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RAW Handel und Beratungs GmbH  
Mr. Wittstock  
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D-79232 March-Hugstetten

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Date 16/7/2009  
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**Test report no.:** 55170732-1/09

**Project no.:** 55170732

Ordering party: RAW Handel und Beratungs GmbH  
Mr. Wittstock  
Grünstr. 5

D-79232 March-Hugstetten

Date of order: 20/1/2009

Scope of examination: Absorbing power and fluid retention capacity of a fleece pad with chemicals, operating materials and fuels

Test sample: Cellulose fleece

Sample receipt: 21/1/2009

Sample name: R.A.W. NatureLine, Universal Binding Fleece, grey

**Test results:**

- see continuation sheet/sheets -

Accredited Analysis Laboratory DAP-PA-2887.99 in Stuttgart and Halle (Saale).

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Dr.-Ing. Bernd Steisslinger

## 1 Sample name

Sample number	Product name
55170732-1	R.A.W. NatureLine, Universal Binding Fleece, grey

## 2 Testing procedure

The investigations were carried out following the ISO standard 9073 and the European Standard prEN 15366\* (2005).

The quantity of binder needed represents the amount of binder in comparison with the medium that has to be absorbed.

The absorbing power describes the capacity of the binder to absorb a certain quantity of liquid, for example 820% absorbing power means: 1 kg of binder absorbs 8,2 kg of liquid.

The fluid retention capacity has to be examined because the mixture of binder and liquid can be exposed to pressure when it is recovered, temporarily stored and transported, also in a waste disposal site if necessary. The mixture of binder and liquid has therefore been treated by subjecting it to a pressure of up to 0,1 bar (approx. 1 m water column) and by carrying out a subsequent examination.

\* Translator's note: prEN 15366 = Winter and road service area maintenance equipment - Solid absorbents intended for road usage

## 3 Test execution

The fleece pad is put in the liquid for one hour and then hung in a closed container in order to drip off for three hours. The pad is squeezed by using a load of 2 kg afterwards. The weight of the pad employed, of the drained mixture of binder and liquid as well as of the mixture that was squeezed out is ascertained and the exceeding percentage of liquid, with respect to the weight of the binder, is evaluated.

**4 Absorbing power and fluid retention capacity with flammable and combustible liquids**

<b>Test solution</b>	<b>Absorbing power [%]</b>	<b>Fluid retention capacity [%]</b>
Ethanol (96%)	809	704
2-Butanone (methyl ethyl ketone)	346	335
Heptane	315	305
Tetrahydrofuran	334	290
Toluol	1040	825

**5 Absorbing power and fluid retention capacity with water-insoluble organic liquids**

<b>Test solution</b>	<b>Absorbing power [%]</b>	<b>Fluid retention capacity [%]</b>
Diesel fuel	1190	715
Palm oil	1015	995
Biodiesel	1345	795
Ethylacetate	1030	760

## 6 Absorbing power and fluid retention capacity with water-soluble organic liquids

<b>Test solution</b>	<b>Absorbing power [%]</b>	<b>Fluid retention capacity [%]</b>
Pentanol	1090	695
Brake fluid	1130	780
Dimethyl sulfoxide	1586	835
Triethanolamine	1550	1220

## 7 Absorbing power and fluid retention capacity with aqueous polar liquids

<b>Test solution</b>	<b>Absorbing power [%]</b>	<b>Fluid retention capacity [%]</b>
Diethyleneglycol	1720	1160
Magnesium chloride	1450	690
Methylcellulose	1760	875

## 8 Thermal and outgassing behaviour

During all tests, no significant increase of temperature (< 10°C) and no outgassing behaviour (gas release < 100 ml/kg x 24 h) were observed.

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**Advice:**

The test results apply only to the above mentioned test items. The issuance of a summary of the test report is subject to the written approval of the laboratory.

Stuttgart, 16<sup>th</sup> July 2009

DEKRA Umwelt GmbH  
Laboratory for Environmental and Product Analysis

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Dr. Roland Ackermann

TRANSLATION FROM THE ORIGINAL TEXT IN GERMAN LANGUAGE