

CHEMICALS AND TECHNOLOGIES FOR POLYMERS



CeTePox[®] for your Epoxy Systems
As individual as you are.

Powerful low emission primer

CeTePox[®] 140 S

CTP CHEMICALS AND TECHNOLOGIES FOR POLYMERS GMBH | Stahlstraße 60 | D-65428 Rüsselsheim
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CeTePox[®] 140 S

- No – VOC.
Qualified for Green Building.
- Compliant with AgBB and EMICODE approved.
Fit for Europe.
- Utilization of test report possible.
- Excellent wetting of difficult substrates
(e.g. tiles).
Safe for various applications.
- High T_g (70°C).
Robust construction feasible.



Preliminary Technical Information

CeTePox 140 S

Characteristics	solvent-free two-pack epoxy system free from alkyl phenols and benzyl alcohol			
Properties and Fields of Application	The epoxy system CeTePox 140 S is preferably used as solvent-free two-pack epoxy binder for low-emission primers for floor coverings, like parquets or carpets. Characteristical features are low viscosity, good reactivity and excellent adhesion properties. EMI CODE compliant according to GEV-rules.			
	<i>Property</i>	<i>Value</i>	<i>Unit</i>	<i>Method of Determination</i>
Specification Comp. A	Viscosity at 23 °C	980 ± 150	mPas	ISO 3219
	Refractive Index	1,557 ± 0,001		DIN 51 423-2
	Density at 23 °C	1,13 ± 0,01	g/cm ³	ISO 2811-2
	Gardner Colour Index	< 2		Gardner, ISO 4630-2
	Epoxy Equiv. Weight	188 ± 10	g/eq.	CTP-TS 33/34-00
Specification Comp. B	Viscosity at 23 °C	90 ± 10	mPas	ISO 3219
	Density at 23 °C	0,99 ± 0,01	g/cm ³	ISO 2811-2
	Amine Index	435 ± 25	mgKOH/g	CTP-TS 31-97
	Gardner Colour Index	< 5		Gardner, ISO 4630-2
System Properties	Mixing Ratio	100/40	pbw	resin/hardener
	Initial Viscosity at 25 °C	ca. 499	mPas	ISO 3219
	Pot-life	21 ± 4	min	fr. 23 -> 40 °C w. 100 ml
	min. Curing Temp.	8	°C	
	Shore D a. 7 d r.t.	87		ISO 868
Storage	At ambient temperature the shelf life of both components is at least 12 months in original packed units.			
Remarks with Regard to Occupational Safety	When working with epoxy resins and hardeners usual precautionary measures for the handling of chemicals as well as applicable legal regulations concerning occupational and environmental safety have to be observed. Especially appropriate skin protection and correct choice of protective gloves have to be considered. Detailed information on dangers, labelling, occupational and environmental protection can be taken from the Safety Data Sheet. A collection of web-links on the safe handling of epoxy binders can be found on our website www.ctpgmbh.de			

The indications given in this technical information are based on thoroughly executed tests and are to give reference to the user. However, they are non-binding as we cannot take over any responsibility, also related to possible protective rights of third parties, due to the variety of treatment and application.

TI 140 S / E 01-10 / V01db-T10 01-2010

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Attestation

On 05.01.2010, Eurofins Product Testing A/S received a sample of a primer named

CeTePox 140 S Comp. A
CeTePox 140 S Comp. B
CTP GmbH

The emission of organic compounds from the sample was measured in accordance with the test method as defined by GEV in its current version by March 3rd, 2009. (See report No. G00662D)

Emissions testing of the sample gave the result:

All carcinogens were below the individual limit values

TVOC Emissions after 10 days below 100 µg/m³

This certificate does not entitle to use the protected trademark label EMICODE. For the use of an EMICODE label a license has to be applied for at the GEV, Düsseldorf, Germany.
A license can only be granted for ready-to use products, if some additional requirements on contents of certain chemicals (e.g. solvent-free) are fulfilled.

17.09.2010

Thomas Neuhaus
Head of product emission test centre

Martin Møller Pedersen
Pharmacist (cand.pharm.)

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Report No. G00662D

Test Report

CTP GmbH

Product Emissions in
accordance with GEV
of the Primer
CeTePox 140 S Comp. A,
CeTePox 140 S Comp. B

September 2010

Client: CTP GmbH
Stahlstraße 60
D 65428 Rüsselheim
Deutschland

Date: 17.09.2010

Testing Laboratory: Eurofins Product Testing A/S
Smedeskovvej 38, DK-8464 Galten, Denmark

Thomas Neuhaus
Head of product emission test centre

Martin Møller Pedersen
Pharmacist (cand.pharm.)

The results are only valid for the tested sample(s).
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G00662D_CTP_EC_REPORT_PRIMER.DOC, Date of Printing: 17.09.10

Page 1 of 6



Report No. G00662D

Table of Contents

1	Description of the Applied Testing Method	3
1.1	Test Specimen	3
1.2	Test Chamber	3
1.3	Testing Procedure	3
2	Results	5
2.1	Emissions of Carcinogens after 1 Day	5
2.2	Emissions of VOC after 10 Days	5
3	Comments on the Implications of the Results	6
4	Interpretation of the Results	6

Introduction

On 05.01.2010 Eurofins Product Testing A/S received a sample of a 2-component primer named

CeTePox 140 S Comp. A, CeTePox 140 S Comp. B

Epoxidharz, lösemittelfrei (A), Epoxidhärter, lösemittelfrei (B)

Batch: L09006051 (A), L0912049 (B), Date of production: 24.06.2009 (A), 22.12.2009 (B)

for emissions testing in accordance with the GEV method. The sample was clearly labelled, properly packaged and not damaged. Testing was carried out in the laboratories of Eurofins Product Testing A/S. Before starting the testing procedure on 18.01.2010 the sample had been stored unopened at room temperature.



Report No. G00662D

1 Description of the Applied Testing Method

The applied method complies with the test method as defined by GEV in its current version by 3 March 2009. Any necessary deviations are pointed out in this report. The test method is based on the published methods: ISO 16000-3, ISO 16000-6, 16000-9, 16000-11, ISO 16017-1. The internal method numbers are: 9810, 9811, 9812, 2802, 2803, 8400.

1.1 Test Specimen

The 2 components were mixed in proportion 100:40 (A:B). A part of the sample was spread with 100 g/m² ($\pm 5\%$) onto petri discs with planar bottom. That test specimen was transferred into a test chamber immediately (internal method no.: 9810).

1.2 Test Chamber

The test chamber was consisting of stainless steel and had a volume of 119 litres. The air clean-up was realized in multiple steps. Before loading the chamber a blank check of the empty chamber was performed. The operation parameters were 23 °C, 50 % relative air humidity (in the supply air) with an air exchange rate of ½ per hour. The loading of the test chamber was 0.4 m² test specimen per m³ air volume (internal method 9811).

1.3 Testing Procedure

1.3.1 Testing for Carcinogens after 1 Day

The presence of the following chemical compounds was checked:

Analytical group 1: acrylamide, acrylonitrile, benzene, 1,4-dioxane and vinylacetate

Air sampling from the chamber outlet air onto Chromosorb 106 for group 1 compounds after 1 day, followed by thermal desorption, gas chromatography and mass spectroscopy (internal method no. 9812/2803). The uncertainty amounted to $\pm 20\%$ (RSD). The expanded uncertainty is equal to 2 x RSD%.

The absence of group 1 compounds was stated if the specific combination of fragment ions was lacking at the specific retention time in the chromatogram. Otherwise it was checked whether the claimed detection limit was exceeded. In this case the identity was finally checked by comparing full scan sample mass spectra with full scan standard mass spectra.

Analytical group 2: formaldehyde and acetaldehyde

Air sampling from the chamber outlet air onto DNPH-coated silicagel tubes for group 2 compounds after 1 day, followed by solvent desorption, HPLC and UV-/diode array detection (internal method no. 9812/8400). The uncertainty amounted to $\pm 20\%$ (RSD). The expanded uncertainty is equal to 2 x RSD%.

The absence of group 2 compounds was stated if the specific wavelength UV detector response was lacking at the specific retention time in the chromatogram. Otherwise it was checked whether the claimed detection limit was exceeded. In this case the identity was finally checked by comparing full scan sample UV spectra with full scan standard UV spectra.

The results are only valid for the tested sample(s).
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Page 3 of 6



Report No. G00662D

1.3.2 Emissions Testing after 10 Days

The emission of organic compounds was checked after 10 days storage under controlled conditions. Air sampling from the chamber outlet air onto Tenax TA after 10 days, followed by thermal desorption, gas chromatography and mass spectroscopy (internal method no. 9812/2802). The uncertainty amounted to $\pm 20\%$ (RSD). The expanded uncertainty is equal to $2 \times$ RSD%.

Identification and specific quantification of the 10 dominating compounds - but only if an air concentration of $20 \mu\text{g}/\text{m}^3$ in the test chamber was exceeded (when calculated as the toluene equivalent in the Total Ions Chromatogram "TIC"). The specific quantification is calculated from the TIC data, or in the case of non-separated chromatographic signals from fragment ions.

All other compounds giving air concentrations above $2 \mu\text{g}/\text{m}^3$ in the test chamber, and those not unambiguously identified, were calibrated and quantified as toluene equivalent. The Total Very Volatile, Volatile, and Semi-Volatile Organic Compounds (TVVOC, TVOC, and TSVOC) were calculated as toluene equivalent as given in ISO 16000-6. The grand total TVOC_{GEV} was calculated as the sum TVVOC, TVOC, and TSVOC.

The sum of the single substances may differ from the TVOC, if the single substances are specifically calibrated, while the TVOC is calculated as toluene equivalent.

1.3.3 Deviations from the Standard GEV Test Method

No deviations.

1.3.4 Accreditation

The testing methods described above have been accredited (EN ISO/IEC 17025:2005) by DANAK (no. 168). But some parameters are not yet covered by that accreditation. At present the accreditation does not cover the parameters marked with a note *. But the analysis was done for these parameters at the same level of quality as for the accredited parameters.



Report No. G00662D

2 Results

2.1 Emissions of Carcinogens after 1 Day

CeTePox 140 S Comp. A, CeTePox 140 S Comp. B	Air concentration in the test chamber, $\mu\text{g}/\text{m}^3$	Limit value, $\mu\text{g}/\text{m}^3$
<u>Analytical group 1:</u>		
acrylamide *	< 1	< 10
acrylonitrile *	< 1	< 10
benzene	< 1	< 2
1,4-dioxane *	< 1	< 50
Vinylacetate *	< 1	< 50
<u>Analytical group 2:</u>		
Formaldehyde	< 2	< 50
Acetaldehyde	< 2	< 50

< less than
* not a part of our accreditation. See 1.3.4.

2.2 Emissions of VOC after 10 Days

CeTePox 140 S Comp. A, CeTePox 140 S Comp. B	CAS #	Retention time min	ID Cat.	after 10 days $\mu\text{g}/\text{m}^3$	Emission rate $\mu\text{g}/(\text{m}^2\text{h})$	Toluene equivalent $\mu\text{g}/\text{m}^3$
Total (TVOC_{GEV})				< 20	< 25	< 20
TVOC _{ISO 16000-6}				< 20	< 25	< 20
TVOC _{ISO 16000-6}				< 20	< 25	< 20
TSVOC _{ISO 16000-6}				< 20	< 25	< 20
The 10 dominating compounds:						
No. 1 -10: not applicable	-	-	5	< 20	< 25	< 20

< less than
* not a part of our accreditation. See 1.3.4.

Categories of identity:

- 1 = definitely identified, specifically calibrated
- 2 = identified by comparison with a mass spectrum obtained from a library, identity supported by other information, calibrated as toluene equivalent
- 3 = identified by comparison with a mass spectrum obtained from a library, calibrated as toluene equivalent
- 4 = not identified, calibrated as toluene equivalent
- 5 = no identification due to low concentration

The results are only valid for the tested sample(s).
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Page 5 of 6



Report No. G00662D

3 Comments on the Implications of the Results

Air concentration in the test chamber may be compared to a real-life room if

- the height of the room is 2.5 metres,
- all of the floor is covered with primer in test,
- ½ air exchange per hour is realised (typical for rooms without technical ventilation, windows and doors occasionally opened)

But the preparation of the test specimen does not reflect reality where a floor covering and some other influences will delay the emissions. Nevertheless the testing was done as described above in order to exclude any influence from ground and covering thus testing the material only. The testing for the exclusion of carcinogens was carried out shortly after sample preparation, as they shall not be present in indoor air at any time. Emissions testing after 10 days may describe long-term effects. The exposition of a workman during and short time after laying a floor is not monitored by these tests.

The sum of the single substances may differ from the TVOC, if the single substances are specifically calibrated, while the TVOC is calculated as toluene equivalent.

4 Interpretation of the Results

Emissions testing of the sample named **CeTePox 140 S Comp. A, CeTePox 140 S Comp. B** leads to the following conclusions:

All carcinogens were below the individual limit values

TVOC Emissions after 10 days below 100 µg/m³

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The deviation of the GEV standard test method (relative standard deviation of the total procedure: circa ± 20 %) should be considered when rating the results.