

TEST REPORT

VTI No.: 22-011-1-1**Client**

NORDIX CHEMICALS FACTORY d.o.o.

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CROATIA

Commission

Laboratory analysis

Test material

De-icing agent

Date of sample arrival

2022-04-01

Test period

2022 05-19 – 2022-06-09

Marking of sample

D-ICE KA

Date of Production: 01.03.2022

Batch Number: KA-22-21

Test material

The test material consists of D-ICE KA liquid runway de-icing agent.

Analysis

Effect on bitumen:

The effect of the liquid de-icing agent on bitumen has been tested according to the LFV Method I-98 (rev. 2000-04) with bitumen manufactured from crude oil from Venezuela. The tests were performed on the ready to use liquid solution. The pH and density at 20 °C of the solution were recorded. The test method was modified to consider that bitumen has a lower density than the de-icing solution, i.e., samples were placed in the solution so that bitumen could not escape from the sample cell due to the difference in density.

The softening point was measured according to EN 1427:2015 for:

- 160/200 bitumen after 24 hours of storage in the solution at 20°C*
- 50/70 bitumen after 24 hours of storage in the solution at 40°C*
- 50/70 bitumen after 1 week of storage in the solution at 20°C*
- 50/70 bitumen after 3 weeks of storage in the solution at 20°C*

The effect on bitumen was evaluated by comparing the softening point after storage in the solution with the softening point of bitumen not stored in the solution.

Result

Test results are presented on Page 2.

Report issued by

2022-06-20

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2022-06-21

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Result

Effect on bitumen:

Softening point results of bitumen samples after storage in the liquid de-icing agent D-ICE KA at indicated temperatures and given time intervals

Bitumen: 160/220		
<i>Storage time and temperature</i>	<i>Softening point</i>	<i>Change in softening point</i>
Original	40,0 °C	N/A
24 hours @ 20 °C	40,4 °C	+0,4 °C
Bitumen: 50/70		
<i>Storage time and temperature</i>	<i>Softening point</i>	<i>Change in softening point</i>
Original	50,2 °C	N/A
24 hours @ 40 °C	50,4 °C	+0,2 °C
1 week @ 20 °C	50,8 °C	+0,6 °C
3 weeks @ 20 °C	50,4 °C	+0,2 °C

The pH value of the liquid de-icing agent was 12 * and the density at 20 °C was 1,280 g/cm³.

* The reported pH value is for indicative purposes only, and the measurement uncertainty is undetermined.