

Evidence of Performance

Thermal conductivity

Test Report

Nr. 10-000788-PR01

(PB-K23-06-en-01)



Client Titan Wood B.V.
PO Box 2147
Westervoortsedijk 73
6802 Arnhem
Netherlands

Product / Construction	Modified wood - product
Designation	ACCOYA® HOLZ
Material	Pinus radiata, modified by acetylation
Thickness	30 mm
Density	514.4 kg/m ³ (average) 495 - 541 kg/m ³ (range)
Conditioning	23 °C / 50 % rh up to constant mass (0.1 % / 24 h)
Special features	--

Basis

EN 12664: 2001
Building materials - Determination of thermal resistance by means of guarded hot plate and heat flow meter methods - Dry and moist products of medium and low thermal resistance

EN ISO 10456: 2008
Building materials and products - Hygrothermal properties - Tabulated design values and procedures for determining declared and design thermal values

Instructions for use

This test report serves to demonstrate the declared value of the equivalent thermal conductivity λ_D . The declared value can be used within the calculation acc. to prEN ISO 10077-2: 2011.

The declared value acc. to EN ISO 10456 doesn't represent the design value acc. to DIN V 4108-4. The determination of the design value has to take into account the national regulations.

Validity

The data and results given relate solely to the tested and described specimen.

Testing for thermal conductivity λ does not allow any statement to be made on any further characteristics relevant to performance and quality of the present construction.

Notes on publication

The ift Guidance Sheet "Conditions and Guidance for the Use of ift Test Documents" applies.

The cover sheet can be used as abstract.

Contents

The report comprises a total of 15 pages

- 1 Object
- 2 Procedure
- 3 Detailed results

Thermal conductivity (declared value)



$$\lambda_D = 0.120 \text{ W/(m} \cdot \text{K)}^*$$

* determined at mean temperature of 10 °C

ift Rosenheim

07. November 2011

Dr. Joachim Hessinger, Dipl.-Phys.
Head of Testing Department
Building Physics

Konrad Huber, Dipl.-Ing. (FH)
Assistant Head of Testing Department
Building Physics

1 Object

1.1 Description of test specimen

Component	Modified wood - product
Manufacturer	Enno Roggemann GmbH & Co. KG, 28197 Bremen
Date of manufacture *)	March 2011
Product designation	ACCOYA® HOLZ
Material *)	Pinus radiata, modified by acetylation
External dimensions (B x H)	500 mm x 500 mm
Total thickness	
declared value	30 mm
measured value	27.0 mm to 29.3 mm
Density	
measured value	514.4 kg/m ³ (average) 495 - 541 kg/m ³ (range)
Wood moisture content	
measured value	2.0 % (average)
Conditioning	23 °C / 50 % rh up to constant mass (0.1 % / 24 h)
Annual rings	horizontal / half-rift
Special features	--

Item designations / numbers as well as material specifications were given by the client. Additional data provided by the manufacturer is marked with *.

1.2 Representation of test specimen

The constructive details were reviewed exclusively concerning the characteristics to be proved. The photo was taken after the measurement by the **ift**.



Fig. 1 Example of a test specimen (dimensions: 500 mm x 500 mm)

2 Procedure

2.1 Sampling

The samples were selected by the client.



Number	86
Delivered on	24 March 2011
Registration number	29961

2.2 Procedure

Basis

EN 12664: 2001	Building materials - Determination of thermal resistance by means of guarded hot plate and heat flow meter methods - Dry and moist products of medium and low thermal resistance
EN ISO 10456: 2008	Building materials and products - Hygrothermal properties - Tabulated design values and procedures for determining declared and design thermal values
EN 13183-1: 2002 + C1: 2002	

Round and sawn timber – Method of measurement of moisture content – Part 1: Method of determining moisture content of a piece of sawn timber (Oven-dry method)

Boundary conditions	According to the standard requirements, ambient temperature 20°C
Deviation	There were no deviations to the test method or test conditions.

2.3 Measuring and test equipment

Hot Plate	Pst/022001
Position of test specimen	vertical
Direction of heat flow	horizontal
Location of sensors	acc. to EN 12664
Measurement precision	± 2 % acc. to EN 12664
Test method	guarded hot plate

2.4 Testing

Date/Period	Conditioning period: 15 March to 27 May 2011 Test period: 30 May to 27 August 2011
Testing personnel	Konrad Huber

3 Detailed results

Annual rings of specimen 1 to 17: horizontal:

Annual rings of specimen 18 to 20: half-rift:

Table 1 Detailed data of the test specimen 1 before and after the measurement

	before the measurement ¹⁾		after the measurement ²⁾	
	Specimen 1.1	Specimen 1.2	Specimen 1.1	Specimen 1.2
Dimension in mm	500 x 500	500 x 500	500 x 500	500 x 500
Total thickness in mm	29.3	29.3	29.3	29.3
Density in kg/m ³	527.8	508.0	527.7	508.0
Relative mass change in kg/kg	0.00	0.00	- 0.0001	- 0.0002

Table 2 Determination of the relative wood moisture content of the test specimen 1

	Specimen 1.1	Specimen 1.2	Average values
Dimension in mm	25 x 25 x 30	25 x 25 x 30	-
Density before in kg/m ³	528.6	504.6	516.6
Density after in kg/m ³	517.6	495.9	506.8
Relative moisture content %	2.15	2.22	2.18

Table 3 Detailed data of the test specimen 2 before and after the measurement

	before the measurement ¹⁾		after the measurement ²⁾	
	Specimen 2.1	Specimen 2.2	Specimen 2.1	Specimen 2.2
Dimension in mm	500 x 500	500 x 500	500 x 500	500 x 500
Total thickness in mm	29.2	29.3	29.2	29.3
Density in kg/m ³	521.6	521.7	512.4	512.5
Relative mass change in kg/kg	- 0.01	0.01	- 0.0003	- 0.0003

Table 4 Determination of the relative wood moisture content of the test specimen 2

	Specimen 2.1	Specimen 2.2	Average values
Dimension in mm	25 x 25 x 30	25 x 25 x 30	-
Density before in kg/m ³	532.8	518.6	525.7
Density after in kg/m ³	524.2	510.3	517.3
Relative moisture content %	2.23	2.23	2.23

¹⁾ Relative mass change by conditioning

²⁾ Relative mass change during the measurement

Table 5 Detailed data of the test specimen 3 before and after the measurement

	before the measurement ¹⁾		after the measurement ²⁾	
	Specimen 3.1	Specimen 3.2	Specimen 3.1	Specimen 3.2
Dimension in mm	500 x 500	500 x 500	500 x 500	500 x 500
Total thickness in mm	29.2	27.0	29.2	27.0
Density in kg/m ³	506.2	567.9	506.2	567.9
Relative mass change in kg/kg	0.02	- 0.01	0.0000	0.0000

Table 6 Determination of the relative wood moisture content of the test specimen 3

	Specimen 3.1	Specimen 3.2	Average values
Dimension in mm	25 x 25 x 30	25 x 25 x 30	-
Density before in kg/m ³	503.5	536.4	519.9
Density after in kg/m ³	496.1	528.7	512.4
Relative moisture content %	2.00	1.99	1.99

Table 7 Detailed data of the test specimen 4 before and after the measurement

	before the measurement ¹⁾		after the measurement ²⁾	
	Specimen 4.1	Specimen 4.2	Specimen 4.1	Specimen 4.2
Dimension in mm	500 x 500	500 x 500	500 x 500	500 x 500
Total thickness in mm	29.3	29.3	29.3	29.3
Density in kg/m ³	512.7	507.9	512.6	507.8
Relative mass change in kg/kg	- 0.02	- 0.01	- 0.0001	- 0.0001

Table 8 Determination of the relative wood moisture content of the test specimen 4

	Specimen 4.1	Specimen 4.2	Average values
Dimension in mm	25 x 25 x 30	25 x 25 x 30	-
Density before in kg/m ³	534.0	530.1	532.0
Density after in kg/m ³	523.0	521.2	522.1
Relative moisture content %	2.41	2.18	2.30

¹⁾ Relative mass change by conditioning²⁾ Relative mass change during the measurement

Table 9 Detailed data of the test specimen 5 before and after the measurement

	before the measurement ¹⁾		after the measurement ²⁾	
	Specimen 5.1	Specimen 5.2	Specimen 5.1	Specimen 5.2
Dimension in mm	500 x 500	500 x 500	500 x 500	500 x 500
Total thickness in mm	29.3	29.3	29.3	29.3
Density in kg/m ³	521.0	523.2	520.9	523.1
Relative mass change in kg/kg	- 0.02	- 0.03	- 0.0002	- 0.0002

Table 10 Determination of the relative wood moisture content of the test specimen 5

	Specimen 5.1	Specimen 5.2	Average values
Dimension in mm	25 x 25 x 30	25 x 25 x 30	-
Density before in kg/m ³	531.3	530.4	530.9
Density after in kg/m ³	522.3	522.3	522.3
Relative moisture content %	2.17	2.12	2.14

Table 11 Detailed data of the test specimen 6 before and after the measurement

	before the measurement ¹⁾		after the measurement ²⁾	
	Specimen 6.1	Specimen 6.2	Specimen 6.1	Specimen 6.2
Dimension in mm	500 x 500	500 x 500	500 x 500	500 x 500
Total thickness in mm	29.2	29.2	29.2	29.2
Density in kg/m ³	511.7	505.3	511.6	505.2
Relative mass change in kg/kg	- 0.01	- 0.01	- 0.0001	- 0.0001

Table 12 Determination of the relative wood moisture content of the test specimen 6

	Specimen 6.1	Specimen 6.2	Average values
Dimension in mm	25 x 25 x 30	25 x 25 x 30	-
Density before in kg/m ³	530.8	524.2	527.5
Density after in kg/m ³	522.9	516.7	519.8
Relative moisture content %	2.09	2.08	2.09

¹⁾ Relative mass change by conditioning²⁾ Relative mass change during the measurement

Table 13 Detailed data of the test specimen 7 before and after the measurement

	before the measurement ¹⁾		after the measurement ²⁾	
	Specimen 7.1	Specimen 7.2	Specimen 7.1	Specimen 7.2
Dimension in mm	500 x 500	500 x 500	500 x 500	500 x 500
Total thickness in mm	29.3	29.2	29.3	29.2
Density in kg/m ³	526.7	514.9	526.5	513.9
Relative mass change in kg/kg	- 0.03	- 0.03	- 0.0003	- 0.002

Table 14 Determination of the relative wood moisture content of the test specimen 7

	Specimen 7.1	Specimen 7.2	Average values
Dimension in mm	25 x 25 x 30	25 x 25 x 30	-
Density before in kg/m ³	515.5	532.1	523.8
Density after in kg/m ³	508.9	525.4	517.2
Relative moisture content %	1.88	1.84	1.86

Table 15 Detailed data of the test specimen 8 before and after the measurement

	before the measurement ¹⁾		after the measurement ²⁾	
	Specimen 8.1	Specimen 8.2	Specimen 8.1	Specimen 8.2
Dimension in mm	500 x 500	500 x 500	500 x 500	500 x 500
Total thickness in mm	29.2	29.3	29.2	29.3
Density in kg/m ³	508.2	495.0	508.2	494.9
Relative mass change in kg/kg	- 0.03	- 0.02	- 0.0002	- 0.0002

Table 16 Determination of the relative wood moisture content of the test specimen 8

	Specimen 8.1	Specimen 8.2	Average values
Dimension in mm	25 x 25 x 30	25 x 25 x 30	-
Density before in kg/m ³	525.3	490.4	507.9
Density after in kg/m ³	496.0	481.4	488.7
Relative moisture content %	2.41	2.32	2.36

¹⁾ Relative mass change by conditioning²⁾ Relative mass change during the measurement

Table 17 Detailed data of the test specimen 9 before and after the measurement

	before the measurement ¹⁾		after the measurement ²⁾	
	Specimen 9.1	Specimen 9.2	Specimen 9.1	Specimen 9.2
Dimension in mm	500 x 500	500 x 500	500 x 500	500 x 500
Total thickness in mm	29.2	29.3	29.2	29.3
Density in kg/m ³	511.8	521.8	511.8	521.7
Relative mass change in kg/kg	- 0.02	- 0.02	- 0.0001	- 0.0001

Table 18 Determination of the relative wood moisture content of the test specimen 9

	Specimen 9.1	Specimen 9.2	Average values
Dimension in mm	25 x 25 x 30	25 x 25 x 30	-
Density before in kg/m ³	524.4	512.1	518.2
Density after in kg/m ³	514.9	502.2	508.6
Relative moisture content %	2.26	2.40	2.33

Table 19 Detailed data of the test specimen 10 before and after the measurement

	before the measurement ¹⁾		after the measurement ²⁾	
	Specimen 10.1	Specimen 10.2	Specimen 10.1	Specimen 10.2
Dimension in mm	500 x 500	500 x 500	500 x 500	500 x 500
Total thickness in mm	29.3	29.2	29.3	29.2
Density in kg/m ³	514.5	512.3	514.5	512.3
Relative mass change in kg/kg	- 0.02	- 0.02	0.0000	0.0000

Table 20 Determination of the relative wood moisture content of the test specimen 10

	Specimen 10.1	Specimen 10.2	Average values
Dimension in mm	25 x 25 x 30	25 x 25 x 30	-
Density before in kg/m ³	516.1	503.8	509.9
Density after in kg/m ³	507.1	492.4	499.7
Relative moisture content %	2.32	2.87	2.59

¹⁾ Relative mass change by conditioning²⁾ Relative mass change during the measurement

Table 21 Detailed data of the test specimen 11 before and after the measurement

	before the measurement ¹⁾		after the measurement ²⁾	
	Specimen 11.1	Specimen 11.2	Specimen 11.1	Specimen 11.2
Dimension in mm	500 x 500	500 x 500	500 x 500	500 x 500
Total thickness in mm	29.3	29.3	29.2	29.2
Density in kg/m ³	522.6	503.4	524.1	505.0
Relative mass change in kg/kg	- 0.02	- 0.02	0.0004	0.0004

Table 22 Determination of the relative wood moisture content of the test specimen 11

	Specimen 11.1	Specimen 11.2	Average values
Dimension in mm	25 x 25 x 30	25 x 25 x 30	-
Density before in kg/m ³	529.9	495.9	512.9
Density after in kg/m ³	519.5	486.8	503.1
Relative moisture content %	2.45	2.32	2.39

Table 23 Detailed data of the test specimen 12 before and after the measurement

	before the measurement ¹⁾		after the measurement ²⁾	
	Specimen 12.1	Specimen 12.2	Specimen 12.1	Specimen 12.2
Dimension in mm	500 x 500	500 x 500	500 x 500	500 x 500
Total thickness in mm	29.3	29.3	29.3	29.3
Density in kg/m ³	492.2	527.8	491.6	527.7
Relative mass change in kg/kg	- 0.02	- 0.03	- 0.0013	- 0.0002

Table 24 Determination of the relative wood moisture content of the test specimen 12

	Specimen 12.1	Specimen 12.2	Average values
Dimension in mm	25 x 25 x 30	25 x 25 x 30	-
Density before in kg/m ³	496.9	550.3	523.6
Density after in kg/m ³	487.2	541.3	514.3
Relative moisture content %	2.43	2.33	2.38

¹⁾ Relative mass change by conditioning²⁾ Relative mass change during the measurement

Table 25 Detailed data of the test specimen 13 before and after the measurement

	before the measurement ¹⁾		after the measurement ²⁾	
	Specimen 13.1	Specimen 13.2	Specimen 13.1	Specimen 13.2
Dimension in mm	500 x 500	500 x 500	500 x 500	500 x 500
Total thickness in mm	29.3	29.3	29.3	29.3
Density in kg/m ³	506.1	493.1	506.3	493.2
Relative mass change in kg/kg	- 0.02	- 0.02	0.0004	0.0003

Table 26 Determination of the relative wood moisture content of the test specimen 13

	Specimen 13.1	Specimen 13.2	Average values
Dimension in mm	25 x 25 x 30	25 x 25 x 30	-
Density before in kg/m ³	507.2	493.5	500.4
Density after in kg/m ³	497.0	484.4	490.7
Relative moisture content %	2.54	2.51	2.52

Table 27 Detailed data of the test specimen 14 before and after the measurement

	before the measurement ¹⁾		after the measurement ²⁾	
	Specimen 14.1	Specimen 14.2	Specimen 14.1	Specimen 14.2
Dimension in mm	500 x 500	500 x 500	500 x 500	500 x 500
Total thickness in mm	29.3	29.3	29.3	29.3
Density in kg/m ³	509.8	494.8	510.3	495.5
Relative mass change in kg/kg	- 0.02	- 0.02	0.0002	0.0002

Table 28 Determination of the relative wood moisture content of the test specimen 14

	Specimen 14.1	Specimen 14.2	Average values
Dimension in mm	25 x 25 x 30	25 x 25 x 30	-
Density before in kg/m ³	476.0	495.5	485.8
Density after in kg/m ³	466.0	483.3	474.7
Relative moisture content %	2.58	3.27	2.92

¹⁾ Relative mass change by conditioning²⁾ Relative mass change during the measurement

Table 29 Detailed data of the test specimen 15 before and after the measurement

	before the measurement ¹⁾		after the measurement ²⁾	
	Specimen 15.1	Specimen 15.2	Specimen 15.1	Specimen 15.2
Dimension in mm	500 x 500	500 x 500	500 x 500	500 x 500
Total thickness in mm	29.3	29.3	29.3	29.3
Density in kg/m ³	495.8	499.4	496.9	499.5
Relative mass change in kg/kg	- 0.02	- 0.02	0.0004	0.0006

Table 30 Determination of the relative wood moisture content of the test specimen 15

	Specimen 15.1	Specimen 15.2	Average values
Dimension in mm	25 x 25 x 30	25 x 25 x 30	-
Density before in kg/m ³	487.8	516.0	501.9
Density after in kg/m ³	479.0	505.6	492.3
Relative moisture content %	2.55	2.68	2.61

Table 31 Detailed data of the test specimen 16 before and after the measurement

	before the measurement ¹⁾		after the measurement ²⁾	
	Specimen 16.1	Specimen 16.2	Specimen 16.1	Specimen 16.2
Dimension in mm	500 x 500	500 x 500	500 x 500	500 x 500
Total thickness in mm	29.2	29.3	29.3	29.3
Density in kg/m ³	518.7	518.7	518.6	518.7
Relative mass change in kg/kg	- 0.03	- 0.03	- 0.0001	- 0.0001

Table 32 Determination of the relative wood moisture content of the test specimen 16

	Specimen 16.1	Specimen 16.2	Average values
Dimension in mm	25 x 25 x 30	25 x 25 x 30	-
Density before in kg/m ³	521.9	516.0	518.9
Density after in kg/m ³	513.1	521.0	510.1
Relative moisture content %	2.17	2.21	2.19

¹⁾ Relative mass change by conditioning²⁾ Relative mass change during the measurement

Table 33 Detailed data of the test specimen 17 before and after the measurement

	before the measurement ¹⁾		after the measurement ²⁾	
	Specimen 17.1	Specimen 17.2	Specimen 17.1	Specimen 17.2
Dimension in mm	500 x 500	500 x 500	500 x 500	500 x 500
Total thickness in mm	29.3	29.3	29.3	29.3
Density in kg/m ³	511.9	476.8	512.1	477.3
Relative mass change in kg/kg	- 0.03	- 0.04	0.0002	0.0002

Table 34 Determination of the relative wood moisture content of the test specimen 17

	Specimen 17.1	Specimen 17.2	Average values
Dimension in mm	25 x 25 x 30	25 x 25 x 30	-
Density before in kg/m ³	504.6	463.7	484.2
Density after in kg/m ³	491.1	455.5	473.3
Relative moisture content %	2.13	2.14	2.14

Table 35 Detailed data of the test specimen 18 before and after the measurement

	before the measurement ¹⁾		after the measurement ²⁾	
	Specimen 18.1	Specimen 18.2	Specimen 18.1	Specimen 18.2
Dimension in mm	500 x 500	500 x 500	500 x 500	500 x 500
Total thickness in mm	29.3	29.3	29.3	29.3
Density in kg/m ³	538.9	542.6	538.6	542.3
Relative mass change in kg/kg	- 0.03	- 0.02	0.0001	0.0001

Table 36 Determination of the relative wood moisture content of the test specimen 18

	Specimen 18.1	Specimen 18.2	Average values
Dimension in mm	25 x 25 x 30	25 x 25 x 30	-
Density before in kg/m ³	543.4	536.3	539.9
Density after in kg/m ³	534.6	527.8	531.2
Relative moisture content %	2.07	2.07	2.07

¹⁾ Relative mass change by conditioning²⁾ Relative mass change during the measurement

Table 37 Detailed data of the test specimen 19 before and after the measurement

	before the measurement ¹⁾		after the measurement ²⁾	
	Specimen 19.1	Specimen 19.2	Specimen 19.1	Specimen 19.2
Dimension in mm	500 x 500	500 x 500	500 x 500	500 x 500
Total thickness in mm	29.2	29.3	29.3	29.3
Density in kg/m ³	524.5	523.2	523.5	522.6
Relative mass change in kg/kg	- 0.02	- 0.02	0.0000	0,0002

Table 38 Determination of the relative wood moisture content of the test specimen 19

	Specimen 19.1	Specimen 19.2	Average values
Dimension in mm	25 x 25 x 30	25 x 25 x 30	-
Density before in kg/m ³	510.2	528.8	519.5
Density after in kg/m ³	501.9	521.2	511.6
Relative moisture content %	2.00	1.83	1.91

Table 39 Detailed data of the test specimen 20 before and after the measurement

	before the measurement ¹⁾		after the measurement ²⁾	
	Specimen 20.1	Specimen 20.2	Specimen 20.1	Specimen 20.2
Dimension in mm	500 x 500	500 x 500	500 x 500	500 x 500
Total thickness in mm	29.2	29.3	29.3	29.3
Density in kg/m ³	511.,0	533.6	509.9	533.1
Relative mass change in kg/kg	- 0.03	- 0.02	- 0.0006	- 0.0005

Table 40 Determination of the relative wood moisture content of the test specimen 20

	Specimen 20.1	Specimen 20.2	Average values
Dimension in mm	25 x 25 x 30	25 x 25 x 30	-
Density before in kg/m ³	514.8	547.6	531.2
Density after in kg/m ³	504.7	539.5	522.1
Relative moisture content %	1.97	2.00	1.99

¹⁾ Relative mass change by conditioning²⁾ Relative mass change during the measurement

Table 41 Results of the measurements

	Mean surface temperature $\Theta_{i,e}$		Mean temperature difference $\Delta\Theta$	Mean temperature Θ_m	Heat flow density q	Thermal resistance R	Thermal conductivity λ
	cold	warm					
	°C	°C					
Specimen 1	2.5	17.5	15.0	10.0	56.5	0.250	0.12 (0.117)
Specimen 2	2.5	17.5	15.0	10.0	53.3	0.267	0.11 (0.110)
Specimen 3	2.5	17.4	14.9	10.0	52.2	0.271	0.10 (0.104)
Specimen 4	2.5	17.7	15.2	10.1	52.6	0.274	0.11 (0.108)
Specimen 5	2.5	17.5	15.0	10.0	53.5	0.265	0.11 (0.110)
Specimen 6	2.5	17.5	15.0	10.0	50.8	0.280	0.10 (0.104)
Specimen 7	2.5	17.5	15.0	10.0	53.7	0.264	0.11 (0.111)
Specimen 8	2.5	17.5	15.0	10.0	54.3	0.261	0.11 (0.112)
Specimen 9	2.5	17.6	15.1	10.1	53.7	0.266	0.11 (0.109)
Specimen 10	2.5	17.6	15.1	10.0	52.7	0.271	0.11 (0.108)
Specimen 11	2.5	17.5	15.0	10.0	54.9	0.259	0.11 (0.113)
Specimen 12	2.5	17.5	15.0	10.0	53.5	0.265	0.11 (0.111)
Specimen 13	2.5	17.5	15.0	10.0	53.4	0.266	0.11 (0.110)
Specimen 14	2.5	17.4	14.9	10.0	53.2	0.266	0.11 (0.110)
Specimen 15	2.5	17.4	15.0	9.9	54.2	0.261	0.11 (0.111)
Specimen 16	2.5	17.5	15.0	10.0	54.7	0.259	0.11 (0.113)
Specimen 17	2.5	17.5	15.0	10.0	52.4	0.271	0.11 (0.108)
Specimen 18	2.5	17.5	15.0	10.0	54.3	0.261	0.11 (0.112)
Specimen 19	2.5	17.5	15.0	10.0	54.4	0.260	0.11 (0.113)
Specimen 20	2.5	17.5	15.0	10.0	54.2	0.262	0.11 (0.112)

Table 42 Summary of values and the specific values acc. to EN ISO 10456

Specimen	Thermal conductivity in W/(m · K) at mean temperature of test specimen of about 10°C	Density in kg/m ³ (after the measurement)
1	0.12 (0.117)	517.8
2	0.11 (0.110)	517.0
3	0.10 (0.104)	537.1
4	0.11 (0.108)	510.2
5	0.11 (0.110)	522.0
6	0.10 (0.104)	508.4
7	0.11 (0.111)	520.2
8	0.11 (0.112)	501.5
9	0.11 (0.109)	516.7
10	0.11 (0.108)	513.4
11	0.11 (0.113)	514.6
12	0.11 (0.111)	509.7
13	0.11 (0.110)	499.8
14	0.11 (0.110)	502.9
15	0.11 (0.111)	498.2
16	0.11 (0.113)	518.6
17	0.11 (0.108)	494.7
18	0.11 (0.112)	540.5
19	0.11 (0.113)	523.1
20	0.11 (0.112)	521.5
Average	0.1103	514.4
Standard deviation	0.0030	11.90
Number n of measured values	20	20
Coefficient k ₂	1.77	-
Declared value	$\lambda_D = 0.120 (0.1156)$	-

The declared value λ_D does not include an addition for humidity influence.