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Accr. No. 1132
Testing
ISO/IEC 17025

TEST REPORT

VTInr:18-061 A

Client	"DR ENERGY GROUP" LLC Mr Sergii Yezhov Dragomanova Street, 31-B 02068, Kyiv Ukraine
Commission	Laboratory analysis
Test material	Deicing agent
Date of arrival of sample	2018-09-10
Test period	2018-10-04 – 2018-12-20
Marking of sample	Runway Guard SF
Production site	Ukraine, Boryspil, Zavokzalnaya lane, 59 (1)

Test material

The test material consists of Runway Guard SF.

Analysis

Asphalt Concrete Degradation Resistance has been tested according to LFV Method 2-98 as specified in Appendix A (and in EN 12697-41:2013) and § 3.2.10.2 of the SAE Aerospace Material Specification AMS 1431 D, revised 6/2012.

Result

The adhesion value was 84 % * for specimens stored in a solution of the de-icer Runway Guard SF compared to dry reference specimens.

*The adhesion values for specimens stored in the liquid de-icer should at least be 50 % compared to dry reference specimens to meet the requirement of the specification AMS1431D.

Detailed information on the test results is given in Appendix 1

Test performed by

2019-01-04

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2019-01-04

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Appendix 1

Effect on asphalt concrete of the runway de-icing agent according to AMS1431D, Appendix A (LFV Method 2-98) for the liquid de-icing compound.

The test has been performed on dense asphalt concrete (ABT16) with a 16 mm maximum size of the aggregate The aggregate, a granite, came from the Skärlunda quarry, located outside Norrköping, Sweden. The asphalt concrete was made with bitumen 160/220 manufactured of crude oil from Venezuela. Binder content was 5,7 % by mass. The air voids content was 7±1 volume-%. The samples were stored in the de-icing solution for 70 days at 40 °C and the tensile tests were performed at 23°C.

Runway deicing sample Runway Guard SF

The unit for the surface tensile strength is MPa in the tables below.

Surface tensile strength , dry samples		Type of failure (adhesion between the epoxy resin and the asphalt concrete in %)		Mean value and standard deviation of surface tensile strengths (dry samples)	Density.dry samples. (g/cm³)		Mean value of density, dry samples (g/cm³)	Mean value of air voids, dry samples. (%)
0,807	0,769	95	100	0,80± 0,22	2,244	2,245	2,247	7,1
0,896	0,723	95	100		2,249	2,250		

Surface tensile strength , wet samples		Type of failure (adhesion between the epoxy resin and the asphalt concrete in %)		Mean value and standard deviation of surface tensile strengths (wet samples)	Density.wet samples. (g/cm³))		Mean value of density, wet samples (g/cm³)	Mean value of air voids, wet samples. . (%)
0,662	0,688	100	70	0,67 ± 0,22	2,245	2,244	2,246	7,2
0,616	0,705	75	95		2,247	2,249		

The expanded uncertainty is the product of the reproducibility standard deviation σ_R, and the coverage factor k = 2, which for a normal distribution corresponds to a coverage probability of approximately 95%. The reproducibility standard deviation determined in interlaboratory comparisons and are indirectly specified in the method 2 $\sigma_R = R / 2^{0.5}$

The quotient between the surface tensile strengths of the wet samples and dry samples is: **0,84.**