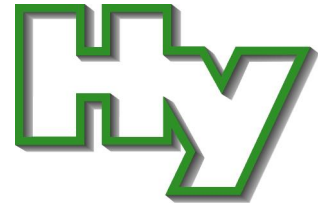


Hygiene-Institut des Ruhrgebiets

Institute for environmental hygiene and toxicology

Managing director: Prof. Dr.rer.nat. Lothar Dunemann

Carrier: Verein zur Bekämpfung der Volkskrankheiten im Ruhrkohlengebiet e.V.



HYGIENE-INSTITUTE · PO box 10 12 55 · 45812 Gelsenkirchen

Kalle GmbH
Rheingastr. 190 – 196
65203 Wiesbaden

Visitor/postal address
Rotthäuser Str. 21, 45879 Gelsenkirchen

Switchboard (0209) 9242-0
Direct line (0209) 9242-350
Telefax (0209) 9242-333
Email m.seifert@hyg.de
Internet www.hyg.de

Our re.: A-231635-13-MS_en
Contact: Dr. Mathias Seifert

Gelsenkirchen, 02.07.2013

Extension of the validity of the test certificates for the oil binding agent "FLUISORB®"
here: occupational medicine subsequent evaluation and environment-technical
subsequent inspection according to supplement of the oil binder directive from
16.06.1998

Your letter from 10.06.2013, Mr Hans-Jürgen Theis

Dear Sir or Madam,

in the above letter, you charged us with occupational medicine subsequent evaluation and
environmental technical inspection and assessment of the oil binder designated
"**FLUISORB®**" sold by you.

The evaluation to be performed here was performed based on the disclosure of the Federal
Minister for the environment, nature protection and reactor safety from 12 March 1990
(GMBI no. 18 p. 335) and the supplement of the above disclosure from 16.06.1998 (GMBI
no. 15 p. 312).

The results of our tests and assessments apply to the examined test objects and the statutory rules at the time of
testing. Publication or reproduction of this document in a shortened or changed form requires our express written
consent. Institute operator:



Deutsche
Akkreditierungsstelle
D-PL-13042-02-00

The latter legal provision states that in addition to the occupational medicine topics, the specialist bodies named in the Gemeinsames Ministerialblatt must review whether the marketed oil binding agents are suitable for use from an "environment-technical" point of view.

The "environment-technical" suitability test is performed according to the parameter specifications for the landfill classes I and II, which are listed in the Annex of the landfill regulation (DepV) from 27 April 2009 (BGBl I p. 900). Here, the assignment criteria for landfill class I of the regulation named must be met for oil binders of types I, II and IV, and those for landfill class II for oil binders of type III, with a pH value range between 4.0 and 11.0 being required deviatingly in both cases (requirements to oil binders. LTWS-no. 27, June 1999, Ann. 6).

1. Occupational Medicine Evaluation of the Oil Binder

The oil binder pending investigation is a granulate of cellulose and cotton that is soaked with magnesium chloride and is to be used to soak up oil. In a suspension of the material with a calcium chloride solution (according to LAGA), the oil binder reacts only very slightly acidically (pH value = 6.51) and thus is in a range that does not cause irritation at possible skin contact. Determination of the concentration of alveolar fine dust (< 63 µm) was dispensed with in the light of the organic material.

In the light of the extension of the occupational-medicine harmless certificate, it must be noted that the subsequent exams performed and the information available for use do not give any rise to concern about further use of the oil binder "FLUISORB®" to soak up oil.

2. *Environmental-Technical Evaluation*

As the analysis results recorded in the table of the enclosed Annex show in comparison to the limits of the DepV, the product submitted here, which was sent to us by the material testing office on 18 June 2013, meets the "environment-technical" requirements to oil binders of types I, II, III and IV. There are no concerns against use of the oil binder "FLUISORB®" as an oil binder of type III.

With kind regards,
The institute's director
i.A.

Dipl.-Ing. Michael Sauerwald
Head of the department
Sewage, soil and air hygiene

Dr. Mathias Seifert
Area manager
Product testing & mining hygiene

Annex

Ø Material test office Dortmund

Kalle GmbH
 Rheingastr. 190 – 196
 65203 Wiesbaden

Oil binder "FLUISORB®"

Processing period: 18.06. to 02.07.2013

a) *Substance analysis*
purs. to DIN ISO 10390

pH-value (1 + 1) = 6.51

b) *Eluate Analysis Pursuant to DIN 38 414 Part 4*

Parameter	Oil binder "FLUISORB"		Limits according to regulation	
			Type I, II and IV	Type III
pH-value			4 - 11	4 - 11
Org. carbon	C	mg/l	7.6	≤ 50
Phenols		mg/l	< 0.01	≤ 0.2
Arsenic	As	mg/l	< 0.001	≤ 0.2
Lead	Pb	mg/l	< 0.001	≤ 0.2
Cadmium	Cd	mg/l	< 0.0001	≤ 0.05
Copper	Cu	mg/l	0.011	≤ 1
Nickel	Ni	mg/l	< 0.001	≤ 0.2
Mercury	Hg	mg/l	< 0.0002	≤ 0.005
Zinc	Zn	mg/l	0.008	≤ 2
Fluoride	F ⁻	mg/l	< 0.05	≤ 5
Cyanide, lfr.	CN ⁻	mg/l	< 0.01	≤ 0.1
Evaporation residue		%	0.135	≤ 3
Barium	Ba	mg/l	0.010	≤ 5
Chrome	Cr tot.	mg/l	0.001	≤ 0.3
Molybdenum	Mo	mg/l	0.004	≤ 0.3
Antimony	Sb	mg/l	< 0.001	≤ 0.03
Selenium	Se	mg/l	< 0.001	≤ 0.03
Chloride	Cl ⁻	mg/l	713	≤ 1500
Sulphate	SO ₄	mg/l	37	≤ 2000
Electr. conductivity		µS/cm	2350	—