA 2001.1400

4.1.2 at 50 ℃

No. of sample	Evaluation	Test method
55255786-1	no changes	QMA 2001.1400

4.2 black, metallic (MB 189)

4.2.1 at room temperature

No. of sample	Evaluation	Test method
55255786-1	no changes	QMA 2001.1400

4.2.2 at 50 ℃

No. of sample	Evaluation	Test method
55255786-1	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
55255786-1	no changes	QMA 2001.1400

4.3.2 at 50 ℃

No. of sample	Evaluation	Test method
55255786-1	no changes	QMA 2001.1400

4.4 red, uni (BMW imolared II)

4.4.1 at room temperature

No. of sample	Evaluation	Test method
55255786-1	no changes	QMA 2001.1400

4.4.2 at 50 ℃

No. of sample	Evaluation	Test method
55255786-1	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℃ 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 ℃	
55255786-1	no changes	no changes	QMA 2001.1443

5.2 Aluminium compatibility (raw)

Test result:

No. of sample	Evaluation		Test method
	Room temperature	50 ℃	
55255786-1	no changes	no changes	QMA 2001.1443

5.3 Material compatibility with copper

Test result:

No. of sample	Evaluation		Test method
	Room temperature	50 ℃	
55255786-1	slight discoloration[1]	no changes	QMA 2001.1443

[1] not negatively evaluated yet

* Test method not accredited

5.4 Material compatibility with brass

Test result:

No. of sample	Evaluation		Test method
	Room temperature	50 °C	
55255786-1	no changes	no changes	QMA 2001.1443

5.5 Material compatibility with steel

Test result:

No. of sample	Evaluation		Test method
	Room temperature	50 °C	
55255786-1	no changes	slight discoloration[1]	QMA 2001.1443

[1] not negatively evaluated yet

5.6 Material compatibility with stainless steel

Test result:

No. of sample	Evaluation		Test method
	Room temperature	50 °C	
55255786-1	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	
55255786-1	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℃ 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 ℃	
55255786-1	no changes	no changes	QMA 2001.1478

6.2 Polypropylene (PP)

No. of sample	Evaluation		Test method
	Room temperature	50 ℃	
55255786-1	no changes	no changes	QMA 2001.1478

6.3 Polystyrene (PS)

No. of sample	Evaluation		Test method
	Room temperature	50 ℃	
55255786-1	no changes	no changes	QMA 2001.1478

6.4 Polymethyl methacrylate (PMMA)

No. of sample	Evaluation		Test method
	Room temperature	50 ℃	
55255786-1	no changes	no changes	QMA 2001.1478

6.5 Acrylonitril-Butadiene-Styrene (ABS)

No. of sample	Evaluation		Test method
	Room temperature	50 ℃	
55255786-1	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	
55255786-1	no changes	no changes	QMA 2001.1478

6.7 Polyvinyl chloride (PVC)

No. of sample	Evaluation		Test method
	Room temperature	50 °C	
55255786-1	no changes	no changes	QMA 2001.1478

6.8 Polyamide (PA)

No. of sample	Evaluation		Test method
	Room temperature	50 °C	
55255786-1	slight swelling[2]	slight swelling[2]	QMA 2001.1478

[2] not negatively evaluated yet

* Test method not accredited

7 Flash point measurement

No. of sample	Result [℃]	Test method
55255786-1	23.5	DIN EN ISO 13736

Annotation:
Measuring tolerance of the determination: ±1 ℃.
The uncertainty of measurement given in the standard is fulfilled.

8 Freezing point measurements (QMA 2001.1409)

No. of sample	Dilution	Result [℃]	Test method
55255786-1	undiluted	<-60[1]	ASTM D 1177
	2:1	-36	
	1:1	-23	
	1:2	-12	

[1] no freezing point measured down to approx. -65℃

Annotation: Measuring tolerance about ±1 ℃.

9 Measurement of the pH value (20 ℃)

No. of sample	Result	Test method
55255786-1	8.4	DIN EN ISO 10523

10 Measurement of density*

No. of sample	Result [g/cm³]	Test method
55255786-1	0.909	DIN 51757

11 Measurement of refraction index*

No. of sample	Result	Test method
55255786-1	1.3719	DIN 51423-2

* Test method not accredited

12 Measurement of the cinematic viscosity

12.1 according to DIN EN ISO 3104 and ÖNORM V 5124:2013 at -10 °C

No. of sample	Mixture	Result [mm^2/s]	Requirement [mm^2/s]	Test method
55255786-1	1:1	12.6	< 14.5	DIN EN ISO 3104

12.2 Evaluation

According to ÖNORM V 5124 the sample is applicable for fan nozzles.

* Test method not accredited

13 Solvent Screening

13.1 Content of aromatics (BTEX) with GC/FID

No. of sample	Substance	Result [% by weight]	Requirement [% by weight]	Test method
55255786-1	Benzene	< 0.1	< 0.1	QMA 2001.1416
	Toluene	< 0.1	< 0.1	
	Ethylbenzene	< 0.1	< 0.1	
	Xylene	< 0.1	< 0.1	

13.2 Content of chlorinated hydrocarbons (CHC) with GC/FID

No. of sample	Substance	Result [% by weight]	Requirement [% by weight]	Test method
55255786-1	Dichlormethane	< 0.1	< 0.1	QMA 2001.1416
	Trichlormethane	< 0.1	< 0.1	
	1,1,1-Trichlorethane	< 0.1	< 0.1	
	Trichlorethene	< 0.1	< 0.1	
	Tetrachlorethene	< 0.1	< 0.1	
	1,2-Dichlorbenzene	< 0.1	< 0.1	

13.3 Content of methanol with GC/FID

No. of sample	Substance	Result [% by weight]	Requirement [% by weight]	Test method
55255786-1	Methanol	< 0.1	< 0.1	QMA 2001.1273

14 Notifiable scents (QMA 1426)

according to Council Directive No. 76/768/EEC (1976-07-27, last amended on 2008-04-03) and according to Regulation (EC) No. 648/2004 (2004-03-31, last amended on 2006-06-20).

The sample was diluted with two different solvents. An aliquot of the dilution was analysed once by means of GC-MSD (gas-chromatography coupled with mass-selective detection) in SCAN-mode to determine the TVOC-value (in the retention time area extending from hexane to hexadecane as toluene equivalents) and once in SIM-mode (selected-ion-monitoring) to determine the concentrations of the individual substances (26 sensitising scents). The identification of the substances was achieved by comparison of retentions times with those of standards and depending on the substance with 2-4 characteristic mass-traces (1 target-ion and 1-3 qualifier ions) while the quantification was effected by reference to the internal matrix standard.
It was found possible to identify the following substances by comparison with spectra databanks and pure substances with a limit of quantification of 0.001 % w/w in a boiling range of 50 to 400 °C:

* Test method not accredited

14.1 Results

Substance	CAS No.	Unit	Result	Limit[4]	Test method
Amyl cinnamal	122-40-7	% w/w	< 0.001	0,01	GC/MS
Benzyl alcohol	100-51-6		< 0.001		
Cinnamyl alcohol	104-54-1		< 0.001		
Citral	5392-40-5		< 0.001		
Eugenol	97-53-0		< 0.001		
Hydroxy-citronellal	107-75-5		< 0.001		
Isoeugenol	97-54-1		< 0.001		
Amylcinnamyl alcohol	101-85-9		< 0.001		
Benzyl salicylate	118-58-1		< 0.001		
Cinnamal	104-55-2		< 0.001		
Coumarin	91-64-5		< 0.001		
Geraniol	106-24-1		< 0.001		
Hydroxy-methylpentyl-cyclohexe-necarboxaldehyde	31906-04-4		< 0.001		
Anisyl alcohol	105-13-5		< 0.001		
Benzyl cinnamate	103-41-3		< 0.001		
Farnesol	4602-84-0		< 0.001		
2-(4-tert-Butylbenzyl)propion-al-dehyde	80-54-6		< 0.001		
Linalool	78-70-6		< 0.001		
Benzyl benzoate	120-51-4		< 0.001		
Citronellol	**106-22-9**		**0.004**		
Hexyl cinnam-aldehyde	101-86-0		< 0.001		
d-Limonene	**5989-27-5**		**0.003**		
Methyl heptin carbonate	111-12-6		< 0.001		
3-Methyl-4-(2,6,6-trimethyl-2-cy-clohexene-1-yl)-3-buten-2-one	127-51-5		< 0.001		
Treemoss extract	90028-67-4		< 0.001		

4 if the content is ≥ 0.01 % w/w the scent must be indicated on the contents list of cleaning products

14.2 Evaluation

There were no substances detected with a content of ≥ 0.01 % w/w.

* Test method not accredited

15 Cleaning performance with IKW hydrophobic test dirt according to QMA 2001.1475

The front screen of a VW Golf VI was prepared with a specific hydrophobic testdirt mixture according to “IKW recommendation for the quality evaluation of winter screen cleaners for the windscreen washer system“ from 2005.

The performance of the cleaner was assessed by counting the „cleaning cycles“ to remove residues of the dirt mixture to get a „free sight“ through the front screen and to wash the front screen totally clean.

A „cleaning cycle“ is defined as one turn of the wiper while the cleaner is added, followed by three further turns of the wiper alone. The test is performed three times (a to c) in a climate chamber in comparison to a standard product.

15.1 Test conditions:

Relative humidity: approx. 75 %
Temperature: approx. +2℃

15.2 Test results:

No. of sample	Cleaning Performance Number of cleaning cycles								Test method
	„free sight“				„clean“				
	a	b	c	∅	a	b	c	∅	
55255786-1 (1:2)	6	5	5	**5,3**	7	6	6	**6,3**	QMA 2001.1475
Reference (1:2)	6	6	6	**6,0**	7	7	7	**7,0**	

Set of criteria:

very good cleaning performance: ≤ 7 cycles
good cleaning performance: 8-9 cycles
sufficient cleaning performance: 10-11 cycles
inadequate cleaning performance: > 11 cycles

15.3 Evaluation

The tested sample showed a "very good cleaning performance" on hydrophobic test dirt mixture.

* Test method not accredited

16 Behaviour during the continuous application of salt test dirt

The glass screen inside of a special climate chamber is properly cleaned. The glass screen and the sample are afterwards conditioned to an ambient air temperature which is below -5 °C.
Salt test dirt according to “IKW recommendation for the quality evaluation of winter screen cleaners for the windscreen washer system“ from 2005 is applied subsequently and spread across the glass screen with a wiper.

Then the windscreen washer system with the temperate sample to be tested is exerted under a continuous salt test dirt spraying (drizzle rain simulation at minus temperatures). The behaviour of the sample on the windscreen is evaluated looking against a source of light.

The tests are conducted in comparison to a commercially available reference product.

16.1 Test conditions:

Temperature: approx. -10 °C

16.2 Test results:

No. of sample	Dilution	Observations
55255786-1	2:1	no noticeable problems, free sight
	1:1	no noticeable problems, free sight
Reference sample	2:1	no noticeable problems, free sight

16.3 Evaluation

Some winter screen cleaners lead to the formation of a white film on the windscreen at low temperatures and continuous salt test dirt spraying. Regarding safety concerns this may cause a decrease of visibility under winterly traffic conditions (continuous salt-containing drizzle rain at minus temperatures).

The application of the tested sample does not lead to the formation of a white film on the windscreen at temperatures of approx. -10 °C and contin uous salt test dirt spraying.

The application as winter screen cleaner **can be recommended** therefore.

* Test method not accredited

17 Stability against hard water (QMA 2001.1447)

Test method:

The sample is mixed with demineralised water and with synthetic hard water.

Composition of the synthetic hard water:

Sodium sulphate: 148 mg/L
Sodium chloride: 165 mg/L
Sodium hydrogencarbonate: 138 mg/L
Calcium chloride: 275 mg/L

The mixtures are tempered at +60 °C for 7 days. Aft erwards a visual examination of precipitates is carried out at +60 °C, at room temperature and at + 4 °C.

Test results:

17.1 Mixture with demineralised water

No. of sample	Mixture	Evaluation
55255786-1	100 mL sample + 100 mL demin. water	no precipitate
	50 mL sample + 100 mL demin. water	no precipitate

17.2 Mixture with synthetic hard water

No. of sample	Mixture	Evaluation
55255786-1	100 mL sample + 100 mL hard water	no precipitate
	50 mL sample + 100 mL hard water	no precipitate

17.3 Evaluation

The tested sample showed no noticeable problems.

* Test method not accredited

18 Evaluation of handling, labelling and consumer protection

No. of sample	Evaluation	
55255786-1	-Safety data sheet:	non existent
	-Address:	no retail package existent yet
	-labeling according to the ordinance on hazardous substances:	no retail package existent yet
	-package instructions:	no retail package existent yet
	-Recycling information:	no retail package existent yet
	-labelling:	no retail package existent yet
	-Childproofness:	**no / insufficient content of bittern**
	-Closeness:	no retail package existent yet

The evaluation of handling, labelling and consumer protection may only be carried out when the retail package is provided.

19 Final evaluation

Requirements for obtaining a DEKRA product label are **fulfilled** (except the still outstanding check of sales package and labelling, particularly with regard to bittern content / childproof closure).

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, 2017-03-06

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* Test method not accredited