Building Material Test Centre – Rhineland

Chemical & Physical Test and Research Laboratory for construction and industrial clients.

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Test Report
Registration No:33-2002/01 CPH-4831.2

Applicant `	Leyco Chemische Leyde GmbH IndustrieStr. 155 50999 Koeln
Subject	Product: BETONAC - FIX
Date of Test	20.02.2001
Instruction	15.01.2001
Pages	5
Appendices	./.

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APPLICANT'S OBJECTIVE

On the 15.01.2001 we were asked in writing by the applicant

LEYCO CHEMISCHE LEYDE GmbH
IndustrieStrasse 155
50999 Köln

to carry out a Material Laboratory Test on a sample delivered to us on the constituents which damage concrete, and give a written result.

2. TEST : INTRODUCTION

The under mentioned Material Test was delivered personally on the 15/01/2001 to the Test Institute.
The test sample was in a litre container and was a turquoise colour without a particular odour.
The information delivered with the product in a technical data sheet defined it as a highly active cement and lime cleaner with the description

BETONAC - FIX

3. REMARKS : GENERAL

3.1 Remarks

According to the description of the applicant the product is described as a cleaner with a phosphoric acid base and special tenside agents, which is designed for use on concrete mixing equipment and ready mix concrete trucks. As a rule in concrete truck mixing plants the cleaning water is added to the recycling water, which is used for the concrete; an appraisal is required to evaluate that there is no harm done to the concrete viz. that

there is no retardation or hindrance to cure or that after neutralisation the cleaning material contains no corrosive elements.

3.2 General.

The basis for the examination of the constituents are given in information contained in the Concrete Test Report, Section "Testing of Aggressive elements to Concrete in Gauging Water" (s.a DIN 4030) by Iken, Lackner and Zimmer, as well as information in the report for Concrete-, Steel reinforced concrete and tensile reinforced concrete "Concrete, its development, production and properties" noted in table 2.5-1 by Prof. Dr. Ing. Weigler and Dr. Karl Verlag Ernst and Son, version 89.

4.LABORATORY TESTS : 4.1. Preparation of the sample:

The product was delivered as a concentrate and according to the instructions of the applicant was to be diluted at a ratio of 1:5 with de-ionised water by volume; it was diluted to the applicable concentration and the following properties investigated.

4.2 Determination of pH value
The determination of pH value was calculated by use of a temperature compensating single rod electrode measure with pH meter apparatus of WTW 91 type.

The measurement will be found in Table – l -, point 5

4.3 Determination by conductivity:

Determination by conductivity was calculated as described and diluted as in point 4.1 above with apparatus WTW LF 90 with an epoxy electrode Type KLE 1.

The measurement will be found in Table – l -, point 5

4.4 Determination of Chloride concentration

The determination of chloride concentration as described and diluted as in point 4.1 above , UV-photometric by means of mercury (Il)-thiocyanate and ferric (Ill)-nitrate, at 470nm.

Bibliography LOVIBOND, Chemical analysis method
Ch. 6. Tintometer GmbH

The measurement will be found in Table – l -, point 5

4.5 Determination of Sulphate concentration

The determination of sulphate concentration as described and diluted as in point 4.1 above, UV –photometric by means of opacity test through $BaCl^2$ (Barium chloride) at 445 nm.

Bibliography Regnet/Quentin
Nephelometric determination less the sulphate mass in drinking water publication: Water-Effluent research 14.No3

The measurement will be found in Table – l -, point 5

4.6 Determination of Nitrate concentration

The determination of Nitrate concentration as described and diluted as in point 4.1 above, UV –photometric by means of 2.6-Dimethylphenol in a sulphuric acid-phosphoric acid mixture at 345 nm.

Bibliography: Zimmerman, Photometric Metal and Water research (B-a2/1)

The measurement will be found in Table – l -, point 5

4.7 Research for sugar

The detection of sugar was carried out by means of a Naphtol and sulphuric acid dilution. The conclusion will be found in Table – l -, point 5.

4.8 Determination of Zinc concentration

Determination of zinc concentration was calculated as described and diluted as in point 4.1 above, UV –photometric with Zincon

Bibliography Fries/Getrost
Organic reagents for Schwarzenbach trace analysis.

4.9 Tests for Humic Material

Test for Humic material were not carried out, as the low level pH value and the data from the composition, no Humic material would be reckoned to be present.

5. MEASUREMENTS : EVALUATION

The results of tests on the material delivered by the applicant firm LEYCO CHEMISCHE LEYDE GmbH. described as a cleaning product with the name BETONAC-FIX for application on concrete mixing equipment and ready mix concrete trucks, is summarised in the following table.

Test No.	Research into	Measurement	Unit
1.	Colour	Turquoise	-
2.	Odour	Not specific	-
3.	Oil and Grease	None apparent	-
4.	pH value undiluted	1.15	MS/cm
5.	Conductivity 1 : 50	6.00	Mg/l
6.	Chloride	0.00	Mg/l
7.	Sulphate	0.00	Mg/l
8.	Nitrate	0.00	Mg/l
9.	Sugar	0.00	Mg/l
10.	Zinc	6.20	Mg/l
11.	Humic Material	Assumed not present	-

53229 **Bonn, 20/02/2001**

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