Visitors Address
IMA Materialforschung und Anwendungstechnik GmbH
Wilhelmine-Reichard-Ring 4 | 01109 Dresden | Germany
Postal address PF 80 01 44 | 01101 Dresden | Germany
Tel. +49(0)351 8837-0
Fax +49(0)351 8837-6312
E-Mail ima@ima-dresden.de
Homepage www.ima-dresden.de

Managing directors
Prof. Dr.-Ing. Thomas Fleischer (Spokesman)
Dr.-Ing. Ron Buchholz, Dr.-Ing. Toni Ehrig

Company's registered office Dresden
Register court Amtsgericht Dresden | HRB 5995
Tax identification number DE 155293995

Test Report

„Type Test (TT) PE 100 pressure pipe - drinking water“

Short Title:
“Type Test (TT) PE 100 pipe”

DAkkS Deutsche Akkreditierungsstelle D-PL-13119-02-00

Test Report No.: V241/20-1

Order No.: 402300098

Issued by Department Pipe Systems

Laboratory for Pipe System Testing

Recognised test laboratory of DVGW, DIN CERTCO and DIBt
The recognitions are valid for the test methods stated in the attachments of certificates of approval
DVGW LW-BU0023, DIN CERTCO PL121 and DIBt SAC 08

Test Report

Type Test (TT) PE 100 pipe
Test Report No.: V241/20-1

Test Locations:	Am Lagerplatz 4, 01099 Dresden / GERMANY
Test Specimen:	Pressure pipes for drinking water Material: PE 100 Sabic HDPE P 6006 black 10000 Product group: EG 15; Ø 75 mm ≤ d_n < Ø 250 mm Type 1 – single layer pipe
Customer:	Dizayn Teknik Boru ve Ekipmanlari San. Tic. A.S. Atatürk Mah. Inönü Cad. No. 6 34522 Kirac,Esenyurt / Istanbu TURKEY
Order no. of the Customer:	-
Test Laboratory:	IMA Materialforschung und Anwendungstechnik GmbH Laboratory for Pipe System Testing Wilhelmine-Reichard-Ring 4 01109 Dresden / GERMANY
Sampling:	10.07.2019
Test Specimen received on:	08.11.2019
Test Period:	05.08.2020 – 26.11.2020
Test Result:	see page 4 to 6
In Charge:	Dipl.-Ing. Jule Isabel Isleif
Distribution List:	1 x Customer 1 x IMA Dresden

Authorized
Dresden, 15.12.2020
IMA Materialforschung und
Anwendungstechnik GmbH

Dipl.-Ing. Heiko Below
Head of Department Pipe Systems

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1 Task definition

The customer Dizayn Teknik commissioned the IMA Dresden with the execution of type tests on pressure pipes for drinking water, made of PE100. The tests were carried out according to the requirements of the DVGW GW 335 – A2 and – A2-B1.

2 Requirements

According to:

- DVGW GW 335 – A2 (2005-11)
- DVGW GW 335 – A2 – B1 (2010-12)

Table 1: Requirements and tests acc. to DVGW GW 335 – A2/-B1

Seq. No.	Attributes	Requirements according to section
1	Marking	GW 335 – A2, 6.1
2	Appearance of surface	GW 335 – A2, 4.4.1 + 4.4.2
3	Colour	GW 335 – A2, 4.4.3
4	Dimensions	GW 335 – A2, 4.4.4
5	Heat treatment	GW 335 – A2, 4.4.5
6	Homogeneity	GW 335 – A2, 4.4.6
7	Hydrostatic pressure test (165 h)	GW 335 – A2, 4.4.7
8	Melt-mass flow rate (MFR)	GW 335 – A2, 4.4.8
9	Elongation at break	GW 335 – A2, 4.4.9

3 Specimen

The test specimens were provided by the manufacturer. The following specimens were supplied:

- Pipe DN 110 x 10,0 / SDR 11 / Product group 15 / Type 1
- Material: Sabic HDPE P 6006 black 10000 (Batch 10746185)
- Production date: 02.07.2019
- Marking: Dizany PE100 TEMIZSUSFREKE BORUSU 110x10 SDR11 PN16 TSE EN 12201-2 2 A 1 DVGW DW-8141BT02 16 LOT NO: 1185 02 07 19 C-6 =0865m=
- Manufacturer: Dizayn Technic Plastic Pipes & Fittings Co
  Velimese Beldesi Kazan ve Sanayi Top. Is Kooperatifi 5 Ada 4 Parsel
  Corlu/ Tekirdag
  TURKEY

4 Results

Table 2: Pressure pipes for drinking water / Product group: EG 15 / DN 110 x 10,0 mm

Seq. No.	Test	Test equipment / ID-No./ Person in charge	Test result				Evaluation
1	Marking	M. Lasch	All information existent.				+
2	Appearance of surface	M. Lasch	Clean, without any damages.				+
3	Colour	M. Lasch	Continuously black (RAL 9004) with 4 blue strips (RAL 5005).				+
4	Dimensions	Vernier Calipers Mitutoyo IMA 9023645 / Circometer 2014 2570 IPT / WDM IMA 9024887 / UFM 2017 3244 / M. Lasch	According to DIN EN ISO 3126:2005-05				+
			Characteristic		Set value	Actual value	
			Mean outside diameter	$d_{e\,m}$ [mm]	110,0 to 110,7	110,6	
			Maximum ovality	Ovality $_{max}$ [mm]	≤ 2,2	1,7	
			Minimal wall thickness	$s_{1\,min}$ [mm]	10,0 to 11,1	10,3	
5	Heat treatment	Circulating air oven UT6200/ Digital caliper Mitutoyo / 1600912 / M. Lasch	According to DIN EN ISO 2505:2005-08 Arithmetic average of relative elongation: Set value: ≤ 3,0 % Actual value: 0,9 %				+

Seq. No.	Test	Test equipment / ID-No./ Person in charge	Test result			Evaluation
6	Homo-geneity	Measuring micro-scope Axiolab / dhs-Microcam 1.3 / M. Illing	According to ISO 18553:2002-03			+
			Characteristic	Set value	Actual value	
			Grade of particle and ag-glomerate size	Grade ≤ 3	2,0	
			Rating of dom. Appearance	A1, A2, A3 or B	B [1)]	
7A	Hydrostatic pressure test (165 h)	Pressure stations 217/2 / 217/3 / 217/4 / IPT B201 / S. Janowski	According to DIN EN ISO 1167-1/-2:2006-05 Water in water Set value: 80 °C / 5,4 MPa / ≥ 165 h Actual value: 80 °C / 5,4 MPa / > 165 h			+
8	Melt mass-flow rate (MFR)	CEAST MMF 7026 PMK B190 / Micro-balance CPA 225D PMK B223 / M. Lasch	According to DIN EN ISO 1133-1:2012-03 Temperature: 190 °C Nominal load: 5,0 kg Set value change: ≤ 20% Actual value granulate: 0,224 g/10min [2)] Actual value pipe: 0,239 g/10min Actual value change: 0,4%			+
9	Elongation at break	Micrometer gauge IMA 1600988 / H & P Inspekt AGS-G 10 kN / KMD SSM FBT 10 kN / M. Lasch	According to DIN EN ISO 6259-1:2015-08 and -3:2015-11 Number of test specimens: 5 Sample Type: 1 Test rate: 50 mm/min Set value: $\varepsilon_b \geq 350\%$ Actual value: $\varepsilon_{bm} > 360\%$			+

[1)]: Existence of non-coloured areas (white dots), not included in the assessment

[2)]: Value determined by customer

+: Correspond to the requirement

Reference note: In the column *Testing equipment / ID-No.* are listed the employed testing resources and their registration by means of ID No. or testing resource card (PMK), in order to guarantee the traceability of the test results.
The overview of the testing resource cards is a component part in the laboratory-specific specifications of the laboratory for pipe system testing (LSA No. V-1 in the quality management handbook of IMA Dresden).

5 Summary

The requirements according to DVGW GW 335-A2 and DVGW GW 335-A2-B1 are fulfilled in the product group 15. Hygienic tests were not considered.

Reviewed	Created
Hartmut Rönsch	Dipl.-Ing. Jule Isabel Isleif
Department Pipe Systems	Person in Charge