

# Metrology NEWS

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News and updates from NMIM

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## PURSUING R&D IN MEASUREMENT TECHNOLOGY

National Measurement System Act 2007 in clause 10 (d) stated that one of NMIM roles is to pursue research and development in measurement technology. Thus, NMIM staffs significantly need to involve in research activities to fulfill the requirement stated in the clause. In this issue of our newsletter, Metrology News, we published our technical papers that have been presented at various national and international conferences. NMIM will continue in developing its current and future workforce to enhance its

capability and knowledge to increase our impacts and roles nationally. Currently, our research and developments in various areas such as software securities, determination of gold purity, comparative studies on multi-walled carbon nanotubes and multi wavelength phenomenon will have crucial role in supporting current national measurement standards and law enforcement, as well as providing knowledge transfer and consultation between industries, government and academia.



Dr. Osman Zakaria  
Senior Director



Enjoy reading!

## HIGHLIGHTS



### HIGH ACCURACY OF GOLD DENSITY MEASUREMENT

- page 4



### NATIONAL CRM FOR LUMINOUS TRANSMITTANCE

- page 3



### SPEED MEASUREMENT REFERENCE SYSTEM

- page 3



### GOLD MEDAL FOR STANDARD GANTANG

- page 10

## CONTENT

- ✓ NEWS
- ✓ NEW CAPABILITIES
- ✓ TECHNICAL PAPER
- ✓ INTERNATIONAL
- ✓ EVENT
- ✓ AWARD & RECOGNITION

## Metrology Institute

Back in 1970, Malaysia has started to adopt the Metric System, and in sync with that, the Weight and Measures Act 1970 was gazetted as the importance of metrology began to arise. Eight years later, Metrology Unit was developed as a unit under SIRIM. In 1982, the Metric System was enforced in Malaysia. The Metrology Unit was then upgraded to National Metrology Centre (NMC) in 1984. In 1992, NMC has been mandated as the National Time Keeper. Malaysia signed the Metre Convention in

2001 and became the signatory of CIPM-MRA since then. The appointment as the National Measurement Standard Laboratory (NMSL) in 2008 under the National Measurement System Act 2007 has therefore recognized our mandatory roles and functions to ensure the measurement system implemented is reliable locally and internationally. In 2015, NML-SIRIM changed its name to National Metrology Institute of Malaysia (NMIM) as rebranding exercise for more visibility of its functions.



## NMIM Website

NMIM official website has been launched on the 24<sup>th</sup> May 2016, in conjunction with the World Metrology Day 2016 celebration that took place at the NMIM. It has been launched by YB Datuk Seri Panglima Madius Tangau, Minister of Science, Technology and Innovation (MOSTI). The website covers information on the activities and services provided by NMIM, as well as research works and publication. We welcome all to visit our brand new website and explore it at;

[www.nmim.gov.my](http://www.nmim.gov.my)

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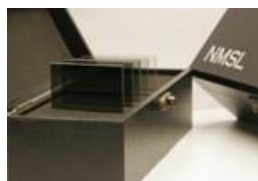
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# New Capabilities

## Luminous Transmittance Malaysian Reference Material

Luminous Transmittance Malaysian Reference Material (LTMMyRM) available for internal maintenance purpose which suitable for most



common tint meter in market. It was designed and produced due to its reliable and stability. This LTMMyRM is use to check the performance and reliability of the said item. A set of LTMMyRM supplied by NMIM consist of six Luminous Transmittance value at 80%, 71%, 64%, 50%, 32% and 21%.

## Opacity Malaysian Reference Material



Diesel Smoke Meter is a measuring device that measures the smoke emission of diesel engines. The measured parameter is opacity, %. According to Act 127, the Environmental Quality Act 1974,

Regulations Environmental Quality (Control of Emission from Diesel Engines) Regulations 2000, diesel smoke meters should be calibrated every year. National Metrology Institute Malaysia (NMIM) has developed the Opacity National Reference Material (OMyRM) for calibration of diesel smoke meter.

## Speed Measurement Reference System



National Metrology Institute of Malaysia (NMIM) has developed a speed measurement reference system for the calibration of vehicle speed-measuring devices including the Automated Enforcement System (AES). The system consists of a vehicle, high accurate GPS-based speedometer and LED speed readout panel. The calibration range is from 10 km/h to 160 km/h with the measurement uncertainty of  $\pm 0.2$  km/h.

## Water Content Analysis using Volumetric Karl Fisher

The method describes general procedure used to analyse an organic solid or liquid of samples for moisture (water) content. The detection range is suitable for 100 ppm and 100 % of water content.



## Water Meter Endurance Testing System



Water meter is one of the instruments that have to be pattern-approved as required in the Weights and Measures Act 1972. This

endurance testing system will be used to test the water meter for its reliability and accuracy. The water meter will be subjected to 100 hours of flow and 100 000 cycles flow and non-flow of water within a period of 15 seconds each. The system is able to test water meter of sizes from DN15 to DN50 with maximum flow rate of up to 50 m<sup>3</sup>/hr.

## Qualitative & Quantitative of Chemical Surface Analysis using Energy Dispersive X-Ray Fluorescence (EDXRF)

EDXRF is a non-destructive, fast, quantitative and qualitative elemental analysis technique. Typically all elements from sodium (Na) to uranium (U) can be detected simultaneously, with good quality spectra. Each element peak occurs at a known fixed position and generally concentrations from 1 ppm to 100 % are detectable with EDXRF.

### Capabilities

1. Purity assessment of gold (Au)
2. Quantification Restriction of Hazardous Substances (RoHS) in plastics.

