

**STANDARDS**
MALAYSIA

Certificate of Accreditation

No: SAMM 407

Accredited since: 20 October 2008

This is to certify that

TRESCAL (MALAYSIA) SDN. BHD.
IPOH, PERAK
MALAYSIA

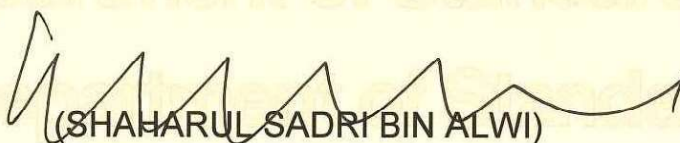


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for the current scope of accreditation

has been granted accreditation in respect of the scope of accreditation described in the schedule, subject to the terms and conditions governing the *Skim Akreditasi Makmal Malaysia* (SAMM), the Laboratory Accreditation Scheme of Malaysia.

Laboratories accredited under SAMM meet the requirements of MS ISO/IEC 17025. This Malaysian Standard is identical with ISO/IEC 17025 published by the International Organization for Standardization (ISO).




(SHAHARUL SADRI BIN ALWI)
Director General
Department of Standards Malaysia

Date of issue: 27 April 2020

(Issue 2, 27 April 2020 replacement of SAMM 407
dated 27 September 2017)

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LABORATORY LOCATION:
(PERMANENT LABORATORY)

TRESCAL (MALAYSIA) SDN. BHD.
NO. 23-23A, TASEK MUTIARA 2
PUSAT PERDAGANGAN TASEK MUTIARA
31400 IPOH, PERAK
MALAYSIA

FIELDS OF CALIBRATION: DIMENSIONAL, TEMPERATURE, MASS & PRESSURE

This laboratory has demonstrated its technical competence to operate in accordance with MS ISO/IEC 17025:2017 (ISO/IEC 17025:2017).

This laboratory's fulfillment of the requirements of ISO/IEC 17025 means the laboratory meets both the technical competence requirements and management system requirements that are necessary for it to consistently deliver technically valid test results and calibrations. The management system requirements in ISO/IEC 17025 are written in language relevant to laboratory operations and operate generally in accordance with the principles of ISO 9001 (see Joint ISO-ILAC-IAF Communiqué dated April 2017).

* The expanded uncertainties are based on an estimated confidence probability of approximately 95% and have a coverage factor of $k=2$ unless stated otherwise.

SCOPE OF CALIBRATION: DIMENSIONAL

Instrument Calibrated/ Measurement Parameter	Range	Calibration and Measurement Capability Expressed as an Uncertainty (\pm)*	Remarks
Caliper (internal & external)	0 mm to 300 mm	0.005 mm	Calibrated by using caliper checker and gauge block with reference JIS B 7507:2016
Micrometer (external)	0 mm to 125 mm 125 mm to 200 mm	0.002 mm 0.003 mm	Calibrated by using gauge block with reference JIS B 7502:2016

Signatories:

1. Shukri Bin Mohamad Ariffin
2. **Teo Hun Wei
3. **Aida Binti Ismail

** Non-resident signatory

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SCOPE OF CALIBRATION: TEMPERATURE

Instrument Calibrated/ Measurement Parameter	Range	Calibration and Measurement Capability Expressed as an Uncertainty (\pm)*	Remarks
Temperature sensor Pt 100	0 °C 30 °C to 200 °C 200 °C to 400 °C	0.2 °C 0.2 °C 0.5 °C	Comparison with Pt100 reference in liquid bath and temperature block calibrator
Thermocouple	0 °C 30 °C to 200 °C 200 °C to 400 °C	0.2 °C 0.3 °C 0.6 °C	
Temperature gauge	0 °C 30 °C to 200 °C 200 °C to 400 °C	0.3 °C 0.5 °C 0.6 °C	
Temperature sensor with indicator Pt 100	0 °C 30 °C to 200 °C 200 °C to 400 °C	0.1 °C 0.2 °C 0.5 °C	Comparison with Pt100 reference in liquid bath and temperature block calibrator
Thermocouple	0 °C 30 °C to 200 °C 200 °C to 400 °C	0.1 °C 0.3 °C 0.6 °C	
Temperature measuring device (by electrical simulation) a) Type K	-200 °C to -100 °C -100 °C to 1300 °C	1.2 °C 0.2 °C	Calibrated by electrical simulation using calibrator and reference table ITS 90
b) Type J	-200 °C to 1200 °C	0.2 °C	
c) Pt 100	-200 °C to 850 °C	0.12 °C	

Signatories:

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2. **Azlan Bin Othman
3. **Teo Hun Wei

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SCOPE OF CALIBRATION: TEMPERATURE

SITE: CATEGORY I

Instrument Calibrated/ Measurement Parameter	Range	Calibration and Measurement Capability Expressed as an Uncertainty (\pm)*	Remarks
Temperature sensor Pt 100	0 °C 30 °C to 200 °C 200 °C to 400 °C	0.2 °C 0.2 °C 0.5 °C	Comparison with Pt100 reference in liquid bath and temperature block calibrator
Thermocouple	0 °C 30 °C to 200 °C 200 °C to 400 °C	0.2 °C 0.3 °C 0.6 °C	
Temperature gauge	0 °C 30 °C to 200 °C 200 °C to 400 °C	0.3 °C 0.5 °C 0.6 °C	
Temperature sensor with indicator Pt 100	0 °C 30 °C to 200 °C 200 °C to 400 °C	0.1 °C 0.2 °C 0.5 °C	Comparison with Pt100 reference in liquid bath and temperature block calibrator
Thermocouple	0 °C 30 °C to 200 °C 200 °C to 400 °C	0.1 °C 0.3 °C 0.6 °C	
Temperature measuring device (by electrical simulation) a) Type K b) Type J c) Pt 100	-200 °C to -100 °C -100 °C to 1300 °C -200 °C to 1200 °C -200 °C to 850 °C	1.2 °C 0.2 °C 0.2 °C 0.12 °C	Calibrated by electrical simulation using calibrator and reference table ITS 90
Temperature controlled enclosure	-40 °C to 250 °C 250 °C to 1300 °C	0.6 °C 2.4 °C	Calibrated by using temperature recorder with thermocouple

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SCOPE OF CALIBRATION: TEMPERATURE

SITE: CATEGORY I

Instrument Calibrated/ Measurement Parameter	Range	Calibration and Measurement Capability Expressed as an Uncertainty (\pm)*	Remarks
Humidity chamber	5 °C to 60 °C 30 %rh to 95 %rh	0.6 °C 2.2 %rh	Calibrated by using temperature recorder with thermocouple and reference table psychrometer

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SCOPE OF CALIBRATION: MASS

Instrument Calibrated/ Measurement Parameter	Range	Calibration and Measurement Capability Expressed as an Uncertainty (\pm)*	Remarks
Standard weight	2 kg 5 kg 10 kg 20 kg 25 kg	0.2 g 0.2 g 0.2 g 0.2 g 0.2 g	Calibrated by using standard weights and weighing comparator

SCOPE OF CALIBRATION: MASS**SITE: CATEGORY I**

Instrument Calibrated/ Measurement Parameter	Range	Calibration and Measurement Capability Expressed as an Uncertainty (\pm)*	Remarks
Balance	Up to 200 g 200 g to 1000 g 1 kg to 5 kg 5 kg to 10 kg 10 kg to 20 kg 20 kg to 50 kg 50 kg to 100 kg 100 kg to 300 kg	3.6 mg 20 mg 0.10 g 0.2 g 1 g 3 g 0.006 kg 0.04 kg	Calibrated by using standard weights

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SCOPE OF CALIBRATION: PRESSURE

PERMANENT LABORATORY & SITE - CATEGORY I

Instrument Calibrated/ Measurement Parameter	Range	Calibration and Measurement Capability Expressed as an Uncertainty (\pm)*		Remarks
		<u>Lab</u>	<u>Site</u>	
Pressure measuring device				
a) Hydraulic	0 bar to 300 bar 300 bar to 700 bar	0.07 bar 0.15 bar	0.3 bar 0.3 bar	Calibrated by using test gauge
b) Pneumatic	0 bar to 0.07 bar 0 bar to 30 bar	0.017 mbar 0.010 bar	0.017 mbar 0.010 bar	
c) Vacuum	-0.9 bar to 0 bar	0.002 bar	0.002 bar	

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