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Date Dez 08, 2022

Test Report

Order No.:	**55276040**
Test Report No.:	**PB2231500**
	Version 2
Client:	Autoland J. Kisielewski & J. Moranski Sp.j. ul. Mickiewicza 28 43-250 PAWLOWICE POLAND
Date of order:	Aug 08, 2022
Sample received:	Aug 08, 2022
Number of samples:	1
Scope of investigation:	Testing of coolant according to DEKRA criteria
Testing period:	Aug 08, 2022 – Dez 08, 2022

Test result:

- see following pages -

1 Sample designation

No. of sample	Designation
55276040001	Dynagel 2000+

No. of sample	Picture of Sample
55276040001	

LQ: Limit of quantification LD: Limit of detection Glycerine: 2 µg/ml Propylenglycol: 0.4 µg/ml Metals: 0.1 mg/L OAT: < 10 mg/L Anions: 10 mg/L Glycol Degradation Products: 10 mg/L

2 Chemical Composition

No. of sample	Substance	Unit	Result	Requirement	Test method
55276040001	**Basic Composition**				
	Ethylenglycol (MEG)	%	39	-	GC-MS
	Propylenglycol (MPG)		< LQ	-	
	Glycerine		< LQ	-	
	Water content		45.9	-	ASTM D 1123-99: 2021-03
	Ash content		0.8	max 5	ASTM D 1119-05: 2016-12
	Organic-corrosions Inhibitors				
	Mercaptobenzthiazol	mg/L	< LQ	-	HPLC
	Benzothiazole		3094	-	
	Benzotriazole		< LQ	-	
	Tolyltriazole		2740	-	
	Toluic acid		< LQ	-	
	Adipic acid		< LQ	-	
	Sebacic acid		1470	-	
	2-ethylhexanoic acid		31	-	
	Benzoic acid		739	-	
	Isononanoic acid		15550	-	
	Octanoic acid		< LQ	-	
	Succinic acid		518	-	

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No. of sample	Substance	Unit	Result	Requirement	Test method
55276040001	**Anions**				
	Chloride	mg/L	< LQ	-	ASTM D 5827-09: 2016-12
	Fluoride		< LQ	-	
	Nitrate		< LQ	-	
	Nitrite		< LQ	-	
	Phosphate		< LQ	-	
	Sulfate		17	-	
	Glycol-Degradation Products				
	Formate	mg/L	< LQ	-	ASTM D 5827-09: 2016-12
	Acetate		< LQ	-	
	Glycolate		11	-	
	Oxalate		< LQ	-	
55276040001	**Element Overview**				
	Boron	mg/L	720	-	ASTM D 6130-11: 2018-03
	Barium		< LQ	-	
	Calcium		2	-	
	Cadmium		< LQ	-	
	Aluminium		< LQ	-	
	Chromium		< LQ	-	
	Copper		< LQ	-	
	Iron		2.1	-	
	Mercury		< LQ	-	
	Potassium		4000	-	
	Magnesium		< LQ	-	
	Sodium		160	-	
	Nickel		< LQ	-	
	Lead		< LQ	-	
	Antimony		< LQ	-	
	Molybdenum		2.1	-	
	Silicon		1.5	-	
	Vanadium		< LQ	-	
	Zinc		< LQ	-	
	Tin		1.5	-	
	Manganese		< LQ	-	

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3 Chemical-Physical Parameters

No. of sample	Parameter		Unit	Result	Requirement	Test method
55276040001	Flash point		°C	No flash point < 100	-	ASTM D7094 - 17a: 2018-02
	Boiling point			108	≥100	ASTM D 1120: 2022
	Freezing point	undiluted		-38.4	-	ASTM D1177-17: 2017-04
		1:1*		-12.6	-	
		1:2*		-7.0	-	
		1:1.5*		-9.3	-	
		2:1*		-18.9	-	
	pH		-	7.8	≥7.5	ASTM D1287-11: 2020-01
	Refractive index		-	1.3862	-	ASTM D3321-19: 2019-01
	Density		g/cm³	1.071	-	ASTM D5931-20: 2020-06
	Electrical conductivity		µS/cm	3050	-	ASTM D1125-14: 2016-12
	Reserve alkalinity		ml 0.1 M HCl	4.9	-	ASTM D1121-11: 2020-01
	Hard-water stability		-	No flocculation	No flocculation	ASTM D7437-08: 2019-10
	Miscibility with reference coolants (14 days, 90°C)		-	No turbidity or flocculation	No turbidity or flocculation	visual / DEKRA test procedure
	Foaming tendencies		ml s	5 <1	≤ 150 ≤ 5	ASTM D1881-17: 2017-12

* coolant : water

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4 Corrosion Behaviour

No. of sample	Substance	Unit	Result	Requirement	Test method
55276040001	Weight loss copper	mg/specimen	3.7	max. 10	ASTM D1384 - 05: 2019-10
	Weight loss solder		12.3	max. 30	
	Weight loss brass		3.7	max. 10	
	Weight loss steel		-0.7	max. 10	
	Weight loss Fe		-0.5	max. 10	
	Weight loss Al		12.8	max. 30	

* Positive values comply with a weight loss acc. ASTM D1384

5 Elastomer Compatibility

No. of sample	Substance	Unit	Result	Requirement	Test method
55276040001	Elastomer Compatibility	-	No swelling and/ or embrittlement	No swelling and/ or embrittlement	visually

6 Handling & Declaration

No. of sample	Substance	Result	Requirement
55276040001	Water hazard class	< 1	≤1
	Safety data sheet	Present and complete	Present and complete
	Address of the manufacturer	Present and complete	
	Telephone number of the manufacturer	Present	Present
	Labeling according to the Ordinance on Hazardous Substances	Present	
	H/P sets	Present and correct	Present and correct
	Application notes	Present and sufficient	Present and sufficient
	Recycling instructions	Present	Present
	Capacity / Volume	Present	
	Childproof closure	Present	
	Labeling	Product resistant	Product resistant
	Tightness of the original container	Tight	Tight
	Packaging stability	No deformation	No deformation

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Conclusion
The sample “Dynagel 2000+” fullfils all requirements to obtain a DEKRA seal.

Remarks:

The test results refer exclusively to the samples specified. The decision rule for the evaluation of conformity of test results can be found at
https://www.dekra.de/media/entscheidungsregel-bewertung-konformitaet-pruefergebnise-d-v2-pdf.pdf
https://www.dekra.de/media/entscheidungsregel-bewertung-konformitaet-pruefergebnise-gb-v2.pdf
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).

Declaration:
a = accredited test method, n = not accredited test method,
Pa = Analysis carried out by partner laboratory (accredited test method), Pn = Analysis carried out by partner laboratory (not accredited test method),
Ha = Analysis carried out by DEKRA lab Halle (accredited test method), Hn = Analysis carried out by DEKRA lab Halle (not accredited test method)
SBa = Analysis carried out by DEKRA lab Saarbrücken (accredited test method), SBn = Analysis carried out by DEKRA lab Saarbrücken (not accredited test method),
B = Analysis carried out by DEKRA lab Bretten

Stuttgart, Dez 08, 2022

DEKRA Automobil GmbH
Laboratory for Environmental and Product Analysis

Daniela Schlosser
Project Manager Automotive Fluids and Dangerous Goods

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