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DEKRA Umwelt GmbH - Handwerkstr. 15 - D-70565 Stuttgart

RAW Handel und Beratungs GmbH
Mr. Wittstock
Grünstr. 5

D-79232 March-Hugstetten

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Test report no.: **79180-2/08**

Project no.: **55079180**

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

D-79232 March-Hugstetten

Date of order: 26/2/2008

Scope of examination: Absorbing power and fluid retention capacity of fleece pads with chemicals and fuels

Test sample: Polypropylene fleece

Sample receipt: 27/2/2008

Sample name: R.A.W. Polypropylene, Universal Binding Fleece, grey
R.A.W. Polypropylene, Oil-Only Binding Fleece, white

Test results:

- see continuation sheet/sheets -

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

1 Sample name

Sample number	Product name
79180-1	R.A.W. Polypropylene, Universal Binding Fleece, grey
79180-2	R.A.W. Polypropylene, Oil-Only Binding Fleece, white

2 Testing procedure

The investigations were carried out following the European Standard prEN 15366* (2005).
The quantity of oil 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 pads were put in the liquid for one hour and then hung in a closed container in order to drip off for three hours. The pads were squeezed by using a load of 2 kg afterwards. The weight of the pads employed, of the drained mixture of binder and liquid as well as of the mixture that was squeezed out was ascertained and the exceeding percentage of liquid, with respect to the weight of the binder, was evaluated.

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4 Absorbing power and fluid retention capacity with flammable and combustible liquids (grey fleece)

Test solution	Absorbing power [%]	Fluid retention capacity [%]
Ethanol	820	670
2-Butanone (methyl ethyl ketone*)	880	650

* 2-Butanone partly loosens the colour of the fleece

5 Absorbing power and fluid retention capacity with water-insoluble organic liquids (grey and white fleece)

Test solution	Absorbing power [%]	Fluid retention capacity [%]
Diesel fuel (white)	830	590
Diesel fuel (grey)	870	590
Biodiesel (white)	930	680
Biodiesel (grey)	940	690

6 Absorbing power and fluid retention capacity with water-mixable organic liquids (grey fleece)

Test solution	Absorbing power [%]	Fluid retention capacity [%]
Pentanol	850	690

7 Absorbing power and fluid retention capacity with aqueous polar liquids (grey fleece)

Test solution	Absorbing power [%]	Fluid retention capacity [%]
Diethylene glycol	880	680

8 Absorbing power and fluid retention capacity with acids (grey fleece)

Test solution	Absorbing power [%]	Fluid retention capacity [%]
Hydrochloric acid (7,2%)	1030	800
Hydrochloric acid (32%)	1050	800
Hydrofluoric acid (40%)*	1070	800

* A whitish cloudiness forms when absorbing hydrofluoric acid

9 Absorbing power and fluid retention capacity with lyes (grey fleece)

Test solution	Absorbing power [%]	Fluid retention capacity [%]
Caustic soda (33%)	640	560

10 Absorbing power and fluid retention capacity with oxidative liquids (grey fleece)

Test solution	Absorbing power [%]	Fluid retention capacity [%]
Hydrogen peroxide (30%)	1060	870

11 Absorbing power and fluid retention capacity with mineral oils of different viscosity classes (grey and white fleece)

Test solution	Absorbing power [%]	Fluid retention capacity [%]
IGAT 15W-40 grey	960	806
white	934	739
Shell Helix 10W-60 grey	993	850
white	877	731
Shell Helix 5W-30 grey	944	653
white	889	725
Shell Rimula 20W-20 grey	935	743
white	945	710

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, 16th 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