



Organisme belge d'Accréditation
Belgische Accreditatieinstelling
Belgische Akkreditierungsstelle
Belgian Accreditation Body

Signatory to EA, ILAC and IAF
Multilateral Agreements

Accreditation Certificate No. 004-CAL

In compliance with the provisions of the Royal Decree of 31 January 2006 setting up BELAC, the Accreditation Board hereby declares, that the calibration laboratory

TRESCAL NV
Vosstraat, 200
2600 BERCHEM - Belgium

has the competence to perform the calibrations as described in the annex which is an integral part of the present certificate, in accordance with the requirements of the standard EN ISO/IEC 17025:2005. The present accreditation is the subject of regular surveillance in order to confirm the compliance with the accreditation conditions.

The Chair of the Accreditation Board BELAC,

Nicole MEURÉE-VANLAETHEM

Issue date : **2018-10-11**

Validity date : **2023-04-21**

Original version of this certificate is in Dutch.



Bijlage bij accreditatie-certificaat
Annexe au certificat d'accréditation
Annex to the accreditation certificate
Beilage zur Akkreditierungszertifikat

004-CAL

EN ISO/IEC 17025:2005

Versie/Version/Fassung	16
Uitgiftedatum / Date d'émission / Issue date / Ausgabedatum:	2018-10-11
Geldigheidsdatum / Date limite de validité / Validity date / Gültigkeitsdatum:	2023-04-21

Nicole Meurée-Vanlaethem

Voorzitster van het Accreditatiebureau
La Présidente du Bureau d'Accréditation
Chair of the Accreditation Board
Vorsitzende des Akkreditierungsbüro

**De accreditatie werd uitgereikt aan/ L'accréditation est délivrée à/
The accreditation is granted to/ Die akkreditierung wurde erteilt für:**

**TRESCAL nv
Vosstraat, 200
2600 BERCHEM**

**Voor activiteiten uitgevoerd door/ Pour des activités exécutés par/
For activities performed by/ Die tätigkeiten werden durchgeführt von:**

locatie 1	BERCHEM	Vosstraat, 200 2600 Berchem
locatie 2	WELLIN	Rue Jean Meunier, 2 6920 Halma (Wellin)

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**Service public fédéral, Economie,
P.M.E., Classes moyennes et Energie**
Direction générale de la Qualité et de la Sécurité
Division Qualité et Innovation
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Website: <http://economie.fgov.be>
Numéro d'entreprise: 0314.595.348

Accréditation B E L A C Accreditation

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Website: <http://economie.fgov.be>
Ondernemingsnummer: 0314.595.348

.be

TEMPERATURE (Berchem)

1.16.2 Standard Pt resistance thermometers

Measured quantity, instrument or gauge	Range	CMC (95%)	Remarks
Resistance thermometers	-196 °C	0,025 °C	By comparison with reference standards in liquid nitrogen at atmospheric pressure
	-100 °C to -40 °C	0,050 °C	By comparison with reference standards
	-40 °C to 0 °C	0,025 °C	
	0 °C to 280 °C	0,015 °C	
	250 °C to 660 °C	0,040 °C	

1.16.3 Thermocouples

Measured quantity, instrument or gauge	Range	CMC (95%)	Remarks
Thermocouples B, R & S	0 °C to 280 °C	0,40 °C	By comparison with reference standards
	280 °C to 660 °C	0,70 °C	
	660 °C to 1100 °C	1,7 °C	
	1100 °C to 1300 °C	2,3 °C	
Thermocouples	-196 °C	0,20 °C	By comparison with reference standards in liquid nitrogen at atmospheric pressure
	-100 °C to 280 °C	0,20 °C	By comparison with reference standards
	280 °C to 660 °C	0,50 °C	
	660 °C to 1100 °C	1,7 °C	
	1100 °C to 1300 °C	2,3 °C	

1.16.4 Self indicating thermometers

Measured quantity, instrument or gauge	Range	CMC (95%)	Remarks
Temperature indicators with resistance probe	-196 °C	0,025 °C	By comparison with reference standards in liquid nitrogen at atmospheric pressure
	-100 °C to -40 °C	0,050 °C	By comparison with reference standards
	-40 °C to 0 °C	0,025 °C	
	0 °C to 280 °C	0,015 °C	
	250 °C to 660 °C	0,040 °C	
Temperature indicators with thermocouple probes B, R & S	0 °C to 280 °C	0,40 °C	By comparison with reference standards
	280 °C to 660 °C	0,70 °C	
	660 °C to 1100 °C	1,7 °C	
	1100 °C to 1300 °C	2,3 °C	
Temperature indicators with thermocouple probes	-196 °C	0,20 °C	By comparison with reference standards in liquid nitrogen at atmospheric pressure
	-100 °C to 280 °C	0,20 °C	By comparison with reference standards
	280 °C to 660 °C	0,50 °C	
	660 °C to 1100 °C	1,7 °C	
	1100 °C to 1300 °C	2,3 °C	
Analogue thermometers	-100 °C to 0 °C	0,60 °C	By comparison with reference standards
	0 °C to 280 °C	0,20 °C	

Liquid in glass thermometers with a resolution of	-100 °C to 0 °C		By comparison with reference standards (totally or partially submerged) Partially submerged thermometers have a bigger CMC than mentioned
5 °C		2,0 °C	
2 °C		0,80 °C	
1 °C		0,40 °C	
0,5 °C		0,20 °C	
0,2 °C		0,090 °C	
0,1 °C		0,060 °C	
0,05 °C		0,060 °C	
Liquid in glass thermometers with a resolution of	0 °C to 275 °C		By comparison with reference standards (totally or partially submerged) Partially submerged thermometers have a bigger CMC than mentioned
5 °C		2,0 °C	
2 °C		0,80 °C	
1 °C		0,40 °C	
0,5 °C		0,20 °C	
0,2 °C		0,070 °C	
0,1 °C		0,050 °C	
0,05 °C		0,025 °C	
Surface temperature probes	ambient to 300 °C	$0,50 \% \times t + 0,50 \text{ °C}$	By comparison with reference standards

1.16.5 Radiation thermometry

Measured quantity, instrument or gauge	Range	CMC (95%)	Remarks
Infrared thermometry	-17 °C to 100 °C	0,50 °C	By comparison with reference standards
	100 °C to 200 °C	0,60 °C	
	200 °C to 400 °C	1,7 °C	
	400 °C to 600 °C	0,60%	
	600 °C to 800 °C	0,70%	

1.16.9 Contact thermometry fixed points for realizing ITS-90

Measured quantity, instrument or gauge	Range	CMC (95%)	Remarks
Platinum resistance thermometers which meet the specifications of the ITS-90 or close to these specifications			Fixed points
	-38,8344 °C	0,004 °C	triple point of mercury
	0,01 °C	0,004 °C	triple point of water
	29,7646 °C	0,004 °C	melting point of gallium
	156,5985 °C	0,005 °C	freeze point of indium
	231,928 °C	0,005 °C	freeze point of tin
	419,527 °C	0,006 °C	freeze point of zinc
	660,323 °C	0,015 °C	freeze point of aluminum
Temperature indicators with resistance probe			Fixed points
	-38,8344 °C	0,004 °C	triple point of mercury
	0,01 °C	0,004 °C	triple point of water
	29,7646 °C	0,004 °C	melting point of gallium
	156,5985 °C	0,005 °C	freeze point of indium
	231,928 °C	0,005 °C	freeze point of tin
	419,527 °C	0,006 °C	freeze point of zinc
	660,323 °C	0,015 °C	freeze point of aluminum

1.16.11 Temperature controlled chambers

Measured quantity, instrument or gauge	Range	CMC (95%)	Remarks
Characterisation of ovens and climatic chambers	-100 °C to -38,5 °C	1,6 °C	Using thermocouple type K
	-38,5 °C to 230 °C	0,080 °C	Using Pt100 probes
	230 °C to 600 °C	1,5 °C	Using thermocouple type R & S

1.16.12 Other temperature enclosures

Measured quantity, instrument or gauge	Range	CMC (95%)	Remarks
Blok calibrators	-100 °C to 650 °C	$0,040 \text{ °C} + 0,000 \text{ 05} \times t $	Full evaluation following DOC EM/CG/13 "Guidelines on the Calibration of Temperature Block Calibrators" Or calibration with known evaluation information

1.16.14 Cold junction compensation

Measured quantity, instrument or gauge	Range	CMC (95%)	Remarks
Cold junction compensation B, R & S	0 °C	0,06 °C	
Cold junction compensation	0 °C	0,025 °C	

1.16.15 In Situ calibration

Measured quantity, instrument or gauge	Range	CMC (95%)	Remarks
Temperature probe with or without readout	-100 °C to -20 °C	0,11 °C	By comparison in Block calibrators with external reference standards
	-20 °C to 50 °C	0,09 °C	
	50 °C to 250 °C	0,16 °C	
	250 °C to 650 °C	0,22 °C	