ECS GmbH - European Certification Service
Augenschutz und Persönliche Schutzausrüstung
Laserschutz und Optische Messtechnik

Test Report

Nr. 0100-ECS-11

Contact person: Dr. Bernhard Schmitz
Phone: +49 (0)7361 9757396
Fax: +49 (0)7361 5562434
E-mail: bernhard.schmitz@ecs-eyesafe.de
Web: www.ecs-eyesafe.de

Accredited by the Central Authority of the Federal States for Safety Technologies (ZLS)
ZLS-P-856/09
ZLS-ZE-703/09

Customer

Weldas Europe B.V.
Blankenweg 18
4612 RC BERGEN OP ZOOM
THE NETHERLANDS

Manufacturer

Test report contains	Main part and 2 measurement reports
Number of pages in this test report	10
Product	Transparent welding curtains and screens for arc welding processes
Arrival of samples	Aug 12, 2011
Period of testing	Sep 11 - Oct 06, 2011
Test specifications (Standards)	FprEN 1598 : 2011

Remarks

The results described in this test report refer to the mentioned test samples, exclusively. A copy of the test report, complete or in extracts, is not allowed without any written permission of the ECS GmbH Aalen.

Aalen, 7 Oct 2011

Dr. Bernhard Schmitz
ECS Manager

Test objects, tests and results

Based on the tables as written in the standards FprEN 1598, the main part assigns the test samples to the named tests. The test results are documented according to the named standards.

Signs and symbols

The requirements are described in FprEN1598.

+	meet the requirements
–	do not meet the requirements
/	not tested
n.a.	not applicable
G	borderline case
Ab	interruption of the testing sequence

Whenever the dioptric power of the surface is stated, this value was calculated using the formula F=0,523/r, where "r" is the radius of the curved surface.

The relative measurement uncertainties of the applied optical metrological instruments correspond to the required one in DIN EN 167.

Unless stated otherwise, the measurements were carried out in the main viewing point of the specimens and, in the case of lenses with corrective power, at the applicable reference point.

Test results

The annexes document the test results of each individual measurement. All results printed in bold and italic type document that the test sample did actually not meet the requirements which are demanded in the specified standards.

Samples and summary of the test results

Type:	WELDAS Transparent welding curtains and screens for arc welding processes. Darkgreen Screen CE 0.4 mm
Test report:	01001-ECS-11
Number of delivered samples:	1.8 * 1.75 m²
Number of test samples:	12

Test sequence	Requirement	Tests according to				Samples 11100-1 to -12
		EN	Clause	EN	Clause	
1	Marking	1598	5			n.a.
2	Information delivered by the manufacturer / applicant	1598	6			n.a.
3	General requirements, quality of surface and material	1598	4.1	1598	4.1	+
4	Luminous transmittance	1598	4.2	167	6	+
5	Spectral transmittance in UV-range	1598	4.2	167	6	+
6	Hazard level / risk factor	1598	4.2	1598	4.2	+
7	Luminous reflectance	1598	4.3	167	6	+
8	Spectral reflectance in UV-range	1598	4.3	167	6	+
9	UV-stability	1598	4.4	168	6	+
10	Resistance to ignition	1598	4.5	1598	4.5	+
11	Eyelet strength	1598	4.6	1598	4.6	+
See the measurement report for the individual results of each test sample.						

Assessment: The welding curtains Darkgreen Screen CE 0.4 mm meet the requirements of the relevant standard. The marking may consist of: 1598 CE WELDAS + month + year of manufacturing.

Aalen, 7 Oct 2011

Dr. Bernhard Schmitz
ECS-Certification

Samples and summary of the test results

Type:	WELDAS Transparent welding curtains and screens for arc welding processes. Red Screen CE 0.4 mm					
Test report:	01002-ECS-11					
Number of delivered samples:	1.8 * 1.75 m²					
Number of test samples:	12					
Test sequence	Requirement	according to		Tests		Samples 11100-13 to -24
		EN	Clause	EN	Clause	
1	Marking	1598	5			n.a.
2	Information delivered by the manufacturer / applicant	1598	6			n.a.
3	General requirements, quality of surface and material	1598	4.1	1598	4.1	+
4	Luminous transmittance	1598	4.2	167	6	+
5	Spectral transmittance in UV-range	1598	4.2	167	6	+
6	Hazard level / risk factor	1598	4.2	1598	4.2	+
7	Luminous reflectance	1598	4.3	167	6	+
8	Spectral reflectance in UV-range	1598	4.3	167	6	+
9	UV-stability	1598	4.4	168	6	+
10	Resistance to ignition	1598	4.5	1598	4.5	+
11	Eyelet strength	1598	4.6	1598	4.6	+
See the measurement report for the individual results of each test sample.						

Assessment: The welding curtains Red Screen CE 0.4 mm meet the requirements of the relevant standard. The marking consist of 1598 CE WELDAS + month + year of manufacturing

Aalen, 7 Oct 2011

Dr. Bernhard Schmitz
ECS-Certification

Test mark:	01001-ECS-10
Type:	WELDAS Transparent welding curtains and screens for arc welding processes. Darkgreen Screen CE 0.4 mm

Measurement report 1

Description of the type

Design of the test samples:		Flexible transparent curtains / screens Colour darkgreen Thickness / mm 0.40 - 0.02 A ready-to-use screen (size appr. 1.8 * 1.75 m²) has been delivered for testing. The screen is equipped with eyelets.
Screens:	marking:	none
	material:	PVC
Add. information from the manufacturer:		The testing and assessment shall be performed in accordance to FprEN1598 : 2011 that has been accepted by all member states by formal votes in Aug. 2011. Title of the standard: Health and safety in welding and allied processes - Transparent welding curtains, strips and screens for arc welding processes

Test mark:	01001-ECS-10
Type:	WELDAS Transparent welding curtains and screens for arc welding processes. Darkgreen Screen CE 0.4 mm

Quality of material and surface, transmittance, filtering action, spectral reflectance, hazard level

test ↓ sample →		11100					
		-1	-2	-3	-4	-5	-6
quality of material and surface		+	+	+	+	+	+
luminous transmittance rel NA τ	%	0.57	0.53	0.54	0.57	0.42	0.45
spectral transmittance UV range 210 – 313 nm	%	$\leq 2*10^{-3}$	$\leq 2*10^{-3}$	$\leq 2*10^{-3}$	$\leq 2*10^{-3}$	$\leq 2*10^{-3}$	$\leq 2*10^{-3}$
spectral transmittance UV range 313 – 380 nm	%	≤3	≤3	≤3	≤3	≤3	≤3
luminous reflectance	%	1.6	0.55	3.3	1.4	1.2	1.2
spectral reflectance UV range 230 – 400 nm		≤10	≤10	≤10	≤10	≤10	≤10
hazard level		0.34	0.32	0.33	0.34	0.26	0.28
meeting the requirements for transmittance according to prEN 1598 : 2010		+	+	+	+	+	+

Quality of material and surface, transmittance after test to UV-ageing

test ↓ sample →		11100		
		-1	-2	-3
quality of material and surface		no alterations observed after UV-ageing		
luminous transmittance rel NA τ	%	0.50	0.51	0.49
relative change	%	12	3.7	8.8
hazard level		0.31	0.31	0.30

Test mark:	01001-ECS-10
Type:	WELDAS Transparent welding curtains and screens for arc welding processes. Darkgreen Screen CE 0.4 mm

Resistance to ignition

test ↓ sample →	11100		
	-7	-8	-9
Resistance to ignition	The flame self-extinguishes and the material ceases to glow within ≤ 2 sec. The flame does not reach the test mark.		

Eyelet strength

test ↓ sample →	11100		
	-10 one eyelet	-11 two eyelets	-12 no eyelet
Eyelet strength	No tearing of any seam, no tearing of any eyelet, not any removal of any eyelet could be observed, respectively.		

Aalen, 7 Oct 2011

B. Pedal

Dipl.-Ing. Bastian Pedal
ECS-test engineer

Test mark:	01002-ECS-10
Type:	WELDAS Transparent welding curtains and screens for arc welding processes. Red Screen CE 0.4 mm

Measurement report 2

Description of the type

Design of the test samples:		Flexible transparent curtains / screens Colour red Thickness / mm 0.40 - 0.02 A ready-to-use screen (size appr. 1.8 * 1.75 m²) has been delivered for testing. The screen is equipped with eyelets.
Screens:	marking:	none
	material:	PVC
Add. information from the manufacturer:		The testing and assessment shall be performed in accordance to FprEN1598:2011 that has been accepted by all member states by formal votes in Aug. 2011. Title of the standard: Health and safety in welding and allied processes - Transparent welding curtains, strips and screens for arc welding processes

Test mark:	01002-ECS-10
Type:	WELDAS Transparent welding curtains and screens for arc welding processes. Red Screen CE 0.4 mm

Quality of material and surface, transmittance, filtering action, spectral reflectance, hazard level

test ↓ sample →		11100					
		-13	-14	-15	-16	-17	-18
quality of material and surface		+	+	+	+	+	+
luminous transmittance rel NA τ	%	7.2	5.8	5.7	5.3	6.1	7.2
spectral transmittance UV range 210 – 313 nm	%	$\leq 2*10^{-3}$	$\leq 2*10^{-3}$	$\leq 2*10^{-3}$	$\leq 2*10^{-3}$	$\leq 2*10^{-3}$	$\leq 2*10^{-3}$
spectral transmittance UV range 313 – 380 nm	%	≤3	≤3	≤3	≤3	≤3	≤3
luminous reflectance	%	6.1	6.5	6.6	6.3	7.4	6.0
spectral reflectance UV range 230 – 400 nm		≤10	≤10	≤10	≤10	≤10	≤10
hazard level		0.77	0.73	0.72	0.69	0.76	0.77
meeting the requirements for transmittance according to prEN 1598 : 2010		+	+	+	+	+	+

Quality of material and surface, transmittance after test to UV-ageing

test ↓ sample →		11100		
		-13	-14	-15
quality of material and surface		no alterations observed after UV-ageing		
luminous transmittance rel NA τ	%	7.7	6.2	5.9
relative change	%	6.8	7.3	3.9
hazard level		0.82	0.78	0.74

Test mark:	01002-ECS-10
Type:	WELDAS Transparent welding curtains and screens for arc welding processes. Red Screen CE 0.4 mm

Resistance to ignition

test ↓ sample →	11100		
	-19	-20	-21
Resistance to ignition	The flame self-extinguishes and the material ceases to glow within ≤ 2 sec. The flame does not reach the test mark.		

Eyelet strength

test ↓ sample →	11100		
	-22 one eyelet	-23 two eyelets	-24 no eyelet
Eyelet strength	No tearing of any seam, no tearing of any eyelet, not any removal of any eyelet could be observed, respectively.		

Aalen, 7 Oct 2011

B. Pedal

Dipl.-Ing. Bastian Pedal
ECS-test engineer