

Translation

HY, Gelsenkirchen

Hygiene Institute of the Ruhrgebiet in Gelsenkirchen
(Hygiene-Institut des Ruhrgebiets zu Gelsenkirchen)

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Ref.: Dir.Tgb-Nr.: C517/94/be
Scientific official in charge: Mrs. Reinhardt-Benitez

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Hygiene Institute of the Ruhrgebiet, Gelsenkirchen
Institute for Environmental Hygiene and Environmental Medicine

TEST CERTIFICATE

according to recommendations of the working group
"drinking water concerns" of the synthetic material commission
of the German Federal Office of Health
(Bundesgesundheitsamt or BGA)

for Messrs.

Leyde Chemicals Deutschland GmbH
Industriestraße 155
D-50999 Köln

Test material: epoxy resin coating Leyco-Pox 124

Receipt: on 22.01.1989 relating to letter of 27.01.1989

Test piece: test sheets coated overall
with the following dimensions:
200 mm x 200 mm x 1 mm and
100 mm x 100 mm x 1 mm

Area of use: Coatings in the drinking water systems
- Cold-water test

Composition: The basic materials correspond to the XL and LH
Recommendations of the Plastics Commission of the German
Federal Office of Health.

*The Test Certificate comprises three pages.
(The translation comprises four pages.)*

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Water characteristics of epoxy resin coating Leyco-Pox 124

Test Conditions:

Migration test:	3200 cm ² surface in 3540 ml test water (deionised, unchlorinated)
Chlorine consumption:	200 cm ² surface in 3800 ml test water (deionised, chlorinated 0,7 mg CL ₂ /l)
Pretreatment	24 hours pre-watering and 2 hours rinsing
Contact periods:	3 periods of 72 hours for each trial consecutively

		Test water			Changes compared with reference water sample
		1st-3rd day	4-6th day	7-9th day	7-9th day
Colour	colourless	colourless	colourless	colourless	none
Appearance of dimness	clear	clear	clear	clear	none
Odour	without	without	without	without	none
Odour threshold value (20° C)	1	1	1	1	none
Tendency towards foam formation	none	none	none	none	none
Material surface values $M = \text{mg/m}^2 \times \text{day}$					Recommended limits for containers $M = \text{mg/m}^2 \times \text{day}$
Organically bound carbon (TOC)	<1	<1	<		10
Chlorine consumption (free chlorine)	12	10	9,3		8 + 20% measurement and testing tolerances
Phenols	<0,05	<0,05	<0,05		1
Primary aromatic amines	<0,0005	<0,0005	<0,0005		0,02

Comment:
(Evaluation)

The Leyco-Pox 124 coating was tested according to methods published by the working group "drinking water concerns" of the Plastics Commission of the BGA ("health assessment of plastics and other non-metallic materials in connection with drinking water as defined in the "Food and Consumer Articles Law" (**Lebensmittel- und Bedarfsgegenstände-Gesetz** or LMBG), Federal Health Paper No. 20 published 1977, page 124 ff.)

No influence on the apparent quality of the test waters, such as colour, transparency, odour or tendency towards foam formation caused by contact with the test material could be measured.

The emission of organic-chemical compounds, totalled together as the summation parameter "organically bound carbon" (TOC), is below the detection limit of $M = 1,0 \text{ mg/m}^2 \times \text{day}$ (recommended limit for containers: $M = 10 \text{ mg/m}^2 \times \text{day}$). The amount of chlorine reacted declines with time; the material surface value attains at the third test stage which is decisive for the assessment, a value of $M = 9,3 \text{ mg/m}^2$ free chlorine (recommended limit for containers: $M = 0,8 \text{ mg/m}^2 \times \text{day}$, plus 20% measurement and test tolerances). Phenols and primary aromatic amines are not emitted.

Based on the test results Leyco-Pox 124 fulfils the requirements for containers and equipment for the drinking water sector specified in the "**Kunststoff-Trinkwasser-Empfehlungen**" (known as the KTW recommendations ("Recommendations concerning plastics in contact with drinking water")).

For the validity of the Test Certificate it is necessary for the test material and product to have the same composition and processing.

It is not allowed to publish this Test Certificate without prior written consent of the Hygiene Institute in a shortened version or with any additions.

This Test Certificate may not be published other than in full or without addition without the written agreement of the Hygiene Institute.

The Director of the Institute

Scientific officer:

i.A. (Dr. Schössner)
- Manager dept. waterchemistry -

(S. Reinhardt-Benitez)
- Graduate Chemical Engineer -