MPA HANNOVER

INSPECTION CERTIFICATE

ACC. TO EN 10 204:2004-10

Order No.: 20161155

Applicant: ZChem Specialities Pvt.Ltd.
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Industrial Suburb, Yeshwantpur
Bangalore-560 022

Date of Application: 19.07.2016

Content of the Application: Testing of single properties acc. to DIN EN ISO Standard 9934 Part 2 dated december 2015 of Test Objects for the Magnetic particle Testing.

Test Objects:	Dry detection Media ZChek F18	Batch: 18.08.2016
	Organic Carrier Liquid ZChek 801	Batch: 18.08.2016

Date of Reciept: 18.08.2016
Date of Testing: 26.09.2016
Supplied by / ~~Sampling by~~ *: Applicant
~~Data * of the test(s):~~

Scope of the test report: 6 pages incl. cover sheet

The test results will exclusively refer to the test objects.

This test report - not even as an extract or an abbreviated version – must not be published without the written consent of the Material-prüfanstalt.

* To be deleted if not applicable.

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Landesbetrieb gemäß
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Vorstand:
Prof. Dr.-Ing. Bernd-Arno Behrens · Sprecher
Dr.-Ing. Andreas Kinzel · Geschäftsführer

Subject:

The "Materialprüfanstalt" was asked by the applicant to test magnetic particle testing products.

Test Objects:

Dry detection Media: **ZChek F18**

Organic Carrier Liquid: **ZChek 801**

Test Method:

According to DIN EN ISO 9934 part 2, December 2015.

Reference Blocks:

Reference blocks 1 and 2 in acc. to DIN EN ISO 9934 part 2, annex B were used as test speciments.

The reference block 1 is a disk with two kinds of natural cracks. The coarse cracks are abrasive-cracks, the fine cracks are produced by grinding and stress corrosion. Because of a central conductor, the reference blocks is magnetizised in a remanently way and corresponds to the specifications of the DIN EN ISO 9934 part 2, annex B. The test block no 2, which is used for the investigation of the sensitiveness, is a self-holdig unit that does not need any external magnetization. This reference block contains two steel-blocks and two permanent magnets. The calibration is adjusted in a way, that the marker – 4 corresponds to a field strength of -100 A/m +/- 10 % and the marker + 4 corresponds to +100 A/m +/- 10 %.

4. Investigation Results:

Please refer to pages 4 to 6 for the investigation results of the individual properties.

Hannover, 26.09.2016

Project Manager

Dipl.-Ing. Klünder

Test Object: Organic Suspension , ready to use, Content of magnetic particles
1,25g/l ZChek F18 in Carrier Liquid ZChek 801:

Individual Property	**for***	**Determination acc. to the DIN EN ISO 9934-2, Section:**	**Requirement**	**Results**
Performance	QBP*	7.1	Performance on reference block 1 Determination of the length of the indications on ref.-block 2.	see page 6 **** cumulative length of both indications: 7,7 cm
Particle Size	QB	7.3	Analysis (Q) or comparsion with the type test (B) d ≥ 1,5µm and ≤ 40 µm	d_l(10 %)= 20,1 µm => 1,5 µm da = 30,7 µm d_u(90 %)= 44,6 µm =< 40µm Requirement to d_l not reasonable, see ***
Temperature Resistance	Q	7.4	testing on harm through warming (5min at max. temperature, specified by supplier)	no harm recognizable (**at 49°C**)
Foaming	QB	7.11	No significant foaming was allowed to occur	requirement met

* neccessary for type testing (Q), batch testing (B), in service testing (P)

*** Due to from investigations, suitable magnetic particle testing products showed that they may have particle sizes in a lower range. The demand d_l ≥ 1,5 µm as a boundary value can be underflowed. This is valid in particular for not fluorine magnetic particle testing products.

**** The comparsion of the indication lenghts with a reference checking facility, required in the DIN EN ISO 9934-2, is not possible at this time since such a reference checking facility is not defined. From that a database is built up in order to compare magnetic particle testing products which are commercially available. Since too few type testings were carried out up to now, no statistically protected evaluations are possible yet.

Test Object: Dry Detection Media **ZChek F18**

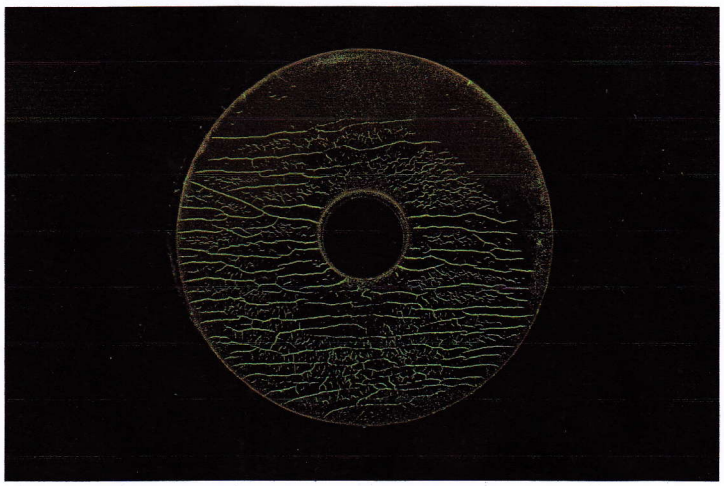
Individual Property	**for***	**Determination acc. to the DIN EN ISO 9934-2, Section:**	**Requirement**	**Results**
Fluorescent-coefficient	Q/B	7.5	β > 1,5 cd/W	ß= 1,8cd/W
Fluorescent-stability	Q	7.5.1.3	In case of type testing max. decrease 5%	requirement met

Test Object: Organic Carrier Liquid **ZChek 801**

Individual Property	**for***	**Determination acc. to the DIN EN ISO 9934-2, Section:**	**Requirement**	**Results**
Flash Point	QB	7.7	no specifications	97°C
Fluorescence of the carrier liquid	QB	7.6	comparsion with reference (Quinine sulphate solution)	requirement met
Viscosity	QB	7.9 / ISO 3104	at 20°C < 5 m Pa • s	requirement met
Content of sulphur and halogenes**	Q reaso-nable B	7.15	- Sulphur Content $<200 \times 10^{-6}$ - Sum of halogene content (Cl/F) $<200 \times 10^{-6}$ (corresponds 0,02 % by weight each)	S: 0,003 % by weight Cl: 0,004 % by weight F: 0,004 % by weight requirements met

* neccessary for type testing (Q), batch testing (B), in service testing (P)
** for detection media, that are caracterized with „Low sulphur and halogen content"

Picture 1: Original (Enlarged illustration)



Picture 2: 49°C (Enlarged illustration)