General Properties

Chemical Structure	Cu-phthalocyanine beta
Colour Index Part I	P.B. 15:3
Colour Index Part II	74160
CAS Number	147-14-8
Physical Form	Powder
Colour Shade	Blue

Preparations

Eupolen® Blue 70-8001
Lufilen™ Blue 70-8105 C 4
Luprofil™ Blue 70-8105 C 4
Palamid™ Blue 70-8105

(Other) preparations can be made on special request.

Colouristical Properties Org.

Hue Grade in PVC 1/3 SD	240
Chroma in PVC 1/3 SD	48
Red. Ratio in PVC 1/3 SD	10.9
Hue Grade in PVC 1/9 SD	233
Chroma in PVC 1/9 SD	41.5
Red. Ratio in PVC 1/9 SD	36.5
Hue Grade in PE-LD 1/3 SD	241
Chroma in PE-LD 1/3 SD	46.8
Red. Ratio PE-LD 1/3 SD	9.2
Hue Grade in PE-LD 1/9 SD	233
Chroma in PE-LD 1/9 SD	40.4
Red. Ratio in PE-LD 1/9 SD	30.9
Ease of Dispersion	<10

Physical Properties

Density	1.6	g/cm³
Bulk Density	0.2	g/cm³
Index of pH	5-8	
Conductivity	200	µS/cm
Specific Surface	65	m²/g

Fastness properties

Heat stability	280	°C
Light fastness	8	
Weather fastness		
Migration fastness	5	

Infl. on warping of PE-HD	Distinct

Fastness to chemicals:

HCl conc.	Instable	
HCl 10%	>6	Months
H2SO4 conc.	>6	Months
H2SO4 10%	>6	Months
HNO3 conc.	Instable	
HNO3 10%	>6	Months
NaOH conc.	>6	Months
Na2CO3 sat.	>6	Months

Criteria for the fastness to chemicals was a possible colour change of the coloured plastic material during the storage in the test medium.

Recommendations for applications

PVC-p	Suitable
PVC-u	Suitable
PUR	Suitable
LD-PE	Suitable
HD-PE	Suitable
PP	Suitable
PS	Suitable
SB	Suitable
SAN	Suitable
ABS/ASA	UCC
PMMA	Suitable
PC	UCC
PA	Suitable
PETP	Suitable
CA/CAB	Suitable
UP	Suitable

UCC: Under certain conditions

Recommendations for food applications

BgVV	Suitable
FDA	Suitable
France	Suitable

UCC: Under certain conditions

Product Specification - HELIOGEN® BLUE K 7090

PROPERTIES

Pigment type:	Cu phthalocyanine beta
Colour Index:	Pigment Blue 15:3
Application:	Colourant for plastics
Physical form:	Powder
Storage:	practically unlimited shelf life
Food packaging:	approved according to "Empfehlung IX des BgVV".

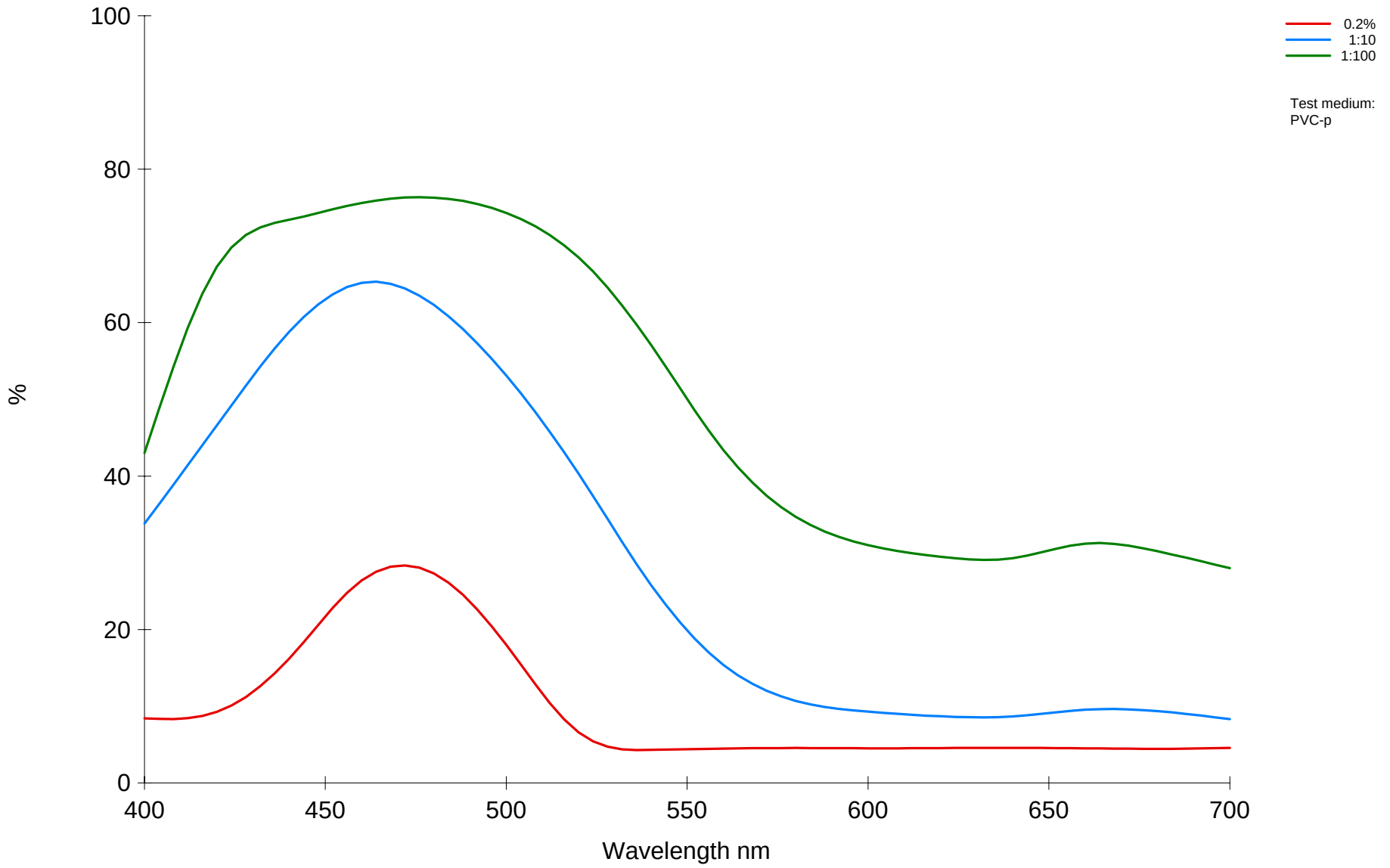
SPECIFICATION

Colour tolerances:	dH* ± 0.7; dC* ± 0.7; dL* ± 0.7; dE* <= 1.0; da* ± 0.7; db* ± 0.7
Strength equivalence:	100 ± 5%
Test method:	BASF test method 11.3.1

Please note:
The above data will be warranted by us. These data, however, as well as the properties of any product samples do not imply any legally binding assurance of certain properties or of suitability for a specific purpose so that any liability for damages cannot be derived therefrom.

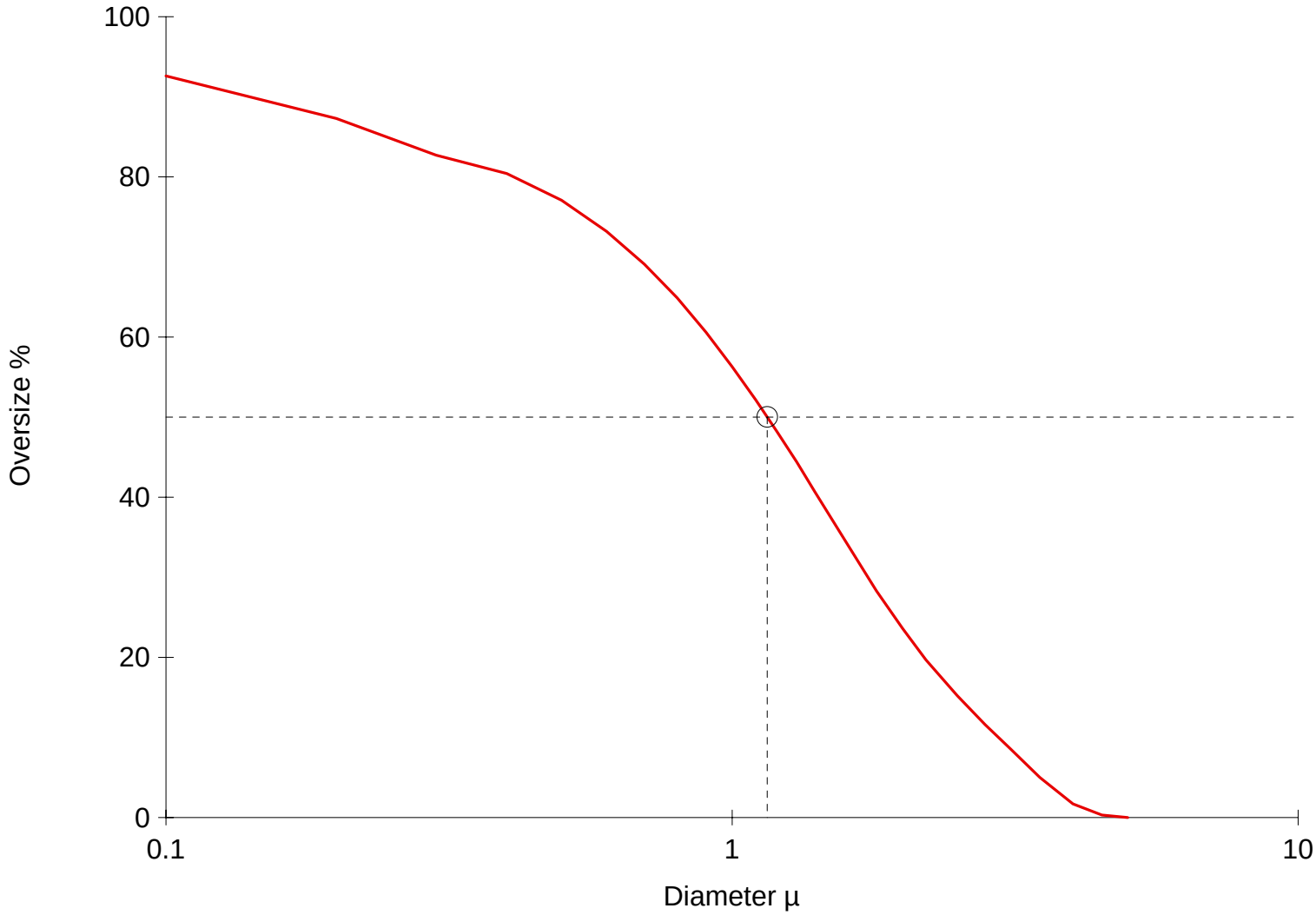
Microscopy - HELIOGEN® BLUE K 7090

Reflection Curve
HELIOGEN® BLUE K 7090



Note: The program stores curve points (see table). The diagram shows approximations.

Particle Size Distribution
HELIOGEN® BLUE K 7090

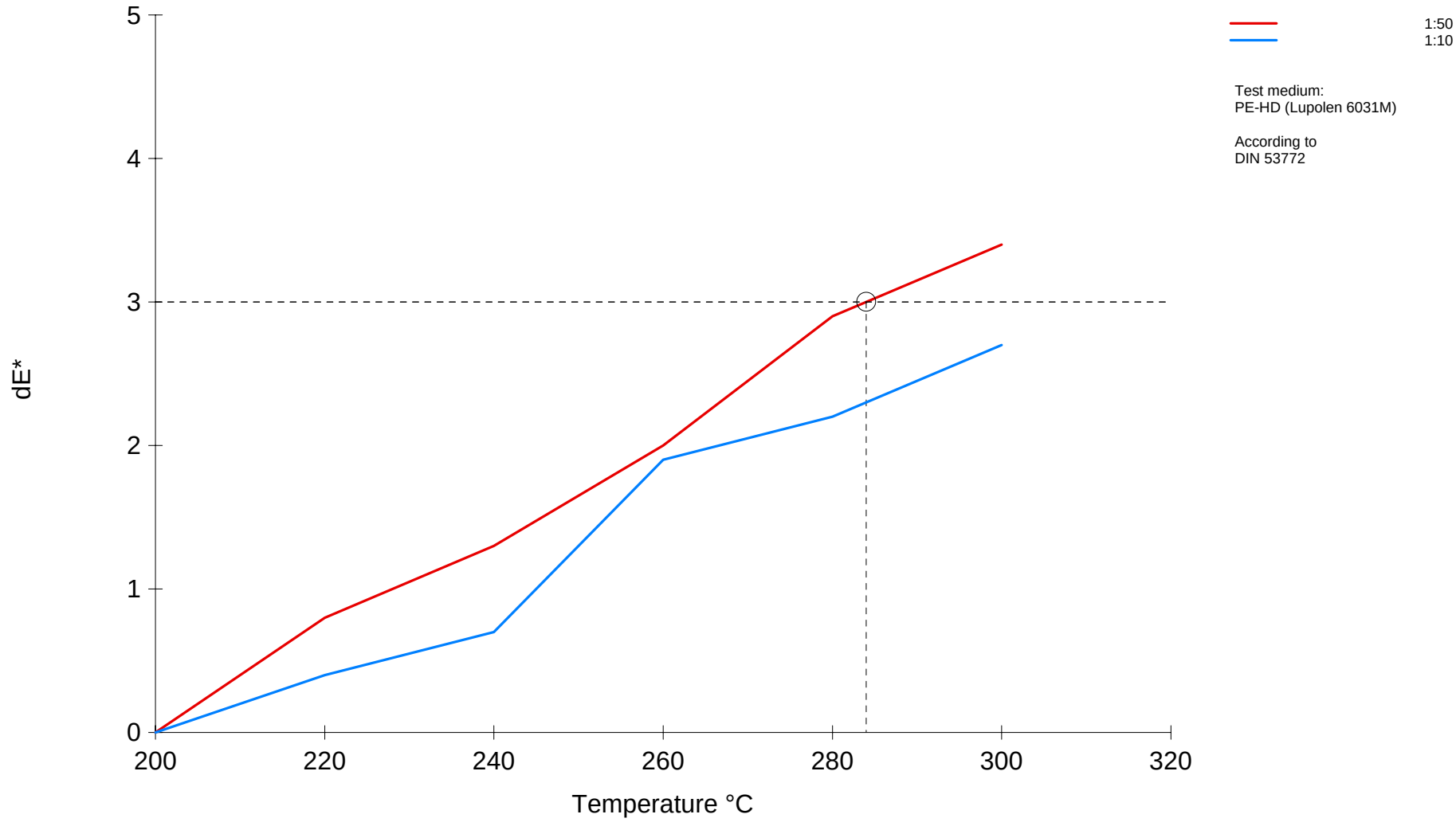


Susp. Fluid: H2O
Disp. Agent: Tetronic
Mixer Time: 60 s
Median Size: 1.16 u

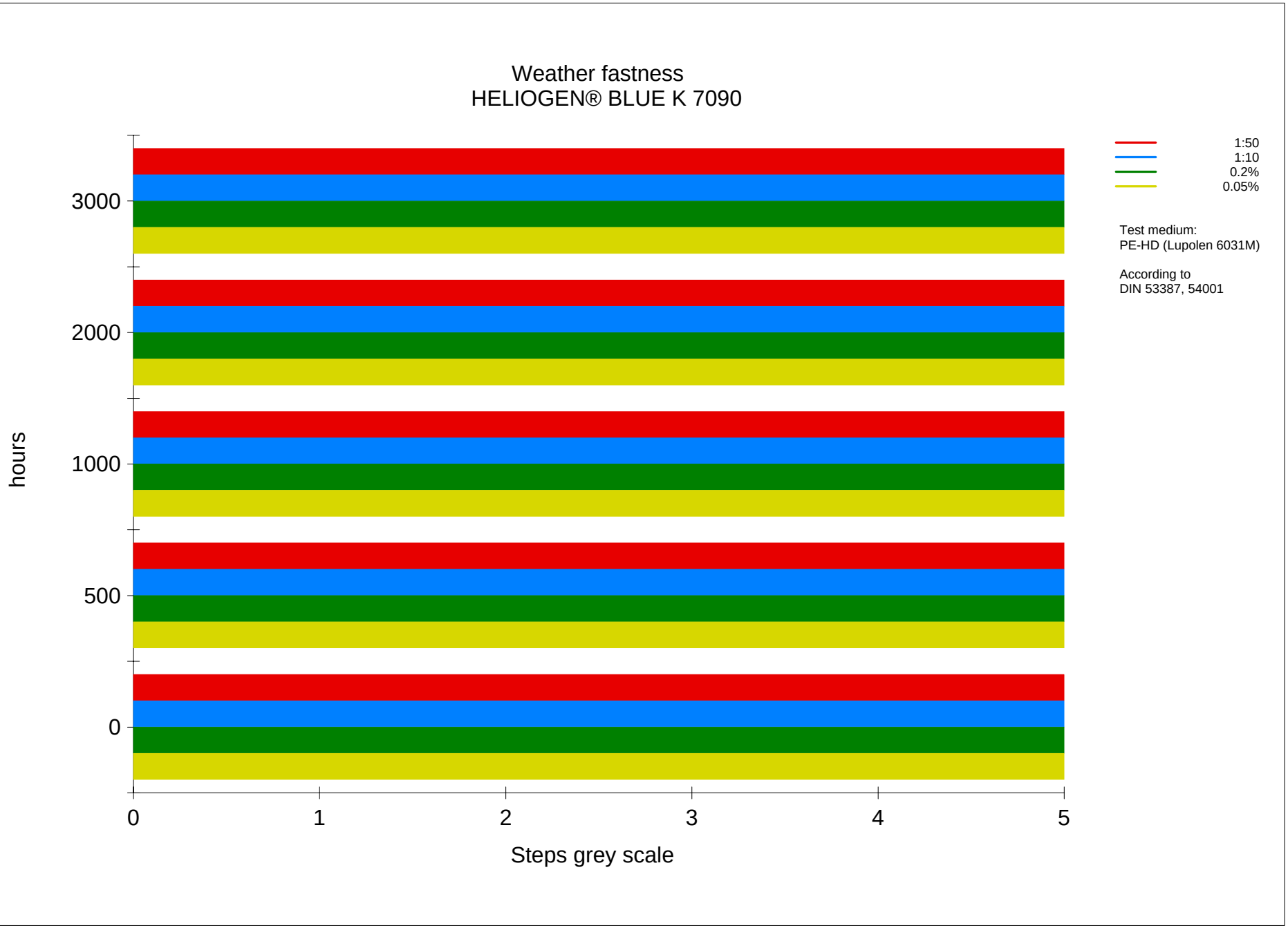
CILAS

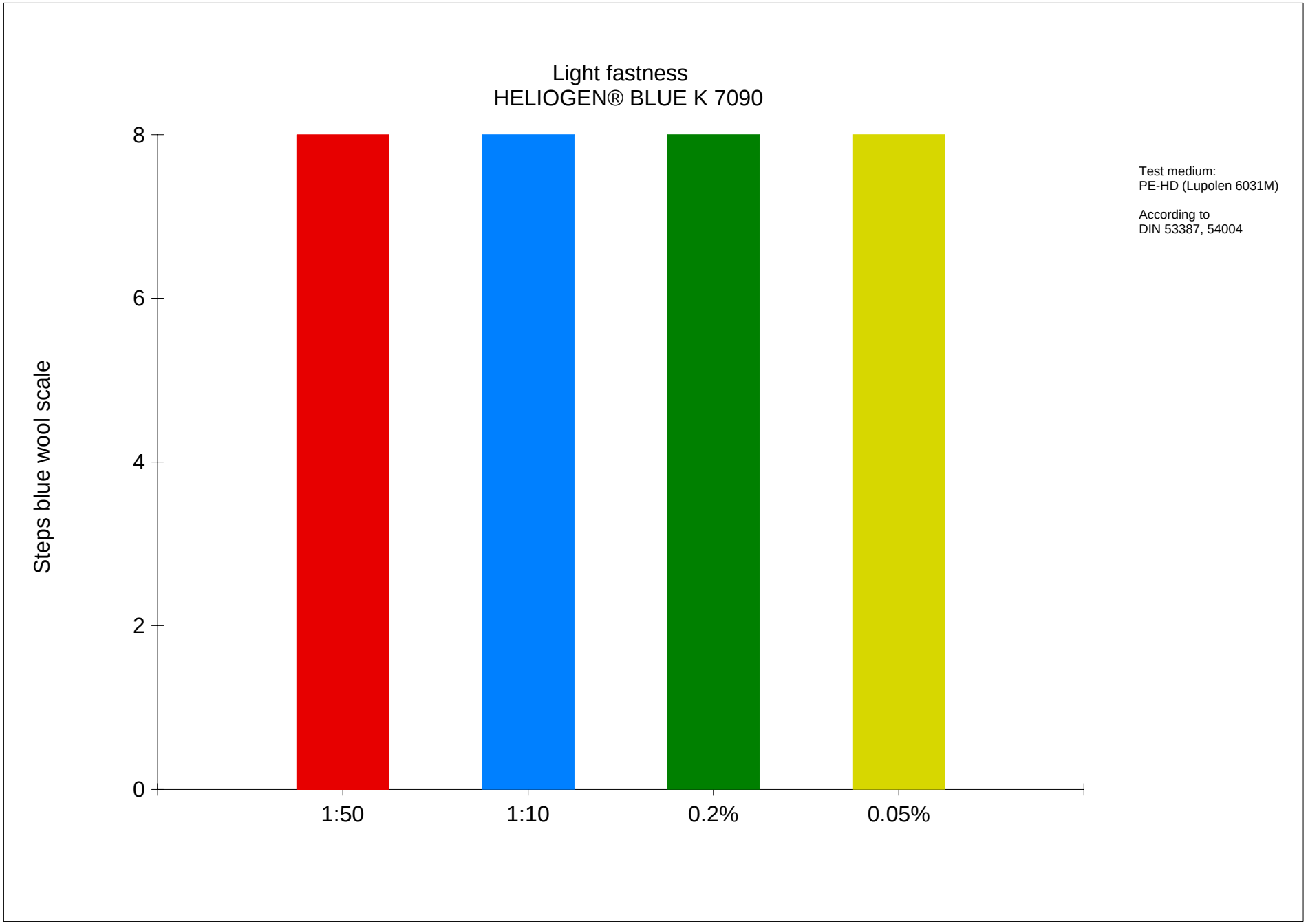
Note: The program stores curve points (see table). The diagram shows approximations.

Heat Stability
HELIOGEN® BLUE K 7090



Note: The program stores curve points (see table). The diagram shows approximations.





Product Safety Datasheet BASF

Name of product	**HELIOGEN®** Blue K 6850
C.I. No. / Name	74 160 / C.I. Pigment Blue 15, copper phthalocyanine, alpha form, unstable
CAS No.	147-14-8
EINECS No.	205-685-1
Name of product	**HELIOGEN®** Blue K 6902 / 6911
C.I. No. / Name	74 160 / C.I. Pigment Blue 15:1, copper phthalocyanine, alpha form, stable
CAS No.	147-14-8
EINECS No.	205-685-1
Name of product	**HELIOGEN®** Blue K 7090
C.I. No. / Name	74 160 / C.I. Pigment Blue 15:3, copper phthalocyanine, beta form, modified
CAS No.	147-14-8
EINECS No.	205-685-1

Chemical nature

The listed **HELIOGEN®** pigments are phthalocyanines with a central divalent copper atom. Copper phthalocyanine pigments occur in various crystal modifications, of which the alpha form (reddish blue) and beta form (greenish blue) are the most technically significant. The alpha form can be stabilized by partial chlorination (0.5 chlorine atom per molecule).

Toxicology

In experiments on animals, **HELIOGEN®** pigments did not display acute toxicity. Feeding tests on rats to determine the chronic toxicity revealed no toxicological finding whatever. No acute irritant effect was shown in tests to determine the acute irritation of the skin and mucous membranes.

Ecology

Because they are chemically inert and practically insoluble in water, **HELIOGEN®** pigments are not environmentally hazardous. They can be removed from waste water by mechanical means. The high stability of the copper complex means that the pigment does not decompose to release ionic copper by hydrolysis, photolysis, or aerobic or anaerobic decomposition.

Labelling

The above listed products are not dangerous substances in the sense of the German Ordinance on Dangerous Substances or of corresponding EU regulations.

Classification as dangerous goods

The products are not classified as hazardous under transport regulations.

Heavy metal content

HELIOGEN® pigments do not contain any lead, cadmium, chromium(VI) and mercury compounds in their formulations. The sum of the total contents of these elements, according to tests on standard samples, is less than 100 mg/kg. It is thus below the limit in the EU packaging directives and the American CONEG model.

Antimony	< 20 mg/kg	Chromium	< 50 mg/kg
Arsenic	< 20 mg/kg	Selenium	< 20 mg/kg
Lead	< 20 mg/kg	Mercury	< 20 mg/kg
Cadmium	< 30 mg/kg	Zinc	< 20 mg/kg
		Prim. aromatic amines	< 100 mg/kg

The metal levels quoted are based on the detection limit of the analytical determination method used (X-ray fluorescence spectroscopy). The actual levels may lie well below these values.

Copper content

HELIOGEN® Blue K 6840 and K 7090 contain appr. 11 % and K 6902 and K 6911 D contain appr. 10,5 % chemically combined copper.

Halogen content

Only the stabilized alpha **HELIOGEN®** types K 6902 and K 6911 D contain organically combined chlorine (approx. 3 %). All the other types listed do not contain any chemically combined halogen.

Food legislation

According to tests on standard samples (Type 8081) the listed **HELIOGEN®** pigments conform to the demands on purity in the following food legislation (see also "Heavy metal content"):

Europe:	Resolution AP (89)
Germany:	BgVV Empfehlung IX., 190. Mitteilung vom 1.6.1994
France:	Brochure No. 1227
Italy:	Decreto Ministeriale dated 21.3.1973
Spain:	Resolución del 4.11.82 de la Subsecretaría de Sanidad
USA:	Listed on the FDA List (21.CFR, § 178.3297).

Toys

According to tests on standard samples (Type 8082), the listed **HELIOGEN®** pigments conform to the demands on purity in the European standard on toys, i.e. EN 71, Part 3.

Registration status

The components of the products are listed in the chemical inventories of the following countries: EU (EINECS), USA (TSCA), Canada (DSL), Japan (MITI), Australia (AICS), Korea (ECL), Philippines (PICCS, Final Version 1995), and Switzerland (BAGT No. 612200, Class free).

Other legislation on chemicals

The products do not fall under the provisions of the agreement on chemical weapons and do not contain any substances that are mentioned in the German Ordinance on the Prohibition of Certain Chemicals (ChemVerbotsV). They are produced without using substances that destroy ozone (Montreal Agreement - Ozone Depleting Substances).

MAK value

The general threshold value for dust, i.e. 6 mg/m³, must be observed. (Proposal of the MAK commission for the alveolar passing dust fraction, i.e. 1.5 mg/m³, is not yet valid) (Germany)

TA Luft

Para 3.1.3 - Total dust (Germany)

Water hazard class

WGK 0 (generally non water hazardous according to KBwS classification, Germany)

Further information can be found in our Material Safety Data Sheets, Technical Information Bulletins and in the Product Safety Info No. 8 "Copper phthalocyanine (**HELIOGEN**® pigments)" and No. 9 "Organic

pigments containing chlorine in the heat of discussion". The Product Safety Department in our Organic Pigments Division will gladly reply to your queries and can be reached under the following address:

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D-67056 Ludwigshafen, Germany	Mr Schwanse	Tel. ++49 (0)621-60-71503

Fax: ++49 (0)621-60-40673