

No. 20106600029

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producer: Dr. Demuth GmbH & CO KG Derisol Lackfarbenfabrik  
Hillerser Str.  
37154 Nordheim  
Determination of the porosity level in accordance with DIN EN ISO 17652-2 once  
DVS-guideline 0501 edition March 1976 Shopprimer  
Turbo Plus Rotbraun

laboratory: SLV Duisburg NL der GSI mbH  
Bismarckstraße 85  
47057 Duisburg  
accredited acc.to ISO 17025, DAP-P-01.025-00-90-01

The report comprises: 4 pages of text  
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Duisburg, 20.07.2010

Contact: Lohs

Phone: 0203 / 3781-177



Test report No.: 20106600029

Reference: **Determination of the porosity level in accordance with  
DIN EN ISO 17652-2 once DVS-guideline 0501 edition  
March 1976 Shopprimer Turbo Plus Rotbraun**

Client: Dr. Demuth GmbH & CO KG  
Derisol Lackfarbenfabrik

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Trade name of the shopprimer: Turbo Plus Rotbraun DC Hydro Shopp

Characteristic pigment-base: Eisen/Alu/Zinkphosphat

Characteristic Resign: Acryl/Styrol

### 1. Chemical composition of base material and welding wire

	Data in % by mass				
	C	Si	Mn	P	S
Filler: G3Si1 DIN EN ISO 14341	0,08	0,80	1,41	0,012	0,009
Base material: C10 DIN EN 10278					
12 x 50 x 200 mm	0,10	0,16	0,44	0,025	0,021
20 x 80 x 200 mm	0,09	0,22	0,52	0,029	0,034

### 2. Applied coating (dry-film) thickness

The following coating thicknesses were measured:

Measurement	Data in $\mu\text{m}$	
	First sheet (1)	Last sheet (10)
1	20,0	20,0
2	21,0	21,0
3	20,0	20,0
4	19,0	18,0
5	20,0	19,0
6	21,0	20,0
7	20,0	21,0
8	22,0	21,0
9	21,0	20,0
10	22,0	22,0
Average value	20,6	20,2
Total average value	<b>20,4</b>	

Coating thickness determination was by means of an instrument using the magnetic inductive principle. (paint thickness gauge: Fischers Scope MMS)

### 3. Result of testing

Specimen-No.	Number of pores N	Total area of pores F [mm <sup>2</sup> ]	Mean area of a single pore F/n [mm <sup>2</sup> ]
1	19	33,04	1,74
2	20	35,84	1,79
3	18	32,73	1,82
4	35	39,94	1,14
5	18	57,10	3,17
6	24	52,11	2,17
7	22	41,07	1,87
8	28	29,68	1,06
Average value	23,00	40,19	1,84
C.L.*	4,96	8,15	0,55

\*C.L. = Confidence limit of the average value on the 95%- level related to the average value in %.

At the present state of knowledge the total area of pores "F" is the best determinant / indicator.

The mean total area of pores is: **40,19 mm<sup>2</sup>**

The acceptance requirements according to the Deutscher Ausschuss für Stahlbau (DASt-Guideline 006) **are met** (i.e. pore area  $\leq 125 \text{ mm}^2$ ).

The testing laboratory maintains a bar chart which is continuously updated with new test results (mean value of total area of the pores).



#### 4. Declaration

The above testing was carried out in accordance with DIN EN ISO 17652-2 once the DVS-Guideline 0501, edition 1976. Attention: All requirements of this standard and the welding procedure were observed.

The application of this guideline leads to excessive, not typical for practice, pore generation. This excessive pore generation is necessary to provide reproducibility and differentiation. In case of conflict the original german text of this report shall govern.

Duisburg, 20.07.2010

Head of the testing |

Franz Bültmann



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Trace gas measurement during welding of plates coated with shopprimer  
Turbo Plus Rotbraun

laboratory: SLV Duisburg NL der GSI mbH  
Bismarckstraße 85  
47057 Duisburg

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Duisburg, 20.07.2010

Contact: Lohs

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R. Lohs

Test report No.: 20106600029

Reference: **Trace gas measurement during welding of plates coated with shopprimer Turbo Plus Rotbraun**

Client: Dr. Demuth GmbH & CO KG  
Derisol Lackfarbenfabrik

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Date: 20.07.2010

pages: 3

**Trace gas measurement during welding of sheets coated with shopprimer Turbo Plus Rotbraun, DC Hydro Shopp**

**1. Application of coating/Measurement of coating thickness**

Three sand-blasted plates of mild steel (Surface finish: SA3 in accordance with DIN EN ISO 12944) of dimension 100 x 500 x 12 mm were coated on one side.

The coating application and the measurement of its thickness was performed in accordance with DVS guideline 0501, edition March 1976, paragraph 2.2.

Coating thickness of 20 µm acc. to DVS guideline 0501.

**2. Dry-Film thickness**

The following coating thicknesses were measured:

Measurement	Data in µm	
	First sheet (1)	Last sheet (10)
1	20,0	20,0
2	21,0	21,0
3	20,0	20,0
4	19,0	18,0
5	20,0	19,0
6	21,0	20,0
7	20,0	21,0
8	22,0	21,0
9	21,0	20,0
10	22,0	22,0
Average value	20,6	20,2
Total average value	<b>20,4</b>	

Coating thickness determination was carried out by means of an instrument using the magnetic inductive principle. (paint thickness gauge: Fischers Scope MMS)

After a drying time of ten days at room temperature and 70 % max. relative humidity (R.H.), welding was carried out with coated electrodes of the rutile-basic type RB 22 (acc. to DIN EN ISO 2560 A , diameter 4.0 mm). Welding current and welding speed were 175 Amps +/- 5 Amps and 20 cm/min respectively.



### 3. Gas Detecting

During welding gas samples were taken with a Dräger gas detector. Samples were taken from within the breathing zone of the welder. The following gas pipettes were used:

		Gas Pipette No.	Stroke	Measurement Range [ml/m <sup>3</sup> ]
Carbon monoxide	CO	CH 25601	10	5-150
Carbon dioxide	CO <sub>2</sub>	CH 23501	5	100-12000
Nitrous fumes	NO, NO <sub>2</sub>	CH 29401	5	0,5-10
Formaldehyde	HCHO	6733081	10	0,5-5
Cyanide	HCN	CH 25701	5	2-30

### 4. Results of Trace Gas Test

The concentration found for each gas is given in the table below:

	Values in ml/m <sup>3</sup> (ppm)				
	Carbon monoxide CO	Carbon dioxide CO <sub>2</sub>	Nitrous fumes NO, NO <sub>2</sub>	Formaldehyde HCHO	Cyanide HCN
TL-Values*	30	5000	3	0,5	10
measured concentration	10	1500	2	0	0

\* Threshold limit values in BRD, 2009

n.d. = concentration lies under detection limit

In case of conflict, the original German Text of this report shall govern.

Duisburg, 20.07.2010



Head of the testing lab: Franz Bültmann