A quarterly magazine PP 18691/01/2018 (034114) / ISSN 2289-9030

MATERIALS MIND

Issue 24

April 2019

www.iomm.org.my

Institute of Materials, Malaysia

HIGHLIGHTS

- IMM Student Chapter
- History of Materials Lecture Competition
- Public Comment on IMM FP01:2019 (Draft)

ISSN 2289-9030
9 772289 903006

Scan me

CONTENT

APRIL 2019 Issue 24

EDITORIAL BOARD MEMBERS

INSTITUTE OF MATERIALS, MALAYSIA
Suite 515, Level 5, Block A, Kelana Centre Point (Lobby B), No. 3 Jalan SS 7/19, Kelana Jaya, 47301 Petaling Jaya, Selangor
Tel: +603-7880 1753

secretariat@iomm.org.my
www.iomm.org.my
+60 18-911 3480
Institute of Materials, Malaysia

Electronic copy of Materials Mind can be accessed via www.iomm.org.my under Materials Mind Webpage

Materials Mind

NOTICE FOR RENEWAL OF ANNUAL MEMBERSHIP SUBSCRIPTION FEES

2019

Dear members,

Notice is hereby given for the renewal of your annual subscription for 2019. Please ignore this notice if you have already paid your subscription in advance, or if you are eligible for exemption. Kindly refer to the table below for IMM Annual Subscription Fees.

If you have moved residence or employment or changed your contact numbers / email address, we would appreciate if you can take some time to update your records.

As for student members, please notify us if you have graduated in order for us to update your membership status to the contact mentioned above.

Thank you and on behalf of IMM,

Dr. Zulkarnain Kedah (secretariat@iomm.org.my)
Honorary Treasurer
(This is an electronically generated document. No signature is required)

30th September 2018

IMM MEMBERSHIP FEES

Description	Amount (RM)						
	Fellow (F.I.M.M.)	**Professional** (M.I.M.M.)	**Associate** (A.M.I.M.M.)	**Company**	**Ordinary**	**Student**	**Ordinary/ Company for affiliates**
Entrance Fee	-	-	-	50.00	20.00	10.00	40.00 / 50.00
Processing Fee	300.00	150.00	150.00	-	-	-	-
Transfer Fee	10.00	10.00	10.00	-	-	-	-
Annual Subscription	150.00	100.00	80.00	200.00	40.00	10.00	Nil

UPDATE OF MEMBER'S PARTICULARS

Title : Prof / Dato' / Dr / Mr. / other,					
Name	:				
Membership No.	:				
Correspondence Address	:				
Office No.	:		**Mobile phone No.**	:	
Email Address	:				

UPDATE OF STUDENTS MEMBER

Kindly tick the appropriate box below (& put the year):

☐ Graduated & year: _____

☐ Still Studying & anticipated graduation year: _____

PAYMENT MODE

1) Payment can be made by cheque, telegraphic transfer & bank draft as follows:

Account Name : Institute of Materials, Malaysia
Account No : 8009055156
Swift Code : CIMBMYKL
Bank Name : CIMB BANK
Country: Malaysia

Cheque can be sent to **Suite 515, Level 5, Block A, Kelana Center Point (Lobby B), No.3, Jalan SS 7/19, Kelana Jaya, 47301 Petaling Jaya, Selangor** via post/mail or direct bank-in to the account mentioned above.

2) Payment can also be made by IBG, GIRO or Cash Deposit Machine (CDM) as follows:

Account Name : Institute of Materials, Malaysia
Account No : 8009055156
Bank Name : CIMB BANK

Please email your bank in slip as your payment proof to secretariat@iomm.org.my

Please contact the IMM Secretariat office (secretariat@iomm.org.my) if you do not receive the notification of your renewal (in electronic form via email) AFTER 2 weeks of your submission of this form & payment.

Cover Story

IMM Student Chapter

Assoc. Prof. Dr. Lim Teck Hock
(Tunku Abdul Rahman University College)

What is a Student Chapter

- It is an organization for undergraduate/ postgraduate students with an interest in the Materials Science, Technology and Engineering.
- Members participate in a wide range of programs and activities that enhance their college experience and prepare them for successful careers.
- Having a student chapter allows universities and IMM to co-organise events and leverage of both parties strengths and connections.
- Plans and Proposed Plans for All Student Chapters:
- IMM Student Awards/ Industry Visits/ Internships/ Career Linkage/ Talks.
- Industry Readiness of students/ Community Services
- Financial assistance in Materials Lecture Competition leading to the honor and opportunity to represent Malaysia in Young Person's World Lecture Competition.

Existing IMM Student Chapters

	UNIVERSITY	YEAR SIGNED	MOU DURATION	STATUS
1	UNIVERSITI TUNKU ABDUL RAHMAN (UNDER ENGINEERING SOCIETY)	30th MARCH 2012	5 YEARS	RENEWED AND PROCCESED
2	UNIVERSITI MALAYA	1st NOVEMBER 2013	5 YEARS	IN PROCESS OF RENEWAL
3	POLITEKNIK KUCHING SARAWAK (PKS)	19th JUNE 2014	3 YEARS	TO INITIATE DISCUSSION
4	CURTIN UNIVERSITY SARAWAK	7th MAY 2015	5 YEARS	ON-GOING
5	UNIVERSITI TEKNOLOGI MALAYSIA	4th OCTOBER 2016	5 YEARS	ON-GOING
6	UNIVERSITI TEKNOLOGI MARA	13th SEPTEMBER 2018	5 YEARS	ON-GOING

IMM Student Chapters Committee

Position	Name	Company
Chair	Assoc. Prof. Dr Lim Teck Hock	Tunku Abdul Rahman University College
Co-Chair	Dr. Mahmood Anwar	Curtin Sarawak
Secretary	Mr Ong Thai Kiat	Tunku Abdul Rahman University College
Committee Member	Assoc. Prof. Dr. Andri Andriyana	Universiti Malaya
	Assoc. Prof. Ir. Dr. Ang Bee Chin	Universiti Malaya
	Dr. Ho Mui Yen	Tunku Abdul Rahman University College
	Dr. Liew Chiam Wen	Tunku Abdul Rahman University College
	Dr. Maxine Yee Swee Li	Nottingham Malaysia
	Dr. Neamul Ahsan Noman Khandoker	Curtin Sarawak
	Dr. Suimaya Islam	Curtin Sarawak
	Ts. Dr. Tay Chia Chay	Universiti Teknologi MARA
	Dr. Tong Kim Suan	Kuala Lumpur Kepong Berhad

Activities in 2018

IMM Student Award - UTAR

Title of Award	Institute of Materials Malaysia (IMM) Student Award
Frequency of Award	One (1) award annually
Student Cohort to be considered for the Award	Graduating students starting every May to January Session of the respective academic year, *e.g*, May 2014 to January 2015
Sponsorship Duration	Five (5) years, *I.e*, Academic Year 2014/2015 to 2018/2019
Prize of Award	A plaque, certificate and a cheque to the value of RM 1,000
Eligible Candidates	Local or international student graduated in Bachelor of Engineering (Hons) Materials and Manufacturing Engineering. The selection of award recipient is based on the best overall performance, *i.e*, the highest CGPA.

Recipients of IMM Student Award - UTAR:

Academic Year 2014/2015
Name : Lee Yin Yung

Academic Year 2016/2017
Name : Ng Chin Wen

Academic Year 2017/2018
Name : Teoh Wei Ying

Seminar organised by Students

Figure 1: Dr. Kuan who leads Utar-IMM Student Chapter (third from left), Dr. Lai Fook Chuan (middle) Assoc. Prof. Dr. Juan JC and Assoc. Prof. Dr. Lim TH at the seminar.

Cover Story

Student Chapter of IMM at Kuala Lumpur Engineering Science Fair

As part of IMM's continuous commitment to fulfill its mission to promote public understanding and appreciation of Materials Science, Student Chapter of IMM participated in the recent Kuala Lumpur Engineering Science Fair (KLESF) 2018 event, held from Nov 2 to Nov 4, 2018 at the MINES International Exhibition & Convention Centre.

KLESF has proven itself as an effective platform for the promotion of STEM education in Malaysia since first organized in 2013 by the Malaysian Industry-Government Group for High Technology (MIGHT), Asean Academy of Engineering and Technology (AAET), Institution of Engineers Malaysia (IEM), and Universiti Tunku Abdul Rahman (UTAR).

KLESF enters its fourth edition in 2018 with an expected 70,000 visitors. This annual event has managed to attract more than 20 private and public universities, over 50 companies, multiple government agencies, and for foreign exhibitors from China and Hong Kong to participate in the three day event

With an aim to enhance interest in Sciences and Engineering a part of STEM education, IMM Student Chapter together with dedicated staff from MTE organized two hand-on workshops to demonstrate to the public that Materials Science could be interesting, fun and that it is important and relevant to both our daily life and our country's economy.

IMM's Student Chapter, with assistance from members of Utar-IMM Student Chapter ran a workshop on Lemon Battery. The usage and applications of batteries and energy in daily life was then pointed out to the visitors.

The second workshop was built on the concept of Visual Inspection of Corrosion and this workshop was supervised by experienced staff from Materials Technology Education (MTE).

Figure 2: IMM's booth at KLESF 2018

Figure 3: Lemon Batteries Workshop by Utar-IMM Student Chapter

Figure 4: MTE on Visual Inspection of Corrosion of Metals

Proposed Activities in 2019

Materials Lecture Competition April 2019 led by MLC Committee

- Led by Prof. Dr. Esah Hamzah (Chair of MLC committee of IMM)
- A plan in place for IMM Student Chapter to provide financial assistance for members making it to the final of the MLC, especially participant from different states.

Incentives for Soliciting Advertisement in Materials Mind Magazine

To create another channel for each Student Chapter to get funds from IMM to support each chapter's activities: Materials Mind Advertisement **Income Sharing (suggesting 5:45:50). 5% goes to the solicitor (submitted through respective Student Chapter), 45% goes to the Student Chapter and 50% goes to IMM.** All payments/ transactions are to go through IMM secretarial office as per our current standard practice.

Setting up of Student Publication Editorial Board (SPEB) in all Student Chapter

- Setting up a Student Publication Editorial Board (SPEB) within each IMM-Student Chapter.
- To have each SPEB to manage a 2-4 page publication on Materials Mind in rotation.
- Students to develop skills in editing and running a publication

TRAINING & CERTIFICATION PROGRAM

Discover opportunities in our

Career Path Elevation Program

COURSES OFFERED




Coating Certification Scheme
Coating Fingerprint Certification Scheme
Corrosion Certification Scheme
Flange Integrity Certification Scheme
Materials Courses
Thermal Analyst Certification Scheme
Thermal Insulation Certification Scheme
Vibration Certification Scheme
Welding Certification Scheme
and many more...

Recognized by PETRONAS

***Competency certificate** will be issued to participants who pass the examination criteria for **certified course**.*

For the most up-to-date information, visit

Institute of Materials, Malaysia

www.iomm.org.my secretariat@iomm.org.my

+60 18-911 3480 Institute of Materials, Malaysia

*As updated on 26th Feb 2018

UiTM-IMM Student Chapter

Figure 1: Corrosion Forum

UiTM–IMM Student Chapter was established on 13th September 2018. UiTM-IMM Student Chapter allows both parties to carry out activities or programmes relating to join conference, training courses, seminars and activities, besides enhancement of academic materials and other information for the benefit of students and also public at large.

The UiTM-IMM Student Chapter was initiated by Faculty of Applied Sciences, Universiti Teknologi MARA (UiTM), Shah Alam. Currently, the UiTM-IMM Student Chapter has 70 members. Most of the members are from the Faculty of Applied Sciences and Faculty of Engineering, UiTM, Malaysia.

The first programme organized by the UiTM-IMM Student Chapter was the Corrosion Forum. This forum was organized on 13th September 2018. The theme of this forum was "Corrosion and Coating Development in Industry". The invited speakers were Mr. Kang Kim Ang, Managing Director of Control Group of Companies and Mr. Mark Hew Yoon Onn, Executive Director of Universal Corrosion Engineering (M) Sdn Bhd. In this forum, both speakers shared their knowledge on corrosion and the latest technological issues on coatings.

The UiTM-IMM Student Chapter also received an invitation from Institute of Materials, Malaysia (IMM) to attend the "International Applied Vibration Conference (IAVIC) 2018" at Royal Chulan Hotel, Kuala Lumpur. About 30 of UiTM-IMM Student Chapter members attended this conference which was held on 22nd November 2018. In this conference, the students gained knowledge on the importance of vibration technology and its application in the industry.

The UiTM-IMM Student Chapter started their 2019 activity, by visiting Cenviro Waste Management in Port Dickson on 6th

Figure 2: UiTM-IMM Student Chapter Member at IAVIC 2018

March 2019. The plant visit was organized by the Education Committee, IMM. Information on waste management process in Malaysia was shared during the visit. This plant visit was a very good activity since it encourages students to keep our country clean and implement wealth from waste approach. Students especially those from the environmental faculty had gained a lot of applied knowledge on waste management process.

After almost six months of establishment, the UiTM-IMM Student Chapter was given its first tasks to organize the most important event for IMM Student Chapter activity, which was the Materials Lecture Competition (MLC) at UiTM level. This year, the MLC was organized with collaboration between UiTM-IMM Student Chapter and the Faculty of Mechanical Engineering. The MLC at UiTM level was held on 13th April 2019 at Dewan Alamanda, Faculty of Mechanical Engineering, UiTM. The MLC event was officiated by UiTM Deputy Vice Chancellor of Academic and International, Prof. Ts. Dr. Mohamad Kamal Harun. The winner for MLC at UiTM level was Mohamad Aidil Ali. He will represent UiTM for MLC at the National level which will be conducted at Universiti Teknikal Malaysia Melaka (UTeM), on 4th April 2019.

On the overall, students gave positive feedback for all the events conducted by UiTM-IMM Student Chapter. UiTM-IMM Student Chapter would like to take this opportunity to thank IMM for the invitation and collaboration with the UiTM-IMM Student Chapter. All activities conducted provided very good exposure to UiTM students. We hope that in future there will more co-join activities between UiTM-IMM Student Chapter and IMM. We also expect that there will be more students joining UiTM-IMM Students Chapter.

Figure 3: Photo Session during Materials Lecture Competition at UiTM Level

Figure 4: Photo Session of UiTM-Student Chapter Members and Advisors with En. Zainudin Zulkifli, the Cenviro Head, Project Management and Operation Excellence

WORKSHOP & DEMO

MAGNETSPINARC

(a.k.a MIAB)

REDUCED Welding Time up to 90%!!!

NO Filler Material and Shielding Gas are NEEDED!!!

Date: 2nd May 2019

Time: 14:30 - 16:30

Venue:

Advanced Manufacturing Laboratory,
Faculty of Mechanical Engineering,
UiTM Shah Alam

- **Is your welding process too slow?**
- **Do you need so much filler material & shielding gas?**
- **Is highly-skilled welder always required?**
- **Are defects frequently occurred?**

If the answers are YES, then you should know this *DISRUPTIVE* welding technology.

Secure your ***FREE-OF-CHARGE*** seat by emailing:
technogerma.engineering.info@gmail.com

For further info, please contact:

En. Ackiel (013-2692378) / En. Khairulnizam (011-10353839) / En. Yunus (012-2092442) / En. Shahidan (012-3001473) / En. Shaiful (0196343218) / En. Thoufeili (019-3851507)

PRINCIPLE & APPLICATIONS

MAGNETSPINARC (also known as MIAB) is classified into pressure welding. This welding system initiates the process related to the interaction of the axial component of the electric current with radial component of the induction magnetic field inducing force that causes Magnet-Spin-Arc along pipes edges at small gap. The face butt ends of the pipes to be welded are heated. When the required heating is reached, the forces and the welding current value are changed causing the welding arc to scan along the surface of the ends. Then under PLC control, the upset is performed by precise linear load and quality weld is produced.

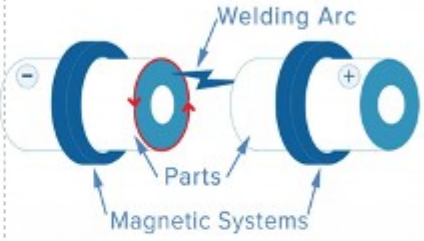


Fig. 1: Basic Principle of MAGNETSPINARC

Fig. 2: Various Applications of MAGNETSPINARC

Major Advantages of MAGNETSPINARC:

- Welding time reduction up to 90%
- No edge preparation
- No filler material
- Less metal loss
- Can weld dissimilar parts
- No spatter inside
- Automatic mass production line is possible
- Less distortion
- Uniform welding
- Low maintenance of welding system
- Low energy consumption
- No rotation of components
- Can weld pipe-to-pipe, pipe-to-plate & non-circular parts
- No Hydrogen permeation from filler material or environment
- etc

PRESENTERS & FACILITATORS

Prof. Ir. Ts. Dr.-Ing. Yupiter HP Manurung IWE/EWE (AMTEx UiTM), Dr. Vladimir S. Kachinskiy (E.O.Paton Electric Welding Institute NAS Ukraine), Dr. Mohamed Ackiel Mohamed (Serba Dinamik Holding & IMM), Mohd Yunus (TEC), Khairulnizam Kasim (PSA), Shahidan Mohamad (AMTEx UiTM), Helmi Omar (AMTEx UiTM), Tc. Shaiful Amri (AMTEx UiTM), Zaidi Minggu (FKM UiTM), Amirul Hafezeen (FKM UiTM) and M. Shahrul Aqwa (FKM UiTM).

ORGANISED BY

History of Materials Lecture Competition

Compiled and Edited by:
Prof. Dr. Esah Hamzah,
MLC Committee Chairperson
Dr. Nor Akmal Fadil,
UTM-MLC Chairperson

BACKGROUND OF MLC

The Materials Lecture Competition (MLC) is the brainchild of the Institute of Materials, Malaysia (IMM) to give a platform to the young students and researchers from public and private universities as well as from the industries in Malaysia to showcase their ability to communicate their research work or projects related to materials to a diversified audience. The name "Materials Lecture Competition" or simply known as MLC was proposed and had been approved by IMM Council in year 2012. The first MLC known as MLC 2012 was introduced in July 2012 in conjunction with the 8th International Materials Technology Conference and Exhibition (IMTCE 2012) organised by IMM. This was followed by MLC 2013 in the following year and has become an annual event till today. In the year 2014, MLC Semi-Final was introduced due to an overwhelming response from the institutions of higher learning in Malaysia to participate and compete in the MLC. The MLC Semi-Final main objective is to select the top five winners whom will compete in the MLC Finals. The First Winner from MLC Finals will represent Malaysia (as Malaysia Finalist) in the International/World competition, the Young Person's World Lecture Competition (YPWLC), organised by the Institute of Materials, Minerals and Mining (IOM3), UK. Cash prizes awarded to the winners of MLC 2013 to MLC 2018 were RM3000, RM2000 and RM1000 for first, second and third winners respectively. Consolation prizes of RM500 each were given to the fourth and fifth winners.

OBJECTIVES OF MLC

The Materials Lecture Competition (MLC) is an initiative intended to give the opportunity to the young students and researchers, particularly in the area of materials science & engineering, to showcase their presentation skills and share their knowledge on issues pertaining to materials to a diversified audience. The MLC is open to all registered Malaysian and international students (except academic staff) in the public and private universities as well as graduates in Malaysia. They should be under the age of 28 in the year of the competition. Each university is allowed to send one candidate to compete in the MLC. Topics of the presentation are from the following areas of interest (but not limited to): materials development, characterization, properties, processing and applications. The other main objective of MLC competition is to give an awareness to the universities in Malaysia on IMM and IMM activities.

Materials Lecture Competition 2012 (MLC 2012)

Introduction

MLC 2012 was the first MLC and was held in conjunction with the IMTCE 2012 conference (9th-12th July 2012) organised by IMM. MLC 2012 has two categories: undergraduates and postgraduates. Invitations to participate in MLC 2012 were sent to many universities in Malaysia but only 3 universities gave their responses: UTM, USM and UPM. The main sponsor and host of MLC 2012 was IMM and the event was chaired by Prof. Dr. Esah Hamzah. This MLC 2012 was also initiated and organised by Prof. Dr. Ali Ourdjini and Dr. Nor Akmal Fadil from Universiti Teknologi Malaysia Johor Bahru.

Details of MLC 2012

Host: Institute of Materials, Malaysia (IMM)
Date: 09th July 2012 (2.00-5.30pm)
Venue: Sunway Hotel, Kuala Lumpur
Chairperson: Prof. Dr. Esah Hamzah (IMM)
Participating Universities (3): UTM, USM, UPM.
Sponsor: IMM

MLC 2012 Judges:

1. Dato' Dr. Ong Eng Long (IMM Past President)
2. Ir. Maimunah Ismail (Shell Malaysia)
3. Eng. Nigel Brewitt (MTIS)

MLC 2012 Winners:

(a) Undergraduate Category
First: Mohd Danial Shafiq (USM)
Runner-up: Gary Yeow Wen Jie (UTM)
(b) Postgraduate Category
First Prize: M. Ghaddafy Affendy (USM)
Runner-up: Nor Aqilah Mohd Fadzil (UPM)

Figure 1: MLC 2012 participants, judges and committee

Materials Lecture Competition 2013 (MLC 2013)

Introduction

MLC 2013 was held in conjunction with the 1st International IMM Materials Symposium on 30 May 2013 in Kuala Lumpur. The first National MLC Committee was formed in the year 2013 comprises of representatives from various IPTA/IPTS in Malaysia. Prof. Dr. Esah Hamzah from Universiti Teknologi Malaysia was appointed as the Chairperson of IMM-MLC by IMM Council. An MoU was signed between IMM and IOM3-

Malaysia Branch in order to allow MLC 2013 First Winner to be the Malaysia Finalist to participate in the Young Person World Lecture Competition (YPWLC 2013) organised by IOM3.

Details of MLC 2013
Host: Institute of Materials, Malaysia (IMM)
Date: 30th May 2013 (1.45-6.30pm)
Venue: Seri Pacific Hotel Kuala Lumpur
Chairperson: Prof. Dr. Esah Hamzah (IMM)
Participating Universities (10):
UTM, USM, UKM, UM, UTP, UniMAP, UiTM, UTeM, APU and Nottingham University Malaysia
Sponsors: IMM and IOM3-Malaysia Branch

MLC 2013 Judges:
1. Ir. Max Ong Chong Hup (IMM)
2. Dr. Ng Wing Kong (IOM3 Malaysia Branch)
3. Prof. Dr. Ahmad Faizal Mohd Zin (UMP)

MLC 2013 Winners:
First: Farahani Irna Nazari (UTeM)
Second: Yap Meng Wei (UM)
Third: Mohd Idham Mohd Ibrahim (UiTM)

The First winner of MLC 2013, Farahani Irna Nazari from Universiti Teknikal Malaysia Melaka (UTeM) became the Malaysia Finalist to participate in the YPWLC 2013 in Hong Kong on 31st Oct 2013, fully sponsored by IOM3-UK. The accompanying person to Hong Kong was Prof. Dr. Esah Hamzah (IMM-MLC chairperson) sponsored by IMM.

Figure 2: MLC 2013 winners, judges and committee

Figure 3: Farahani with YWPLC 2013 participants and judges, Hong Kong

Materials Lecture Competition 2014 (MLC 2014)

Introduction
MLC 2014 was held in conjunction with IMTCE 2014 conference on 13th-16th May 2014 organised by IMM. Due to an overwhelming response from the universities, IMM Council decided that the competition should be organised in two sessions. The first session (MLC Semi-Final) is open to all universities in Malaysia and the top 5 winners will compete again in the second session (MLC Finals) for the first, second and third positions. Mr. Barry Lyle from Institute of Materials, Minerals and Mining (IOM3), UK, attended and nominated as one of the judges of MLC 2014 Finals.

Details of MLC 2014
MLC 2014 Semi-Final
Host: Universiti Teknologi MARA (UiTM)
Date: 03rd April 2014 (8.30am-5.00pm)
Venue: Faculty of Mechanical Engineering, UiTM, Shah Alam, Selangor.
Chairperson: Assoc. Prof. Dr. Aidah Jumahat (UiTM)
Sponsor: UiTM, IMM and PETRONAS
Participating Universities (13):
UTM, USM, UKM, UM, UPM, UiTM, UTeM, UniMAP, UTHM, UMP, UTP, MMU and APU

MLC 2014 Semi-Finals Judges:
1. Ir. Ong Chong Hup (Norimax Sdn Bhd)
2. Ir. Maimunah Ismail (Mat. Consultant)
3. Eur-Ing Nigel Brewitt (Norimax Sdn Bhd)
4. Prof. Dr. Megat Mohd Hamdan Megat Ahmad (UPNM)

Top Five Finalists and Winners:
1. Kudzai Nigel Chitewe (APU)
2. Leong Chee Huan (UKM)
3. Losini A/P Amarasan (MMU)
4. Gregory Thien Soon How (UM)
5. Mohd Saidina Dandan Satia (USM)

MLC 2014 Finals
Host: Institute of Materials, Malaysia (IMM)
Date: 13th May 2014 (2.00-5.00pm)
Venue: Seri Pacific Hotel, Kuala Lumpur
Chairperson: Prof. Dr. Esah Hamzah (IMM)
Sponsors: IMM and PETRONAS

MLC 2014 Finals Judges:
1. Prof. Dr. David Rugg (Rolls-Royse PLC)
2. Mr. Barry Lyle (IOM3, UK)
3. Prof. Ir. Dr. Ahmad Faizal Mohd Zain (USIM)
4. Assoc. Prof. Ir. Dr. Nahrul Khair Alang Md Rashid (IIUM)

Winners of MLC 2014:
First: Losini A/P Amarasan (MMU)
Second: Kudzai Nigel Chitewe (APU)
Third: Mohd Saidina Dandan Satia (USM)

Losini A/P Amarasan from Multimedia University (MMU) represented Malaysia to participate in the YPWLC 2014 in the University of California, Riverside, USA on 23rd October 2014, fully sponsored by IOM3-UK. Losini won third place in the YPWLC 2014 competition. On behalf of IMM, the accompanying person to the USA was the IMM-MLC Chairperson, Prof. Dr. Esah Hamzah. The trip was sponsored by PETRONAS.

Figure 4: MLC 2014 finalists, judges and committee

Figure 5: Losini won 3rd plae in YPWLC 2014 in USA

Materials Lecture Competition 2015 (MLC 2015)

Introduction
Mr. James Rickard, a representative of The Institute of Materials, Minerals and Mining (IOM3) Hong Kong branch attended the MLC 2015 Final event and nominated as one of the judges in the MLC 2015 Finals.

Details of MLC 2015
MLC 2015 Semi-Final
Host: Universiti Kebangsaan Malaysia (UKM)
Date: 19th March 2015 (9.00am-5.00pm)
Venue: Graduate Hall, UKM, Bangi Selangor.
Chairperson: Assoc. Prof. Dr. Mariyam Jameelah Ghazali (UKM)

Participating Universities (15):
UTM, USM, UKM, UM, UPM, UTeM, UniMAP, UiTM, UTHM, UMP, MMU, APU, TAR-UC, UniKL-MIAT and Taylor's University

MLC 2015 Semi-Finals Judges:
1. Assoc. Prof. Dr. Hanim Salleh (UNITEN)
2. Assoc. Prof. Dr. Azuraien Jaafar (UTP)
3. Dr. Badrol Ahmad (TNB Research)
4. Mr. Saat Shukri Embong (MIMOS)

Top five Finalists and Winners:
1. Teo Pao Ter (USM)
2. Hana Atiqah Abdul Karim (UM)
3. Chin Chuin Hao (UKM)
4. Kanaheswary Sockalingam (UTHM)
5. Brian Mooy Chi Ho (APU)

MLC 2015 Finals
Host: Universiti Kebangsaan Malaysia (UKM)
Date: 14th May 2015 (9.00am-12.30pm)
Venue: Hotel Bangi-Putrajaya
Chairperson: Assoc. Prof. Dr. Mariyam Jameelah Ghazali (UKM)
Sponsors: UKM, Kiswire Sdn Bhd and IMM

MLC 2015 Finals Judges:
1. Mr. James Rickard (IOM3-Hong Kong)
2. Ir. Maimunah Ismail (IMM)
3. Prof. Dr. Mohd Sapuan Salit (UPM)
4. Prof. Dr. Durrishah Idrus (UTM)

Winners of MLC 2015:
First: Hana Atiqah Abdul Karim (UM)
Second: Kanageswary Sockalingam (UTHM)
Third: Chin Chuin Hao (UKM)

The MLC 2015 First Winner, Hana Atiqah Abdul Karim from Universiti Malaya (UM) became Malaysia Finalist and participated in the YPWLC 2015 in Dublin, Ireland on 22nd October 2015, fully sponsored by IOM3-UK. The accompanying person to Dublin, Ireland was the MLC 2015 Chairperson, Assoc. Prof. Dr. Mariyam Jameelah Ghazali (UKM) sponsored by IMM.

Figure 6: MLC 2015 finalists and judges

Figure 7: Hana Atiqah (Malaysia Finalist) with YPWLC 2015 finalists, judges and organising committee

Materials Lecture Competition 2016 (MLC 2016)

Introduction
Universiti Malaya (UM) was the second university selected by IMM Council to host both the MLC semi-final and final events. The MLC 2016 event was jointly organised and sponsored by UM and IMM.

Details of MLC 2016
MLC 2016 Semi-Final
Host: Universiti Malaya (UM) Kuala Lumpur
Date: 25th April 2016 (9.00am-5.30pm)
Venue: High Impact Research Building, UM
Chairperson: Dr. Ang Bee Chin (UM)
Sponsor: UM and IMM

Participating Universities (12):
UTM, USM, UKM, UM, UPM, UiTM, UniMAP, UTP, MMU, APU, TAR-UC and Nottingham University Malaysia.

MLC2016 Semi-Finals Judges:
1. Dr. Samad Solbai (TH Heavy Eng. Bhd)
2. Mrs. Nurul Asni Mohamed (PETRONAS)
3. Prof. Dr. Nordin Othman (MSU)
4. Assoc. Prof. Dr. Aziz Mohamed (UNITEN)

Top Five Finalists and Winners:
1. Hoy Chun Wai (APU)
2. M.H.M. Mubassir (UTM)
3. Ahmad Firdaus (UKM)
4. Muhammad Iqbal (UPM)
5. Ho Wan Ying (UM)

MLC 2016 Finals
Host: Universiti Malaya (UM)
Date: 26th May 2016 (9.00am-12.30pm)
Venue: Universiti Malaya, Kuala Lumpur
Chairperson: Dr. Ang Bee Chin (UM)

MLC 2016 Finals Judges:
1. Eur-Ing Nigel Brewitt (Norimax Sdn Bhd)
2. Assoc. Prof. Dr. Chan Chin Han (IMM)
3. Dr. Mahesh Kumar Talari (UiTM)
4. Dr. Chew Khoon Hee (TAR -UC)

Winners of MLC 2016:
First: Hoy Chun Wai (APU)
Second: Ho Wan Ying (UM)
Third: M.H.M. Mubassir (UTM)

MLC 2016 First Winner, Hoy Chun Wai from Asia Pacific University of Technology and Innovation (APU) was the Malaysia Finalist and participated in the YPWLC 2016 in Araxa, Brazil on 13th October 2016, fully sponsored by IOM3-UK. The accompanying person to Brazil was Dr. Lau Chee Yong (APU) replacing the MLC 2016 Chairperson, Dr. Ang Bee Chin (UM) who was unable to go to Brazil. The trip was partly sponsored by IMM.

Figure 8: MLC 2016 finalists, judges and committee

Figure 9: Hoy (Malaysia Finalist) with YPWLC 2016 participants in Brazil

Materials Lecture Competition 2017 (MLC 2017)

Introduction
Asia Pacific University of Technology and Innovation (APU) located in Bukit Jalil, Kuala Lumpur was the third institution and the first private university selected by IMM Council to host the MLC event. The MLC 2017 event was jointly organised between APU and IMM. The main sponsors of the event were APU, IMM and Top Glove Co.

Details of MLC 2017
MLC 2017 Semi-Finals
Host: Asia Pacific University of Technology and Innovation (APU)
Date: 18th April 2017 (9.00am-5.00pm)
Venue: APU, Bukit Jalil, Kuala Lumpur
Chairperson: Mr. Brian Lim Siong Chung (APU)
Sponsors: APU, Top Glove Co. and IMM

Participating Universities (12):
UTM, USM, UKM, UM, UTeM, UiTM, UniMAP, MMU, UNITEN , Nottingham University Malaysia and Taylor's University.

MLC 2017 Semi-Finals Judges:
1. Prof. Dr. Luqman Chuah Abdullah (UPM)
2. Assoc. Prof. Ir. Dr. Zuraida Ahmad (IIUM)
3. Dr. Hasnah Abdul Wahad (SIRIM Bhd)
4. Ir. Abu Bakar Mohd Arif (PETRONAS)

Top Five Finalists and Winners:
1. Muhd Johan Iskandar bin Zahari (UKM)
2. Mohd Haziq Dzulkifli (UTM)
3. Ng Zheng Yu (Nottingham University Malaysia)
4. Tinesha A/P Selvaraj (UniMAP)
5. Soo Kuan Lim (USM)

MLC 2017 Finals
Host: Asia Pacific University (APU)
Date: 16th May 2017 (9.00am-12.30pm)
Venue: APU, Bukit Jalil, Kuala Lumpur
Chairperson: Mr. Brian Lim Siong Chung (APU)
Sponsors: APU, Top Glove Co. and IMM

MLC 2017 Finals Judges:
1. Prof. Dr. Mohd Kamal Harun (UiTM)
2. Ir. Dr. R. Dhakshyani (APU)
3. Mr. Kang Kim Ang (CORRTROL Co)
4. Mrs. Nurul Asni Mohamed (PETRONAS)

Winners of MLC 2017:
First: Ng Zheng Yu (Nottingham University Malaysia)
Second: Mohd Haziq Dzulkifli (UTM)
Third: Muhd Johan Zahari (UKM)

The First Winner of MLC 2017, Ng Zheng Yu, became the Malaysia Finalist and participated in the YPWLC 2017 on 12th October 2017 in Perth, Australia. Ng Zheng Yu won third place in the YPWLC 2017. The accompanying person to Perth Australia was the MLC 2017 Chairperson, Mr. Brian Lim Siong Chung (APU), sponsored by IMM.

Figure 10: MLC 2017 finalists

Figure 11: Ng Zheng Yu won third place in YPWLC 2017 in Perth, Australia

Materials Lecture Competition 2018 (MLC 2018)

Introduction
Universiti Teknologi Malaysia (UTM) was the fourth university selected by IMM Council to host the MLC event. It was jointly organised by IMM, UTM Kuala Lumpur and UTM Johor Bahru MLC 2018 committee. Due to its strategic location, UTM Kuala Lumpur campus was chosen to be the venue of MLC 2018 and Assoc. Prof. Dr. Astuty Amrin who is based in UTM Kuala Lumpur was selected to be the Chairperson of MLC 2018, whereas Dr. Nor Akmal Fadil and Dr. Nor Hasrul Akhmal Ngadiman who are based in UTM Johor Bahru acted as the Co-Chairpersons of the MLC 2018. Both Dr. Nor Akmal and Dr. Nor Hasrul representing UTM in the MLC Committee 2018-2020. Serba Dinamik Holdings Bhd was the main sponsor of the event together with UTM and IMM.

Details of MLC 2018
MLC 2018 Semi-Finals
Host: Universiti Teknologi Malaysia (UTM)
Date: 05th April 2018 (9.00 am-5.00pm)
Venue: UTM Kuala Lumpur campus
Chairperson: Assoc. Prof. Dr. Astuty Amrin (UTM)
Sponsors: UTM, Serba Dinamik Holdings Bhd and IMM
Participating Universities (11):
UTM, USM, UKM, UM, UTeM, UNITEN, UniMAP, MMU, UPM, UTP, and TAR-UC.

MLC 2018 Semi-Final Judges:
1. Prof. Dr. Che Husna Azhari (USIM)
2. Assoc. Prof. Ir. Dr. Zuraida Ahmad (IIUM)
3. Ir. Dr. Mohd Azman Yahya (UiTM)
4. Ir. Ong Hock Guan (Shell Malaysia)
5. Mr. Karthikeyan Supperiamam (Murphy Oil)

Top Five Finalists and Winners:
1. Andrew Ng Kay Lup (UM)
2. Norkhalizatul Akmal Mohd Jamil (UTM)
3. Raffaella Pian Cheau Mei (UTP)
4.Nur Najwa Aqilah Kamrul Zaman (UTeM)
5. Ng Sook Hui (UniMAP)

MLC 2018 Finals
Host: Universiti Teknologi Malaysia (UTM)
Date: 03rd May 2018 (9.00am-12.30pm)
Venue: UTM Lumpur campus
Chairperson: Assoc. Prof. Dr. Astuty Amrin
Sponsors: UTM, Serba Dinamik Holdings Bhd and IMM

MLC2018 Finals Judges:
1. Assoc. Prof. Ir. Dr. Abu Bakar Sulong (UKM)
2. Assoc. Prof. Dr. Chan Chin Han (UiTM)
3. Ir. Dr. Azmi Mohammed Nor (PETRONAS)
4. Mr. Kang Kim Ang (Corrtrol Co)

Winners of MLC 2018:
First: Andrew Ng Kay Lup (UM)
Second: Norkhalizatul Akmal Jamil (UTM)
Third: Raffaella Pian Cheau Mei (UTP)

The First Winner of MLC 2018, Andrew Ng Kay Lup from Univeristi Malaya (UM), became the Malaysia Finalist and participated in the YPWLC 2018 on 11th October 2018 in Port Elizabeth, South Africa fully sponsored by IOM3, UK. Andrew Ng won third place in the YPWLC 2018. The accompanying person to South Africa was UM-MLC Committee, Dr. Nazatul Liana Sukiman from Universiti Malaya replacing the MLC 2018 Chairperson, Assoc. Prof. Dr. Astuty Amrin, who was unable to go to South Africa. The trip was partly sponsored by IMM.

Figure 12: The winners of MLC 2018 final

Figure 13: Andrew Ng won third place in YPWLC 2018 in South Africa

Winning Materials Lecture Competition and Young Persons' World Lecture Competition

Interviewee:
Dr. Andrew Ng Kay Lup,
University of Malaya
MLC2018 Winner/3rd place in YPWLC2018

Interviewed by:
Nurul Fatahah Asyqin Zainal,
Universiti Teknologi MARA
Cawangan Selangor,
Kampus Dengkil

Tells us about yourself

Hi, I am Dr. Andrew Ng Kay Lup. I obtained my Bachelor's Degree in Chemical Engineering with a First Class Honors in 2016 from Universiti Tunku Abdul Rahman. I then pursued my doctorate in chemical engineering at University of Malaya (2016—2018). My PhD research was on the kinetic modeling of phenol hydrodeoxygenation with research foci of reaction engineering and catalysis.

I am an avid research orator who represented University of Malaya in various scientific communication competitions such as 3-Minute Thesis, Falling Walls Lab, Malaysia National Olympiad, etc. Besides that, I am a string musician and a voluntary social Christian worker for Philippines areas.

How did you get to know of Materials Lecture Competition 2018?

I received an email from the Centre of Advanced Materials, University of Malaya on the promotion of this event.

Tell us more about your achievements in these competitions.

I was the champion of Materials Lecture Competition 2018 for the university and the national levels. By being the national champion, I was given the opportunity to represent my country as the Malaysia finalist to compete at the international level: Young Persons' World Lecture Competition 2018 (YPWLC 2018) which was held at Port Elizabeth, South Africa. As such, I won the Second Runner-up place in the YPWLC 2018.

How have you found your week in Port Elizabeth, South Africa?

It has been a very exciting and incredible experience for me as it was my first time to be at Port Elizabeth. The finalists were given the chance to have myriads of academia, industrial and tourism visits under the sponsorship of CBMM. I particularly enjoyed the township of Taranga.

What have you learnt from these competitions?

I have learnt a lot of things, particulary about how to present my work to the younger generation and also about the culture in South Africa as well as those of the other competitors.

What are your preparation tips for these events?

I always believe that to teach is to learn doubly. When it comes to teaching or lecturing, it is not just about whether I grasp the concept but rather on how I am able to make someone grasps the concept: and that is my burden of proof. To appeal to a man's mind, I use philosophy; to appeal to a man's heart, I use passion; and these are my essences in the process of imparting knowledge.

What advice would you give to anyone thinking of entering the MLC 2019 and YPWLC 2019?

I would say do it. Just be yourself and try to enjoy every moment. Remember to be passionate and enthusiastic and you will learn a lot.

What are your final thoughts for these events?

To represent my country and to compete with the best people in the world are certainly things which I have never thought of. It was indeed a humbling and zero-to-hero experience for me. I express my gratitude to God, my family and my University of Malaya mentors: Assoc. Prof. Dr. Andri Andriyana and Assoc. Prof. Ir. Ang Bee Chin for this monumental achievement. For it was only through them this victory was made possible.

Quarterly Magazine

What are coming.....

MATERIALS MIND
ISSN: 2289-9030

Issue	Month	Theme
22	October 2018	Materials Education – STEAME
23	January 2019	IMM Year Book & Vibration
24	April 2019	IMM outreach program
25	July 2019	Insulation & Welding
26	October 2019	Corrosion

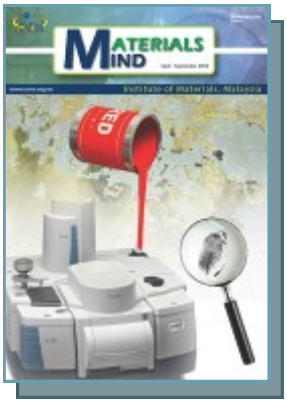
Advertise with us now !

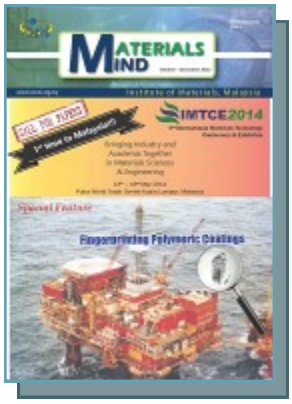
More than 8000 readers !!

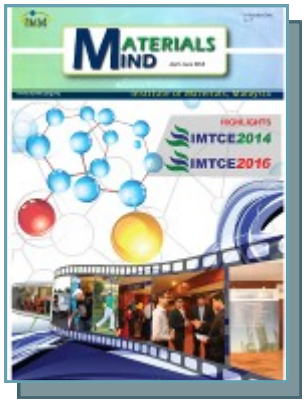
Want to share your technical report?

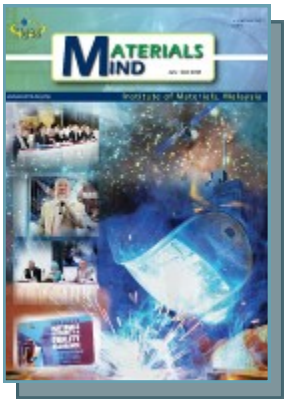
www.iomm.org.my

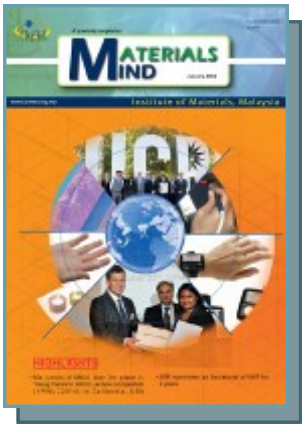
Updated on 1st June 2018



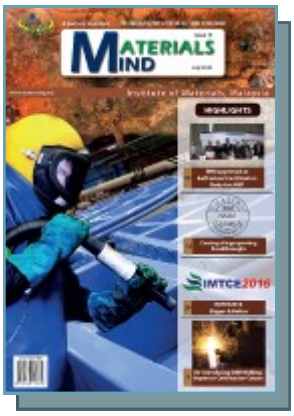







MATERIALS MIND
Institute of Materials, Malaysia

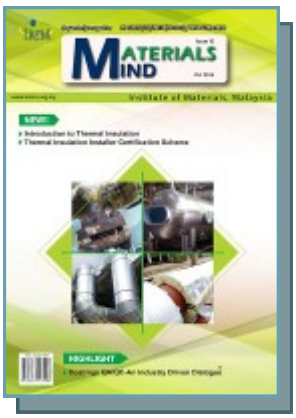

MATERIALS MIND
Institute of Materials, Malaysia


MATERIALS MIND
Institute of Materials, Malaysia
HIGHLIGHTS
IMTCE2016

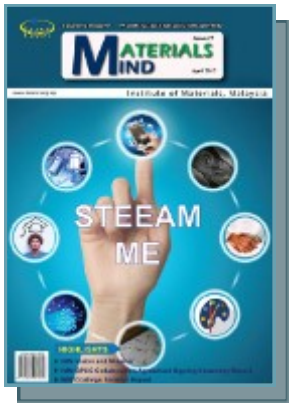

MATERIALS MIND
Institute of Materials, Malaysia

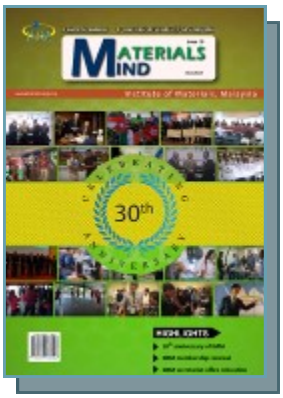

MATERIALS MIND
Institute of Materials, Malaysia
REGISTER NOW!
IMTCE2016


MATERIALS MIND
Institute of Materials, Malaysia
CORROSION UNDER INSULATION
Join the Conference
October 2016, Kuala Lumpur

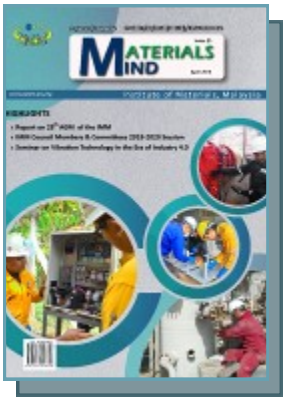

MATERIALS MIND
Institute of Materials, Malaysia

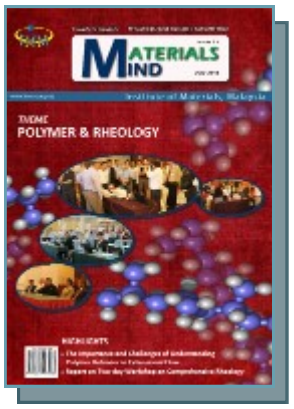

MATERIALS MIND
Institute of Materials, Malaysia

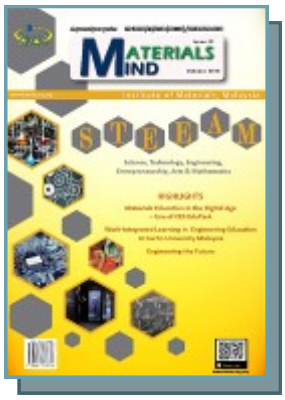

MATERIALS MIND
Institute of Materials, Malaysia
STEEAM ME


MATERIALS MIND
Institute of Materials, Malaysia
30th


MATERIALS MIND
Institute of Materials, Malaysia
30th


MATERIALS MIND
Institute of Materials, Malaysia


MATERIALS MIND
Institute of Materials, Malaysia
THEME
POLYMER & RHEOLOGY


MATERIALS MIND
Institute of Materials, Malaysia
STEAM


MATERIALS MIND
Institute of Materials, Malaysia
HIGHLIGHTS
Vibration
Coating Fingerprinting
Corrosion Welding Certification Scheme
IMM Year Book

More…..

Future Sustainable Materials: Green Chemistry and Hybrid Materials


Reported by: Liew Son Qian, IMM-UTAR Student Chapter Organizing Secretary
Edited by: Nurul Fatahah Asyqin Zainal, Universiti Teknologi MARA

Date: 29th November 2018
Venue: Universiti Tunku Abdul Rahman, Sg Long Campus

On the 29th of November 2018, Institute of Materials, Malaysia - Universiti Tunku Abdul Rahman (IMM-UTAR) has successfully organized a talk on 'Future Sustainable Materials'. The word "Sustainable" has been emphasized a lot recently and is practiced by most of the country around the world. Sustainable Goals, that are developed by United Nation, such as "Building up strong infrastructure, supporting inclusive and sustainable industrialization and incubating innovation" and "Enabling Access to affordable and clean energy" were the themes of this event. The event is aimed at instilling interest, knowledge about the future direction of the industry and importance of sustainability. A total of 55 undergraduate students participated in this event. An external IMM council member, Assoc. Prof. Dr, Lim Teck Hock was also invited to the talk. This event was kicked off with the welcoming speech by the event advisor, Dr. Kuan Seng How.

The speakers for this event are highly qualify academicians as well as those actively involved in various research projects in the field of heterogeneous catalysis, nanomaterials, sustainable cement concrete, new polymers, palm oil/rubber-base polymers technology, nano chemicals for sustainable nano high-performance concrete/ultra high performance concrete (SNHPC/SNUHPC) and CO_2 polymers hybrid cement concrete. The first speaker was Assoc. Prof. Dr. Juan Joon Ching, an Associate Professor and Acting Director at Nanotechnology and Catalysis Research Centre (NANOCAT) in 2016, University of Malaysia (UM), Malaysia and he is also appointed as Senior Research Fellow (Adjunct) position at Monash University, Malaysia. His talk was mainly about his current research on the improvement of the performance and properties of biofuels (biodiesels). Biodiesel is an alternative fuel similar to conventional or 'fossil' diesel which is highly available in vegetable oil, animal oil/fats, tallow and waste cooking oil. Most biodiesels are produced from waste vegetable oil obtained from restaurants, chip shops and industrial food producers which are converted into biodiesels through transesterification process (Figure 1). Interestingly, the experimental results show that the biodiesel produced from waste vegetable oil may be one of the sources that can compete with fossil diesel.

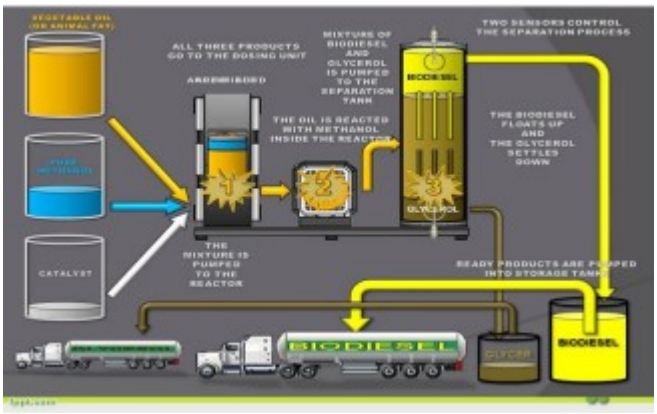


Figure 1: General stages of biodiesel production

The second speaker was Dr. Lai Fook Chuan, a Chartered Building Engineer and Fellow Chartered Association Building Engineer, UK (C Build. E and FCABE), Fellowship Member in Professional Institute Kimia Malaysia (IKM) and Institute Materials, Malaysia. He is also the Adjunct Fellow Professor for Inti Laurate University, Nilai and Linton University College, Mantin, Malaysia. He is a Professional Chemical Engineer, Associate Member of Institute Chemical Engineer Malaysia (AMIChemE), Professional Chemist Member of Royal Society Chemistry UK (MRSC) and Professional Technologist (PT or Ts.) registered under Malaysia Board of Technologist (MBOT). He highlighted the hybrid concrete construction, a method of construction which integrates precast concrete and cast in-situ concrete to make best advantage of their different inherent qualities. This hybrid concrete construction offers many advantages such as reducing the potential for accidents by providing successive work platforms on a generally less cluttered site, opportunity to exploit the inherent thermal mass of concrete by exposing the soffit of precast concrete floor slabs and safer and faster construction with consistent performance.

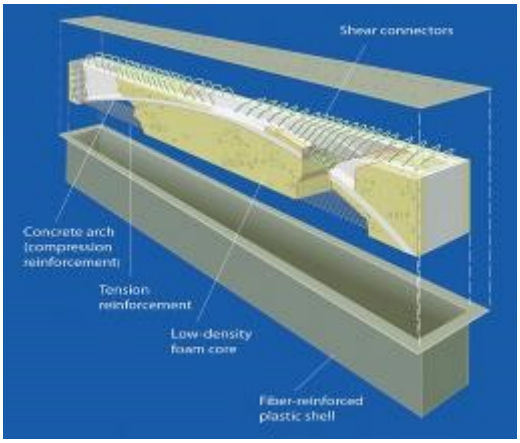


Figure 2: The specification of the hybrid materials concrete

In conclusion, this event has not only successfully instilled the interest in sustainable materials among the students, but also has given the awareness, new knowledge and importance of sustainability to the students.

Figure 3: A group photo with the organizer of IMM-UTAR Student Chapter, invited speakers and students.

Technical Oration on Digital Radiography


Reported by: Dr. Sumaiya Islam*, Curtin University, Malaysia, IMM-Curtin Student Chapter Advisor
Edited by: Dr. Mahmood Anwar, Curtin University, Malaysia, IMM Student Chapter Co-Chairman

Date: 1st November 2018
Venue: SK3 Lecture Theatre, Faculty of Engineering & Science, Curtin University, Miri, Malaysia

A physician is waited eagerly for the X-ray plate for the patient with complex fracture in tibia in order to provide proper treatment. It is a common scenario for any Emergency department (ER) of a hospital. Similar situation also common in any offshore platform or sea going vessel. Nevertheless, in different stakeholders, instead of human bone, need arose for metal structure. For example, if a turbine blade of a ship is internally corroded or pipeline welding joint have micro fracture, could lead to a catastrophic scenario. Hence, any metallurgist required a full scale internal image of the damage area prior to design any remedy. This could only possible through radiography, particularly digital radiography which is widely popular as a nondestructive test (NDT) technology.

Necessity for a quest of learning such advance technology from industrial practitioners, IMM-Curtin Student Chapter organized a technical talk on 1st of November, 2018 in Faculty of Engineering & Science, Curtin University, Miri, Malaysia. Such industrial dialogue aimed to introduce students about the latest radiography technique and technology. Radiography is the inspection to find a hidden flaw on certain material. Radiography is used principally to find weld defects and irregularities, but can also be used to locate pitting, corrosion, blockages, product build up and casting defects. This type of test is a major element which is necessary to be regularly done in most industry. The guest speaker was Mr. Nick D'ademo (sales Manager Asia Pacific of DÜRR NDT GmbH & Co. KG). His stimulating speech draw huge queries from the future engineers (Curtin students) as well as current engineers (academic staff members).

Figure 1: Participants during radiography technical talk

After the successfully completion of the fascinating a long Q&A session, the technical talk was concluded through a souvenir giving ceremony for the guest speaker by IMM Miri Chapter Chairman Ir. Assoc. Prof. Dr. Edwin Jong Nyon Tchan and accompanied by Student Chapter Advisor, Dr. Sumaiya Islam. Finally, the session adjourned with a group photo session.

Figure 2: Assoc. Prof. Dr. Edwin Jong Nyon Chang presented token of appreciation to Guest Speaker

Figure 3: A group photo of the Speaker and participants with the organizer of IMM-Curtin Student Chapter

IMM-UiTM Student Chapter Academic Visit to Kualiti Alam - Cenviro


Reported by: Nurul Hazwani Ahmad Mortza, Universiti Teknologi MARA, IMM-UiTM student chapter event secretary
Reviewed by: Ts. Dr. Tay Chia Chay, Universiti Teknologi MARA, Materials Mind chief editor

Date: 6th March 2019
Venue : Kualiti Alam - Cenviro, Negeri Sembilan

The academic visit to Kualiti Alam - Cenviro was successfully held on 6th March 2019. It was organized by Institute of Materials, Malaysia (IMM). Thirty students from the Faculty of Applied Science, Universiti Teknologi MARA (UiTM) Shah Alam who are also the IMM-UiTM Student Chapter member took part in this visit. Dr. Amirah Amalina Ahmad Tarmizi and Ts. Dr. Tay Chia Chay were accompanied advisors.

Initially, safety briefing was conducted. After that, the participants were introduced on how the daily waste were managed and recycled using effective and appropriate ways to keep the environment green and clean.

Figure 1: Introduction to Kualiti Alam - Cenviro briefing by En. Zainudin

Cenviro stands for "clean environment" and participates in innovative projects in leading the green revolution to the Earth. The Environmental Preservation & Innovation Centre (EPIC), which is the Malaysia's first centre of excellent for waste management, is the example of the innovative projects by Cenviro.

The highlighted technology, the innovative vertical secured landfill is the first in our country that came with geogrid wall, was built on the existing landfill and this kind of landfill can has a life extended by 30 years. What a genius and brilliant innovative project to be done!

Scheduled Waste to Energy Seremban (SWtE S), which is the first of its kind in Malaysia contained the solar power renewable energy. This plant exports approximately 3.4 MWe to national grid. Malaysia's first clinical waste treatment centre, the microwave technology, is associated with the most innovative technology in waste management such as zero emission, no burning and residue is landfill ready. It is effective as capable to process up to 250 kg of clinical waste per hour.

Cenviro encourages recycling by Recycle for Life Project where cash can be rewarded through smart card. The recyclable materials will be weighed and credited a cash value based on the current market price into the smart card. The smart card can be used for any purchases of goods at selected hypermarkets. This project enhances the initiative of public practice in recycling activities.

Figure 2: Q&A session

Q and A session:

1. Does Cenviro send the energy obtained from SWtE S to Tenaga Nasional Berhad (TNB) from the treatment plant?

   Yes, Cenviro sells all the generated energy to TNB. A 100% selling of generated energy sell to TNB instead of self-consumption.

2. Did Cenviro handle various of hazardous waste such as asbestos from ceiling and wiring metal from the demolition of building?

   No, those types of wastes are under construction waste and Cenviro does not manage to handle waste from construction and demolition.

3. After the sludge processing, does the waste go to the nearby water body?

   There are ponds with some fishes nearby that act as an indicator of the waste. If negative impact to the fish, this reveals that the contamination might occurred.

Overall, this visit has received a lot of positives feedback from the participants. They not only gained tons of a very useful and interesting knowledge but also exposed to the types of jobs exist in the local market regarding this industry. We hope this event will be held in the future. Last but not least, all of the participants would like to express their sincere appreciation to IMM, Education Committee and IMM-UiTM Student Chapter for this golden opportunity to join this visit. A big thank to Kualiti Alam – Cenviro for hosting us.

Figure 3: Photo session between the members of IMM-UITM Students Chapter and En. Zainudin

UiTM Materials Lecture Competition 2019


Reported by: Muhamma Na'im Nurfaiz Azwan, Universiti Teknologi MARA, UiTM Materials Lecture Competiton 2019 secretariat
Edited by: Dr. Amirah Amalina Ahmad Tarmizi, Universiti Teknologi MARA, IMM-UiTM student chapter advisor

Date: 13th March 2019
Venue: Faculty of Mechanical Engineering, UiTM Shah Alam, Selangor

IMM-UiTM Student Chapter has collaborated with Faculty of Mechanical Engineering to organise the UiTM Materials Lecture Competition 2019. It was held at Dewan Alamanda, Faculty of Mechanical Engineering. The event was a success as it attracted attention and well-supported by students. The purpose of this event was to select the Universiti Teknologi MARA (UiTM) representative for the Materials Lecture Competion 2019 (national level) that will be held at Universiti Teknikal Melaka (UteM). Total of ten students participated the competition and five of them have made to the final round which was on the 13th March 2019.

Figure 1: Students registration

Figure 2: The opening speech by Deputy Vice-Chancelor of Academic and International, Prof. Ts. Dr. Mohamad Kamal Harun

Figure 3: Group Photo of the Honourable Guess with the participants and top five contestants

The competion started at 8.30 am with the arrival of the Honourable guess Deputy Vice-Chancellor of Academics and International Prof. Ts. Dr. Mohamad Kamal Harun, Dean of Faculty of Mechanical Engineering Prof. Ir. Dr. Muhammad Azmi Ayub, Dean of Faculty of Civil Engineering Prof. Dr. Zakiah Ahmad and the president of Society of Mechanical Engineering livelines (SoMEL) Prof. Salmiah Kasolang @ Kasalung. The invited judges for the final round of UiTM Materials Lecture Competition 2019 were Mr. Kang Kim Ang, Mr. Radzman Osman, Ir. Abdul Hamid Suleiman and Assoc. Prof. Dr. Melissa Chan Chin Han.

The Deputy Vice-Chancellor of Academic and International gave the opening speech for the competition. The final round UiTM Materials Lecture Competition 2019 began at 9.00 am. Contestants delivered their presentations and gained attention of audiance. The details of presenters and topics were as following:

No	Name of presenter	Topic
1	Muhamad Faizuwan Harol Anuar	Properties of Aerographite
2	Nurlily Marlissa Azmin	Implant for Knee's Joint Replacement
3	Nurul Fariha Mmohd Idrus	Modification of Biochar with Magnesium Compound for Precipitation of Struvite for Phosphorus
4	Siti Sarirah Mohamad Noh	Reshaping Plastic Waste to an Advanced Building Material
5	Mohammad Aidil Ali	Mechanical Studeis of Acrylonitrile-Butadiene-Styrene (ABS) Reinforced with Carbon Black Blends

The final round UiTM Materials Lecture Competion 2019 ended at 12pm. The winner of the UiTM Materials Lecture Competition 2019 were given cash prize. The third place was Nurul Fariha Mohd Idrus, the runner up was Siti Sarirah Mohamad Noh and the winner for UiTM Materials Lecture Competition 2019 won by Momad Aidil Ali. The closing ceremony took place at 12.30 pm. and the Dean of Faculty of Mechanical Engineering closed the event by a closing speech. As a conclusion, IMM-UiTM Student Chapter would like to congratulate all the contestants and the winners of the UiTM Materials Lecture Competition 2019. We wish the best of luck for the UiTM representative for the Materials Lecture Competition 2019. We would like to thanks SoMEL as the major sponsor for this event. We would also like to express our appreciation to all who contribute to bring a success to the UiTM Materials Lecture Competition 2019.

Figure 4: The judges and the winners of UiTM Materials Lecture Competition 2019

Strategic Collaboration between Politeknik Kota Kinabalu (PKK) and Institute of Materials, Malaysia


Reported by: Mohd Fairuz Mohd Salleh, Serba Dinamik Group Bhd, IMM Young Professionals Chairman
Edited by: Associate Professor Dr. Melissa Chan Chin Han, Universiti Teknologi MARA (Honorary Secretary of IMM

Date: 23rd February 2019
Venue: Bilik Tetamu PKK, Kota Kinabalu, Sabah

23rd February 2019 marked a historical moment for Institute of Materials, Malaysia (IMM) and Politeknik Kota Kinabalu (PKK), during the signing of the Collaboration of Certificate (CoC) at Bilik Tetamu PKK, Kota Kinabalu, Sabah. IMM was honoured to be among the four (4) collaborative partners present at the auspicious occasion as well as for the launching ceremony of the Career Carnival TVET Sabah 2019. The parties involved are Politeknik Kota Kinabalu, Institute of Materials, Malaysia, Materials Technology Education Sdn Bhd, Sabah Economic Development and Investment Authority and Sabah Timber Industries Association.

Figure 2: Mohd Fairuz Mohd Salleh, IMM Young Professionals Chairman at the exchange of the Collaboration of Certification

There was a dialogue session involving three panellists, namely Assistant Vice President of SEDIA, Iwan Hermawan Hj. Masrul; PKK Alumni, Ir. Sarzaminor Bukar and IMM Young Professionals Chairman, Mohd Fairuz Mohd Salleh.

The intention of the one-day program is to provide exposure in relation to the Industrial Revolution 4.0 and its effect on the current Sabah workforce. The students were exposed to the challenges they may face after graduation and recommendations were given by the panellists on how to become relevant in these testing times. There were booths set up by the industry to allow for walk-in interview and CV collection.

Figure 1: Four collaborative partners at the Collaborative of Certification ceremony

MOGEC Golf Championship 2019


Reported by: Dr. Zulkarnain Kedah, Serba Dinamik Group Bhd., Honorary Treasurer of IMM
Edited by: Mohd. Azmi Mohd. Noor, Kebabangan Petroleum Operating Company Sdn Bhd, President of IMM

Date: 2nd March 2019
Venue: Mines Resort Golf Club

IMM sponsored one of twenty nine flights for MOGEC Golf Championship which was held on Saturday 2nd March 2019 at Mines Resort Golf Club. Main sponsors were Technip FMC, Cargomind, MECIP Global Engineers, Winmore Engineering, WEG, Melewar Steel Tube and Inspirasi Ahza.

The tee-off started at 1.45pm and we were truly blessed with a pleasant Saturday afternoon weather which was sunny until the end. IMM was represented by Tuan Mohd. Azmi Mohd. Noor, Haji Tarmizi Munir, Ir. Lai Kah Chiung and Dr. Zulkarnain Kedah. It is a very good networking opportunity for IMM especially in connecting ourselves with several engineering solutions' providers.

Figure 1: Group photo of the participants

29th Annual General Meeting

Reported by: N. Hithaya Jeevan, IMM Secretariat
Edited by: Prof. Dr. Melissa Chan Chin Han, Universiti Teknologi MARA, Honorary Secretary of IMM

Date: 22nd March 2019
Venue: Kelab Golf Negara Subang (KGNS)

The 2019 AGM which saw a good turnout from members was held immediately following the "Forum on Using Technology to Address Global and Environmental Plastic Issues". The AGM kicked off with the President's address. The President, Mr. Mohd Azmi Mohd. Noor welcomed and thanked all the members who were present and expressed his appreciation to the Management Committee, Council members, the Chairmen and members of the various committees and all members for their support and contribution to IMM.

He reminded members on the vision and mission statements of IMM and emphasized the core values of transparency, integrity and professionalism that members should strive to follow. Mr. Azmi explained the organization structure of IMM and the interrelationship between the Council, the Secretariat and the various committees. He spoke about the importance of the IMM Eco-system whereby there is a clear distinction between the roles of IMM as a society and its commercial enterprises such as IMM Resources Sdn. Bhd. (IMMR). He further explained the synergy between IMM and IMMR with the latter acting as a service provider to IMM for Certification and Training.

More importantly, the President highlighted the landscape changes that would affect IMM and the need to adapt or reform to these environmental changes to remain relevant. One such initiative pointed out was the appointment of IMM by PETRONAS as the certification body for mechanical joint integrity and competency (MJI CDC). Therefore, it is very pertinent that IMM is certified to ISO 17024, the international standard for assessment of bodies operating certification of persons. This project designated as "Project Alpha" is spearheaded by IMMR and is currently in the preparatory stage.

The 2018 Annual Report of IMM was then presented by Prof. Dr. Melissa Chan Chin Han, the Honorary Secretary of IMM. She mentioned that the strength of the current IMM membership was 2600 members and the online membership will soon be implemented through the Advanced Database Secured system which will be linked to IMM's website. The same portal will also be accessible for information on courses, trainers, certification etc. and this will be the first such database for skilled tradesmen and practitioners, especially from the oil and gas industry.

While reference was made to her printed comprehensive report for a listing of all the events for the year, Prof. Melissa had highlighted several activities of IMM and the various committees and these included:

- progress on the Mechanical Joint Integrity- MCR project towards implementation of the related Competency Development Certification planned in 2019;
- IMM-SSPC (Society for Protective Coatings) collaboration with the introduction of the Abrasive Blasting Programme C7 and the Spray Application Certification C12 courses and consequently the cessation of IMM's Blasting and Painting Level 1 and Level 2 course;
- the "Corrosion Controls and Prevention" seminar and visit to the Royal Malaysia Navy in May 2018;
- the Ageing Facility Management Conference in October 2018;
- the activities of the Education, Certification and Accreditation Panel and its ISO Working Group in preparation for the ISO17024 accreditation;
- the Materials Lecture Competition;
- IMM's publication, Materials Mind, as issued in January, April, July and October 2018; and of particular interest;
- the first IMM Young Professionals meeting in August 2018;
- the activities and project of the regional chapters and of particular interest;
- the industry-academia project on coating fingerprinting certification scheme, culminating in the drafting of IMM's Standard titled "Coating Fingerprinting Overall Procedures for Paint Systems Using FTIR and Other Methods", believed to be the first of its kind in the world.

Prof. Melissa then tabled several proposed changes to the IMM constitution (previously known as "Rules") and amongst these were the changes to the logo, reduction to the required quorum for council meetings from 15 to 10 that for the AGM from 60 to 40 and rearrangement of the clauses according to ROS requirements. The proposed changes were unanimously accepted by the members present.

The Honorary Secretary's presentation was followed by the statement of accounts tabled by the Honorary Treasurer of IMM, Dr. Zulkarnain Kedah which was then received and accepted by the assembly. The statement of accounts reflected IMM's satisfactory financial position. This was then followed by the normal business of appointing the external and internal auditors for 2019 before the AGM was adjourned.

Figure 1: Mr. Mohd Azmi Mohd Noor giving his presidential address. Seated (from left to right) are Prof. Dr. Melissa Chan Chin Han (Secretary), Dato Dr. Ir. Mohd. Abdul Karim Abdullah (Deputy President) and Dr. Zulkarnain Kedah (Treasurer)

Figure 2: Members of IMM at the AGM

Appreciation Dinner with Datuk Ir. Dr. Abdul Rahim Hashim


Reported by: Dr. Chow Yong Neng, General Manager of IMM
Edited by: Prof. Dr. Melissa Chan Chin Han, Universiti Teknologi MARA, Honorary Secretary of IMM

Date: 25th January 2019
Venue : Concorde Hotel, Shah Alam

The President of Institute of Materials, Malaysia, Mr. Mohd. Azmi Mohd. Noor hosted an appreciation dinner for our outgoing Advisor, Datuk Ir. Dr. Abdul Rahim Hashim on the evening of Jan 25, 2019 at the Concord Hotel, Shah Alam.

Figure 1: (From right to left) Dato' Ir. Dr. Mohd. Karim, Ms. Shima, Mr. Mohd. Azmi, Prof. Ts. Dr. Mohamad Kamal, Datuk Ir. Dr. Abdul Rahim, Datin Dr. Suzana and Prof. Dr. Melissa having a group photograph taken at Concord Hotel, Shah Alam.

Datuk Ir. Dr. Abdul Rahim Hashim has graciously served as our advisor for two terms, from 2013 to 2018, providing us with much needed advice and guidance throughout his tenure.

To commemorate Datuk Rahim's contribution to IMM, our President, along with Deputy President, Dato' Ir. Dr. Mohd. Abdul Karim Abdullah, Immediate Past President, Prof. Ts. Dr. Mohamad Kamal Harun and Honorary Secretary, Prof. Dr. Melissa Chan Chin Han presented a certificate of appreciation and a Parker pen as a token of our gratitude to him.

Figure 2: President IMM, Mr. Mohd. Azmi presented a certificate of appreciation to Datuk Ir. Dr. Abdul Rahim, accompanied by Dato' Ir. Dr. Mohd. Karim, Prof. Ts. Dr. Mohamad Kamal and Prof. Dr. Melissa.

Our dinner function was also graced by the presence of the spouse of Datuk Ir. Dr. Abdul Rahim, Datin Dr. Suzana Sulaiman and our President's wife Ms. Shima Mohd. Taha. The resident band of the restaurant was engaged to play several songs that suited the tempo and mood of the evening.

Workshop Accreditation Manual for Program Technology and Technical Malaysia Board of Technologist Series - 2


Reported by: Dr. Chow Yong Neng, General Manager of IMM
Edited by: Prof. Dr. Melissa Chan Chin Han, Universiti Teknologi MARA, Honorary Secretary of IMM

Date: 25th - 27th January 2019
Venue : Corus Hotel, Kuala Lumpur

Malaysia Board of Technologists (MBOT) invited IMM to take part in the second session of their workshop on the establishment of MBOT's accreditation manual for technology and technical tertiary programs.

IMM's participants on this workshop which took place in the Corus Hotel, Kuala Lumpur included Honorary Secretary, Prof. Dr. Melissa Chan; Council Member, Dr. Mohamed Ackiel Muhamed; General Manager of IMM Secretariat, Dr. Chow Yong Neng and Adminstrative Manager, Jacqueline Lim. The participants, led by MBOT's Director of Technology and Technical Accreditation, Assoc. Prof. Ts. Dr. Mohd. Rusllim Mohamed and assisted by Deputy Registrar (Quality Assurance), Ts. Mohd. Khairuddin Rais worked diligently from the evening of Friday, Jan 25, 2019, all day (and evening) of Saturday, Jan 26 and culminating in a half day of work on Sun, Jan 27.

The hectic work by close to 70 participants from all sectors governed by MBOT, including shipping, aviation, information technology, biotechnology, food and agrotechnology, material sciences, automotive, oil & gas industries and academia. The effort of the working group, which was joined by senior staff of Skill Development Department (JPK) and Malaysian Qualifications Agency (MQA), was paid off when a draft accreditation manual for technology and technical tertiary programs were produced.

The key achievement of the working group was indeed in working out a mechanism for attaining and ascertaining the separation of tertiary programs into "Research", "Engineering" and "Technology". MBOT's domain is in the accreditation of tertiary programs in the "Technology" category.

At the closing ceremony, presided by MBOT's President, Tan Sri Dato' Academician Ts. Dr. Ahmad Zaidee Laidin and the incoming Advisor of IMM, thanked the participants for their collective contribution and presented each with a certificate of appreciation.

Figure 1: Group photo

IMM COUNCIL MEMBERS & COMMITTEES

2018-2020 SESSION

Advisor:	Datuk Ir. (Dr.) Abdul Rahim Hj. Hashim - Universiti Malaya
President:	Mohd. Azmi Mohd. Noor - Kebabangan Petroleum Operating Company Sdn Bhd
Deputy President:	Dato' Dr. Ir. Haji Mohd. Abdul Karim Abdullah - Serba Dinamik Group Bhd
Honorary Secretary:	Prof. Dr. Melissa Chan Chin Han - Universiti Teknologi MARA
Honorary Treasurer:	Dr. Zulkarnain Kedah - Serba Dinamik Group Bhd
Immediate Past President:	Prof. Ts. Dr. Mohamad Kamal Harun – Universiti Teknologi MARA
Council Members:	Dato' Udani Dato' Seri Mohamed Daud - Max Energy Sdn Bhd
	Ts. Dr. Chew Khoon Hee - Tunku Abdul Rahman University College
	Assoc. Prof. Dr. Lim Teck Hock - Tunku Abdul Rahman University College
	Ts. Dr. Tay Chia Chay - Universiti Teknologi MARA
	Ir. Ong Hock Guan - Shell Malaysia Exploration & Production
	Brian Lim Siong Chung - Geopolitan Sdn Bhd
	Danny Tan Kim Chew - Abadi Oil & Gas Services Sdn Bhd
	Nurul Asni Mohamed - PETRONAS Group Technical Solutions
	Rehan Ahmed - PETRONAS Carigali Sdn Bhd
	Sofiyan Yahya - Cekap Technical Services Sdn Bhd
	Prof. Dr. Esah Hamzah - Universiti Teknologi Malaysia
	Assoc. Prof. Dr. Andri Andriyana - Universiti Malaya
	Dr. Mohamed Ackiel Mohamed - Serba Dinamik Group Bhd
	Dr. Yong Soon Kong - Universiti Teknologi MARA
	Ir. Pau Kiew Huai - Malaysia LNG Sdn Bhd
	Mohamed Siraj Abdul Razack - MIR Valve Sdn Bhd
	Muhammad Hawari Hasan - PETRONAS Group Technical Solutions
	Tan Su Anne - PETRONAS Group Technical Solutions

REGIONAL CHAPTER CHAIRPERSONS

Bintulu	Raymond Phen	Asean Bintulu Fertilizer Sdn Bhd
East Coast	Amir Ali	PETRONAS Carigali Sdn Bhd
Miri	Ir. Dr. Edwin Jong Nyon Tchan	Advanced Metallurgy & Welding Technology Sdn Bhd
Sabah	Zubaidi Abang Zamhari	PETRONAS Sabah Operations
Southern	Assoc. Prof. Dr. Tuty Asma Abu Bakar	Universiti Teknologi Malaysia

TASK FORCE CHAIRPERSONS

Coating Fingerprinting	Prof. Ts. Dr. Mohamad Kamal Harun	Universiti Teknologi MARA
	Prof. Dr. Melissa Chan Chin Han	Universiti Teknologi MARA
Eco-System	Danny Tan Kim Chew	Abadi Oil & Gas Services Sdn Bhd
Upskilling Sarawak Engineers & Technicians	Ir. Pau Kiew Huai	Malaysia LNG Sdn Bhd

WORKING COMMITTEE CHAIRPERSONS

Asset Integrity	Dato' Dr. Ir. Johari Basri	Serba Dinamik Group Bhd
Coating	Muhammad Hawari Hasan	PETRONAS Group Technical Solutions
Corrosion	Ir. Ong Hock Guan	Shell Malaysia Exploration & Production
Education	Prof. Ts. Dr. Mohamad Kamal Harun	Universiti Teknologi MARA
	Ir. Max Ong Chong Hup	Norimax Sdn Bhd
Examination, Certification & Accreditation Panel	Brian Lim Siong Chung	Geopolitan Sdn Bhd
Certification Working Group under ECAP	Assoc. Prof. Dr. Andri Andriyana	Universiti Malaya
ISO Working Group under ECAP	Assoc. Prof. Dr. Amalina Mohammad Afifi	Universiti Malaya
Golf	Mohd. Azmi Mohd. Noor	Kebabangan Petroleum Operating Company Sdn Bhd
Insulation	Danny Tan Kim Chew	Abadi Oil & Gas Services Sdn Bhd
International Journal of Institute of Materials Malaysia	Prof. Ts. Dr. Mohamad Kamal Harun	Universiti Teknologi MARA
Materials Lecture Competitions	Prof. Dr. Esah Hamzah	Universiti Teknologi Malaysia
MLC 2019	Assoc. Prof. Dr. Jariah Muhamad Juoi	Universiti Teknikal Malaysia Melaka
Materials Mind	Ts. Dr. Tay Chia Chay	Universiti Teknologi MARA
Membership	Dato' Dr. Ir. Haji Mohd. Abdul Karim Abdullah	Serba Dinamik Group Bhd
Polymer	Ts. Dr. Chew Khoon Hee	Tunku Abdul Rahman University College
Rheology	Assoc. Prof. Dr. David Hassell	University of Bath, UK
Student Chapter	Assoc. Prof. Dr. Lim Teck Hock	Tunku Abdul Rahman University College
Vibration	Dato' Dr. Ir. Haji Mohd. Abdul Karim Abdullah	Serba Dinamik Group Bhd
Website	Dr. Yong Song Kong	Universiti Teknologi MARA
Welding	Tan Su Anne	PETRONAS Group Technical Solutions
Wells Corrosion	Radhakrishnan Karantharath	TGT Oilfield Services
Young Professionals	Mohd. Fairuz Mohd. Salleh	Serba Dinamik Group Bhd

LIAISON CHAIRPERSONS

Academia Liaison	Prof. Ts. Dr. Mohamad Kamal Harun	Universiti Teknologi MARA
Government Liaison	Dr. Zulkarnain Kedah	Serba Dinamik Group Bhd
Industry Liaison	Dato' Udani Dato' Seri Mohamed Daud	Max Energy Sdn Bhd

ASSET INTEGRITY COMMITTEE

Secretariat Coordinator: Noorul Shafika Misbah
Alternate: Norita Othman

Chairman:	Dato' Johari Basri	Serba Dinamik Group Bhd
Deputy Chairman:	Ir. Zamaluddin Ali	Petronas Centre of Excellence
Secretary:	Dr. Dasline Sinta	Dreamcatcher Energy Sdn Bhd
Treasurer:	Dr. Fatin Harun	Cekap Technical Services Sdn Bhd
Members:	Dato' Udani Dato' Seri Mohamed Daud	Max Energy Sdn Bhd
	Marvin Ooi Beng Chong	Consultant
	Mohd. Azmi Mohd. Noor	Kebabangan Petroleum Operating Company Sdn Bhd

COATING COMMITTEE

Secretariat Coordinator: Hithaya Jeevan
Alternate: Aberamy Dayalam

Chairman:	Muhammad Hawari Hasan	PETRONAS Group Technical Solutions
Deputy Chairman:	Rehan Ahmed	PETRONAS Carigali Sdn Bhd
Secretary:	Aaron James Williams	Schmidt Abrasive Blasting Sdn Bhd
Asst. Secretary:	Ting Lai Liong	Dutech Instruments Sdn Bhd
Treasurer:	Maryam Mohd Seth	PETRONAS Group Technical Solutions
Members:	Dato' Udani Dato' Seri Mohamed Daud	Max Energy Sdn Bhd
	Dr. Fatin Harun	Cekap Technical Services Sdn Bhd
	Ahmad Badli Shah Abdul Aziz	International Paint (M) Sdn Bhd
	Anthony Lai Wei Hau	KCC Paints Sdn Bhd
	Chan Wai Sing	Material Protection Engineering Sdn Bhd

IMM COUNCIL MEMBERS & COMMITTEES

2018-2020 SESSION

	Chang Yau Chong	Kansai Paint Asia Pacific Sdn Bhd
	Chantana Murugan Sinnakannu	Applied Corrosion Engineering Services Sdn Bhd
	Frankie Chua Cheng Huat	Kansai PLC Sdn Bhd
	Karen Cheng Siew Hoon	Serba Dinamik Group Bhd
	Lee Choon Siong	Jotun Paints (M) Sdn Bhd
	Mark Hew Yoon Onn	Universal Corrosion Engineering (M) Sdn Bhd
	Mohd. Azmi Shukri	Pioneer Engineering Sdn Bhd
	Mohd. Hatta	
	Mohd. Wahidduzzaman Zainal	PPG-Sigma Coatings (M) Sdn Bhd
	Mohamad Ikmal Hisham Ashari	Materials Technology Education Sdn Bhd
	Ng Yin Yan	Jotun Paints (M) Sdn Bhd
	Paramjit Singh Darjit Singh	Hempel (M) Sdn Bhd
	Perumal Raman	PS Peruvision
	Selvandran Vello	Hempel (M) Sdn Bhd
	Sofiyan Yahya	Cekap Technical Services Sdn Bhd
	Teh Tiong Poh	Jotun (M) Sdn Bhd
	Ten Phoy Siew	KCC Paints Sdn Bhd
	Terence Wee Tee Hin	PPG-Sigma Coatings (M) Sdn Bhd
	Vijendran aka Jveyay	ExxonMobil
	Wong Peoi Ying	Jotun (M) Sdn Bhd

CORROSION COMMITTEE

Secretariat Coordinator: Hithaya Jeevan
Alternate: Aberamy Dayalam

Chairman:	Ir. Ong Hock Guan	Shell Malaysia Exploration & Production
Deputy Chairman:	Ir. Dr. Mokhtar Che Ismail	Universiti Teknologi PETRONAS
Deputy Chairman:	Tuan Kamal Azam Ibrahim	PETRONAS Group Technical Solutions
Secretary:	Syarifah Nazliah Syed Abdul Rahman	BSSTECH CP (M) Sdn Bhd
Treasurer:	Leow Chun Ho	Shell Malaysia Exploration & Production
Members:	Dr. Andrew Spowage	MTIS Sdn Bhd
	Dr. Hamed Mohebbi	Universiti Teknologi PETRONAS
	Dr. Kee Kok Eng	Universiti Teknologi PETRONAS
	Dr. Lee Chee Hong	Synergy Asset Integrity Management Sdn Bhd
	Dr. Mazli Mustapha	Universiti Teknologi PETRONAS
	Dr. Saeid Kakooei	Universiti Teknologi PETRONAS
	Ir. Max Ong Chong Hup	Norimax Sdn Bhd
	Ir. Muhammad Zaid Kamardin	PETRONAS Group Technician Solutions
	Chew Boon Kheng	GPT Resources Sdn Bhd
	Eric Lay Chee Hong	TBSB Engineering Sdn Bhd
	Junaidy Abdullah	Norimax Sdn Bhd
	Kang Kim Ang	Corrtrol Synergy Sdn Bhd
	Karen Cheng Siew Hoon	Serba Dinamik Group Bhd
	Kent Ooi	Chong Wah-NTIA Sdn Bhd
	Kok Wai Chee	CSI System Sdn Bhd
	Mark Hew Yoon Onn	Universal Corrosion Engineering (M) Sdn Bhd
	Mohamad Ikmal Hisham Ashari	Materials Technology Education Sdn Bhd
	Mohd. Khairi Kadir	Cosasco (M) Sdn Bhd
	Nik Khairil Azman Nik Abdullah	Temperlite Insulation Sdn Bhd
	Nurjaimi Ali	PETRONAS Group Technical Solutions
	Nurul Asni Mohamed	PETRONAS Group Technical Solutions
	Noraishah Mohamad Noor	Rapid Rail Sdn Bhd
	Ong Wei Rex	ICP Engineering Sdn Bhd
	Tan Chih Wee	Technip FMC
	Tariq Mehtab Mohd. Ishaq	Schmidt Abrasive Blasting Sdn Bhd
	Wee Ching Yun	Chong Wah-NTIA Sdn Bhd

EDUCATION COMMITTEE

Secretariat Coordinator: Aberamy Dayalam
Alternate: Hadi Syahirman Hasmadi

Academia Co-Chairman	Prof. Ts. Dr. Mohamad Kamal Harun	Universiti Teknologi MARA
Industry Co-Chairman	Ir. Max Ong Chong Hup	Norimax Sdn Bhd
Academia Deputy Co-Chairman	Dr. Andrew Spowage	MTIS Sdn Bhd
Industry Deputy Co-Chairman	Karen Cheng Siew Hoon	Serba Dinamik Group Bhd
Secretary/Treasurer	Ainil Fidrah Ghazali	JOTAC Academy Sdn Bhd
Members:	Assoc. Prof. Dr. Eur-Ing Nigel Brewitt	Nottingham Malaysia Campus
	Assoc. Prof. Ir. Dr. Ang Bee Chin	Universiti Malaya
	Asst. Prof. Dr. Yu Lih Jiun	UCSI University
	Dr. Alan Leong Yin Liong	PETRONAS Research Sdn Bhd
	Dr. Caroline Jee Siew Yoke	KLSMC Stem Cells Sdn Bhd
	Dr. Zulkarnain Kedah	Serba Dinamik Group Bhd
	Ir. Mohd. Suradi Yasin	JOTAC Academy Sdn Bhd
	Hj. Kamal Azam Ibrahim	PETRONAS Group Technical Solutions

EXAMINATION, CERTIFICATION & ACCREDITATION PANEL (ECAP)

Secretariat Coordinator: Norita Othman
Alternate: Noorul Shafika Misbah

Chairman:	Brian Lim Siong Chung	Geopolitan Sdn Bhd
Deputy Chairman:	Jason Yap Haw Shin	LCC Industrial Supply & Engineering Sdn Bhd
Secretary:	Dr. Lau Chee Yong	Asia Pacific University of Technology & Innovation
Treasurer:	Harvin Kaur Gurchran Singh	Asia Pacific University of Technology & Innovation
Members:	Dato' Dr. Ir. Haji Mohd. Abdul Karim Abdullah	Serba Dinamik Group Bhd
	Assoc. Prof. Dr. Andri Andriyana	Universiti Malaya
	Prof. Dr. Melissa Chan Chin Han	Universiti Teknologi MARA
	Ts. Dr. Chew Khoon Hee	Tunku Abdul Rahman University College
	Dr. Yvette Shaan-Li Susiapan	Asia Pacific University of Technology & Innovation
	Ir. Max Ong Chong Hup	Norimax Sdn Bhd
	Ir. Ong Hock Guan	Shell Malaysia Exploration & Production
	Danny Tan Kim Chew	Abadi Oil & Gas Services Sdn Bhd
	Shamini Pathmanathan	Asia Pacific University of Technology & Innovation
	Tan Su Anne	PETRONAS Group Technical Solutions

CERTIFICATION WORKING GROUP UNDER ECAP

Secretariat Coordinator: Noorul Shafika Misbah
Alternate: Norita Othman

Chairman:	Assoc. Prof. Dr. Andri Andriyana	Universiti Malaya
Secretary:	Dr. Ch'ng Shiau Ying	University of Southampton Malaysia Campus
Treasurer:	Dr. Nazatul Liana Sukiman	Universiti Malaya
Members:	Assoc. Prof. Dr. Amalina Mohammad Afifi	Universiti Malaya
	Assoc. Prof. Dr. Roslina Binti Ahmad	Universiti Malaya
	Ir. Dr. Wong Yew Hoong	Universiti Malaya
	Dr. Nor Ishida Zainal Abidin	Universiti Malaya

ISO WORKING GROUP UNDER ECAP

Secretariat Coordinator: Noorul Shafika Misbah
Alternate: Norita Othman

Chairman:	Assoc. Prof. Dr. Amalina Mohammad Afifi	Universiti Malaya
Deputy Chairman:	Dr. Nor Ishida Zainal Abidin	Universiti Malaya
Secretary:	Dr. Nashrah Hani Jamadon	Universiti Kebangsaan Malaysia
Treasurer:	Dr. Shahira Liza Kamis	Universiti Teknologi Malaysia
Members:	Assoc. Prof. Ir. Dr. Leo Choe Peng	Universiti Sains Malaysia

IMM COUNCIL MEMBERS & COMMITTEES

2018-2020 SESSION

	Prof. Dr. Ir. Mariatti Jaafar @ Mustapha	Universiti Sains Malaysia
	Assoc. Prof. Dr. Nadras Othman	Universiti Sains Malaysia
	Assoc. Prof. Dr. Roslina Ahmad	Universiti Malaya
	Ir. Dr. Wong Yew Hoong	Universiti Malaya
	Dr. Suriani Ibrahim	Universiti Malaya
	Dr. Tuan Zaharinie Tuan Zahari	Universiti Malaya
	Dr. Ummi Hani Abdullah	Universiti Putra Malaysia
	Liza @ Sri Redzeki Mohd. Anuar	Perusahan Otomobil Nasional Bhd
	Norhashidah Talip	Malaysian Nuclear Agency

INSULATION COMMITTEE

Secretariat Coordinator: Aberamy Dayalam
Alternate: Hadi Syahirman Hasmadi

Chairman:	Danny Tan Kim Chew	Abadi Oil & Gas Services Sdn Bhd
Deputy Chairman:	Syarifah Nazliah Syed Abdul Rahman	BSSTech CP (M) Sdn Bhd
Secretary:	Lean Zhen Hua	Armacell Engineered Systems Ltd
Treasurer:	Chan Wai Sing	Metalcoat Engineering Sdn Bhd
Members:	Dr. Bernard L H Saw	Universiti Tunku Abdul Rahman
	Dr. Ye Ming Chian	Universiti Tunku Abdul Rahman
	Ir. Muhammad Zaid Kamardin	PETRONAS Group Technical Solutions
	Han Ah Kwang	Teras Majujaya Sdn Bhd
	Nik Khairil Azman Nik Abdullah	Temperlite Insulation Sdn Bhd
	Nik Ayman Nik Moustpha	Bumi Armada Bhd
	Rehan Ahmed	PETRONAS Carigali Sdn Bhd
	Soh Wei Ching	Sapura Energy Bhd
	Yii Ming Sing	Freelance

MATERIALS LECTURE COMPETITION COMMITTEE

Secretariat Coordinator: Noorul Shafika Misbah
Alternate: Edayue Fanashim

Chairman:	Prof. Dr. Esah Hamzah	Universiti Teknologi Malaysia
Members:	Prof. Dr. Melissa Chan Chin Han	Institute of Materials
	Dr. Nor Akmal Fadil	Universiti Teknologi Malaysia
	Dr. Nor Hasrul Akhmal Ngadiman	Universiti Teknologi Malaysia
	Assoc. Prof. Dr. Jariah Mohamad Juoi	Universiti Teknikal Malaysia Melaka
	Assoc. Prof. Dr. Zulkifli Mohd Rosli	Universiti Teknikal Malaysia Melaka
	Assoc. Prof. Dr. Andri Andriyana	Universiti Malaya
	Assoc. Prof. Dr. Ang Bee Chin	Universiti Malaya
	Assoc. Prof. Dr. Nurul	Universiti Sains Malaysia
	Assoc. Prof. Dr. Mariyam Jameelah Ghazali	Universiti Kebangsaan Malaysia
	Dr. Nashrah Hani Jamadon	Universiti Kebangsaan Malaysia
	Dr. Norkhairunnisa Mazlan	Universiti Pertanian Malaysia
	Dr. Mohd Salahuddin Mohd Basri	Universiti Pertanian Malaysia
	Assoc. Prof. Dr. Hasan Zuhudi Abdullah	Universiti Tun Hussein Onn Malaysia
	Dr. Lee Te Chuan	Universiti Tun Hussein Onn Malaysia
	Assoc. Prof. Dr. Khairel Rafezi Ahmad	Universiti Malaysia Perlis
	Dr. Rozyanty Rahman	Universiti Malaysia Perlis
	Assoc. Prof. Dr. Muhammad Hussain Ismail	Universiti Teknologi MARA
	Dr. Yong Soon Kong	Universiti Teknologi MARA
	Dr. Kee Kok Eng	Universiti Teknologi PETRONAS
	Dr. Pua Fei Ling	Universiti Tenaga Nasional
	Dr. Pua Fei Ling	Universiti Tenaga Nasional
	Dr. Nurfanizan Mohd Afandi	Universiti Tenaga Nasional
	Dr. Lau Chee Yong	Asia Pacific University
	Dr. Norshahida Sarifuddin	International Islamic University Malaysia
	Dr. Noor Azlina Hassan	International Islamic University Malaysia
	Dr. Chai Ai Bao	University of Nottingham Malaysia
	Assoc. Prof. Ir. Dr. How Ho Cheng	University of Nottingham Malaysia
	Assoc. Prof. Dr. Ervina Efzan Mhd Nor	Multimedia University
	Ts. Dr. Chew Khoon Hee	Tunku Abdul Rahman University College
	Assoc. Prof. Ts. Dr. Sazmal Effendi Arshad	Universiti Malaysia Sabah
	Assoc. Prof. Dr. Julie Juliewatty Mohamed	Universiti Malaysia Kelantan

MATERIALS MIND EDITORIAL BOARD

Secretariat Coordinator: Noorul Shafika Misbah
Alternate: Edayue Fanashim

Chief Editor:	Ts. Dr. Tay Chia Chay	Universiti Teknologi MARA
Deputy Chief Editor:	Assoc. Prof. Dr. Lim Teck Hock	Tunku Abdul Rahman University College
Managing Editor:	Hairunnisa Ramli	Universiti Teknologi MARA
Members:	Prof. Dr. Melissa Chan Chin Han	Universiti Teknologi MARA
	Ir. Mohd. Raziff Embi	Malakoff Power Bhd
	Nurul Fatahah Asyqin Zainal	Universiti Teknologi MARA

MIRI CHAPTER

Secretariat Coordinator: Hithaya Jeevan
Alternate: Aberamy Dayalam

Chairman:	Ir. Assoc. Prof. Dr. Edwin Jong Nyon Tchan	Advanced Metallurgy & Welding Technology Sdn Bhd
Deputy Chairman:	Giridharan Anandan	Velosi Sdn Bhd
Vice Chairman I:	Assoc. Prof. Dr. Vincent Lee Chieng Chen	Curtin University, Malaysia
Vice Chairman II:	Bernard Maxmillan Sim	Bureau Veritas (M) Sdn Bhd
Secretary:	Ir. Andrew Ling Tuong Thai	Sarawak Shell Bhd
Assist. Secretary:	Chang Chee Tsung	Akal Solutions Sdn Bhd
Treasurer:	Paul Tuh Chung Meng	Bureau Veritas (M) Sdn Bhd
Training & Education Officer:	Prof. Dr. Beena Giridharan	Curtin University, Malaysia
Membership Officer:	James Ripon	Freelance
Public Liaison Officer:	Ir. Desmond Chin Teck Eng	Shin Yang Shipyard Sdn Bhd
Members:	Dr. Mahmood Anwar	Curtin University, Malaysia
	Devinakumar Ratanam	ISP Enterprise Sdn Bhd
	Sheron Lim	Sarawak Shell Berhad
	Yung Chik Kiing	Bureau Veritas (M) Sdn Bhd

POLYMER COMMITTEE

Secretariat Coordinator: Noorul Shafika Misbah
Alternate: Edayue Fanashim

Chairman:	Ts. Dr. Chew Khoon Hee	Tunku Abdul Rahman University College
Deputy Chairman:	Leonard Ho	Polyseed SEV Sdn Bhd
Secretary:	Dr. Lee Xiau Yeen	Tunku Abdul Rahman University College
Members:	Assoc. Prof. Dr. Tshai Kim Yeow	Nottingham University (Malaysia Branch)
	Prof. Dr. Melissa Chan Chin Han	University Teknologi MARA
	Asst. Prof. Dr. Yu Lih Jiun	UCSI University
	Chan Yian Kit	Waters Analytical Instruments Sdn Bhd
	Lye Kong Haw	Bold Vision Sdn Bhd
	Renee Teo Yong Yin	Bruker (M) Sdn Bhd
	Rohani Abu Bakar	Malaysian Rubber Board

RHEOLOGY COMMITTEE

Secretariat Coordinator: Noorul Shafika Misbah
Alternate: Edayue Fanashim

Chairman:	Assoc. Prof. Dr. David Hassell	University of Bath, UK
Deputy Chairman:	Assoc. Prof. Dr. Azuraien Jaafar	Universiti Teknologi PETRONAS

IMM COUNCIL MEMBERS & COMMITTEES

2018-2020 SESSION

Secretary:	Dr. Anis Suhaila Shuib	Taylor's University
Treasurer:	Assoc. Prof. Dr. Tshai Kim Yeow	University of Nottingham Malaysia Campus
Members:	Assoc. Prof. Dr. Aaron Goh	Singapore Institute of Technology, Singapore
	Dr. Chaiwut Gamonpilas	National Metal and Materials Technology Center, Thailand
	Dr. Ewe Joo Ann	Taylor's University
	Dr. Manroshan Singh Jaswan Singh	Malaysian Rubber Board
	Al-Amshawee Sajjad Khudhur Abbas	Universiti Pahang Malaysia

SOUTHERN CHAPTER

Secretariat Coordinator: Norita Othman
Alternate: Noorul Shafika Misbah

Chairman:	Assoc. Prof. Dr. Tuty Asma Abu Bakar	Universiti Teknologi Malaysia
Deputy Chairman:	Assoc. Prof. Dr. Muhamad Azizi Mat Yajid	Universiti Teknologi Malaysia
Secretary:	Dr. Wan Fahmin Faiz Wan Ali	Universiti Teknologi Malaysia
Treasurer:	Dr. Mohd. Zamri Mohd. Yusop	Universiti Teknologi Malaysia
Members:	Prof. Dr. Esah Hamzah	Universiti Teknologi Malaysia
	Assoc. Prof. Dr. Jariah Mohamad Juoi	Universiti Teknikal Malaysia Melaka
	Assoc. Prof. Dr. Hamimah Abd Rahman	Universiti Tun Hussein Onn Malaysia
	Dr. Engku Mohd. Nazim Engku Abu Bakar	Universiti Teknologi Malaysia
	Dr. Nor Akmal Fadil	Universiti Teknologi Malaysia
	Mohd. Noor Fahmi Wichi	One Subsea Malaysia Systems Sdn Bhd

STUDENT CHAPTER

Secretariat Coordinator: Noorul Shafika Misbah
Alternate: Edayue Fanashim

Chairman:	Assoc. Prof. Dr. Lim Teck Hock	Tunku Abdul Rahman University College
Co-Chairman:	Dr. Mahmood Anwar	Curtin University, Malaysia
Secretary:	Ong Thai Kiat	Tunku Abdul Rahman University College
Members:	Assoc. Prof. Dr. Andri Andriyana	Universiti Malaya
	Assoc. Prof. Ir. Dr. Ang Bee Chin	Universiti Malaya
	Dr. Ho Mui Yen	Tunku Abdul Rahman University College
	Dr. Liew Chiam Wen	Tunku Abdul Rahman University College
	Dr. Neamul Ahsan Noman Khandoker	Curtin University, Malaysia
	Dr. Sumaiya Islam	Curtin University, Malaysia
	Dr. Tay Chia Chay	Universiti Teknologi MARA
	Dr. Tong Kim Suan	Kuala Lumpur Kepong Bhd
	Dr. Yee Swee Li	University of Nottingham Malaysia

TASK FORCE ON COATING FINGERPRINTING

Secretariat Coordinator: Noorul Shafika Misbah
Alternate: Norita Othman

Co-Chairman:	Prof. Ts. Dr. Mohamad Kamal Harun	Universiti Teknologi MARA
Co-Chairman:	Prof. Dr. Melissa Chan Chin Han	Universiti Teknologi MARA
Secretary	Suhaila Idayu Abdul Halim	Universiti Teknologi MARA
Treasurer:	Nurul Fatahah Asyqin Zainal	Universiti Teknologi MARA
Members:	Assoc. Prof. Dr. Lim Teck Hock	Tunku Abdul Rahman University College
	Asst. Prof. Dr. Yu Lih Jiun	UCSI University
	Ts. Dr. Chew Khoon Hee	Tunku Abdul Rahman University College
	Dr. Ismaliza Ismail	Malaysia Rubber Board
	Dr. Mahmood Anwar	Curtin University, Malaysia
	Ir. Max Ong Chong Hup	Norimax Sdn Bhd
	Ir. Zarina Rasmin	SIRIM QAS International Sdn Bhd
	Abdul Aziz Haron	SIRIM QAS International Sdn Bhd
	Ahmad Badli Shah Abdul Aziz	International Paints (M) Sdn Bhd
	Chang Yau Chong	Kansai Asia Pacific Sdn Bhd
	Chow Mee Ling	Agilent Technologies Sales (M) Sdn Bhd
	Elson Wah Eng Keong (Alt)	Perkin Elmer (M) Sdn Bhd
	Hairunnisa Ramli	Universiti Teknologi MARA
	Kelly Hong Mun Key	Nexus Analytics Sdn Bhd
	Kenneth Way Chiang Poh	Perkin Elmer (M) Sdn Bhd
	Lee Choon Siong	Jotun (M) Sdn Bhd
	Leow Chun Ho (Alt.)	Shell Malaysia Exploration & Production
	Lim Chuan Gee	SIRIM Bhd
	Mark Hew Yoon Onn	Universal Corrosion Engineering (M) Sdn Bhd
	Mohammad Ariff Sukur	Sarawak Shell Bhd
	Mohamad Ikmal Hisham Ashari	Materials Technology Education Sdn Bhd
	Mohd. Wahidduzzaman Zainal (Alt.)	PPG-Sigma Coatings (M) Sdn Bhd
	Mokhtar Othman (Alt.)	International Paints (M) Sdn Bhd
	Muhammad Hawari Hasan	PETRONAS Group Technical Solution
	Nik Muhammad Fitri	Norimax Sdn Bhd
	Nurul Asni Mohamed	PETRONAS Group Technical Solution
	Paramjit Singh Darjit Singh (Alt.)	Hempel (M) Sdn Bhd
	Phuah Shok Chan (Alt.)	Agilent Technologies Sales (M) Sdn Bhd
	Quah Kean Gin (Alt.)	Jotun (M) Sdn Bhd
	Renee Teo Yong Yin	Bruker (M) Sdn Bhd
	Selvandram Vello	Hempel (M) Sdn Bhd
	Teh Tiong Poh (Alt)	Jotun (M) Sdn Bhd
	Terence Wee Tee Hin	PPG-Sigma Coatings (M) Sdn Bhd

VIBRATION COMMITTEE

Secretariat Coordinator: Hithaya Jeevan
Alternate: Aberamy Dayalam

Chairman:	Dato' Dr. Ir. Haji Mohd. Abdul Karim Abdullah	Serba Dinamik Group Bhd
Deputy Chairman:	Salim Sumormo	PETRONAS Group Technical Solutions
Immediate Past Chairman:	Noor Hisham Abdul Hamid	Euro Circuit Technology Sdn Bhd
Secretary:	Dr. Zulkarnain Kedah	Serba Dinamik Group Bhd
Assistant Secretary:	Karen Cheng Siew Hoon	Serba Dinamik Group Bhd
Treasurer:	Dr. Alex Ong Zhi Chao	University Malaya
Members:	Prof. Dr. Andy Tan Chit Tan	University Tunku Abdul Rahman
	Assoc. Prof. Ir. Dr. Nadianor Md.Yusop	Universiti Teknologi MARA
	Assoc. Prof. Ir. Dr. Zainal Fitri Bin Zainal Abidin	Universiti Kuala Lumpur Malaysia France Institute
	Assoc. Prof. Dr. Rahizar Ramli	University Malaya
	Assoc. Prof. Dr. Vincent Lee Chieng Chen	Curtin University, Malaysia
	Lt. Kdr. Dr. Ir Arman Ariffin	Royal Malaysian Navy
	Lt. Kdr. Wan Mariana	Royal Malaysian Navy
	Ir. Dr. Shamsul Akmar Ab Aziz	Sciences & Technologies Research Institute for Defence
	Dr. Gary. Y. Lee	Shell Global Solutions (M) Sdn. Bhd.
	Dr. Mohamed Ackiel Mohamed	Serba Dinamik Group Bhd
	Dr. Rafiziana Md. Kasmani	University Teknologi Malaysia
	Ir. Faizul Azly Dzubir	PETRONAS Group Technical Solutions
	Ir. Mohd. Nizam Ab. Wahab	PETRONAS Group Technical Solutions
	Abdul Qaiyum Alidin	Resonic Consultancy
	Afandi Abd Hamid	Serba Dinamik Group Bhd
	Ahmad Nu'man Fawzal	AF Condition Monitoring (M) Sdn Bhd
	Fairuz Salleh	Serba Dinamik Group Bhd
	Mohamad Ikmal Hisham Ashari	Materials Technology Education Sdn Bhd

IMM COUNCIL MEMBERS & COMMITTEES

2018-2020 SESSION

	Mokhtar Mohd. Tahir	Serba Dinamik Group Bhd
	Mohd. Shukri Mohd. Khalid	Sarawak Shell Bhd
	Muhammad Ariff Othman	BAYTECH Engineering Sdn Bhd
	Muhamad Azhan Anuar	Universiti Teknologi MARA
	Paul Crowther	Wood Group
	Ravindra Kalidas	VibraTec Asia-Pacific Sdn Bhd
	Razaman Maydin	RZF Engineering Services
	Yogeswaran Sinnasamy	Sciences and Technologies Research Institute for Defence
	Zaharudin Ariffin	PETRONAS Group Technical Solutions

WELDING COMMITTEE

Secretariat Coordinator: Aberamy Dayalam
Alternate: Hadi Syahirman Hasmadi

Chairman:	Tan Su Anne	PETRONAS Group Technical Solutions
Deputy Chairman:	Dr. Mohamed Ackiel Mohamed	Serba Dinamik Group Bhd
Secretary:	Salina Saidin	Nusantara Technologies Sdn Bhd
Treasurer:	Muhammad Abdul Hakim Hashim	SIRIM Bhd
Members:	Ir. Dr. Edwin Jong Nyon Tchan	Advanced Metallurgy & Welding Technology Sdn Bhd
	Dr. Hamed Mohebbi	Universiti Teknologi PETRONAS
	Anis Amilah Ab Rahman	PETRONAS Group Technical Solutions
	Azrriq Zainul Abidin	Technogerma Engineering & Consulting Sdn Bhd
	Bernard Maxmillan Sim	Bureau Veritas (M) Sdn Bhd
	Dahia Andud	Universiti Kuala Lumpur Malaysia France Institute
	Edward Leong	Excel Weldmart Sdn Bhd
	Ghalib Tham	Retired
	G. Padmanabhan	Bumi Armada Bhd
	Hafizul Mohamad	Petroliam Nasional Bhd (PETRONAS)
	Leo Paul	Retired
	Khairulnizam Kasim	Politeknik Sultan
	Mohd. Aizuddin Abdul	PETRONAS Group
	Muhammad Hasbi	PETRONAS Group
	Mohd. Arif Ismail	JOTAC Academy Sdn
	Mohd. Hazimin Mohd.	The Centre for Instructor
	Mohamad Ikmal Hisham Ashari	Materials Technology Education Sdn Bhd
	Mohd. Shahrizal PKM Seeni Mohd.	PETRONAS Group Technical Solutions
	Nik Mohd. Baihaki	Petro Precision Sdn Bhd
	Noor Syamiza Abdul Malik	Petroliam Nasional Bhd (PETRONAS)
	Noridah Nordin	SIRIM Bhd
	Nurul Hana Kamaruzaman	PETRONAS Group Technical Solutions
	Richard Ang Soon Huat	SGS (Malaysia) Sdn Bhd

WELLS CORROSION COMMITTEE

Secretariat Coordinator: Aberamy Dayalam
Alternate: Hadi Syahirman Hasmadi

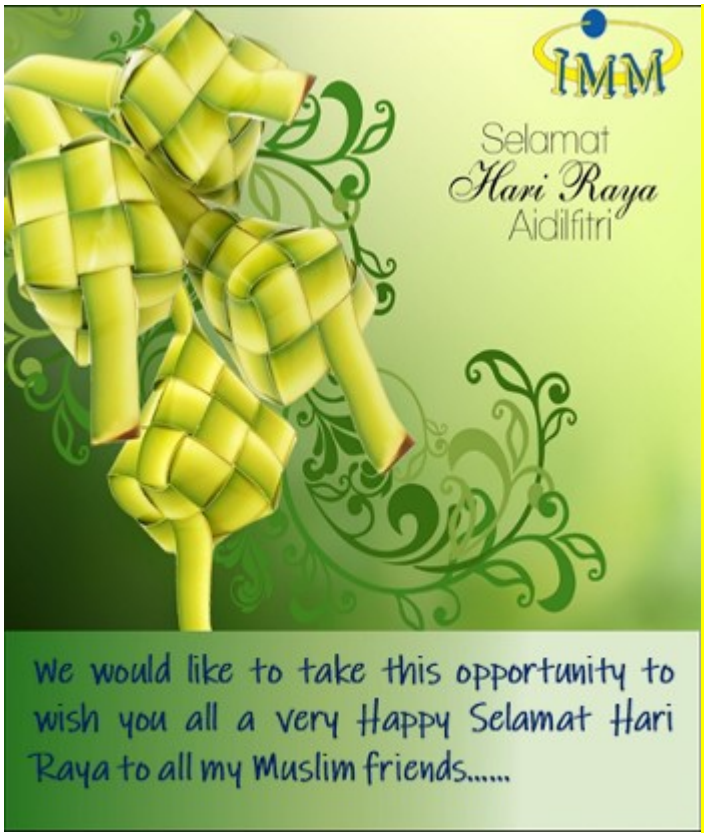
Chairman:	Radhakrishnan Karantharath	TGT Oilfield Services
Secretary:	Michael Fong Chin Hoe	TGT Oilfield Services
Treasurer:	Muhammad Ashraff Abdul Manaf	Max Energy Sdn Bhd

YOUNG PROFESSIONALS

Secretariat Coordinator: Aberamy Dayalam
Alternate: Hadi Syahirman Hasmadi

Chairman:	Mohd. Fairuz Mohd. Salleh	Serba Dinamik Group Bhd
Deputy Chairman:	Izuan Iskandar Udani	Applied Corrosion Engineering Services Sdn Bhd
Treasurer:	Mohd. Hafiz Karim	Vibratec Asia Pacific Sdn Bhd
Members:	Ir. Dr. Alex Ong Zhi Chao	Universiti Malaya
	Ahmad Nu'man Ahmad Fawzal	AF Conditioning Monitoring (M) Sdn Bhd
	Faizal Fikri	Fave Sdn Bhd
	Kamila Abdul Hamid	Wood plc
	Muhammad Qazafi Mat Zaid	Norimax Sdn Bhd
	Redzarul Redzuan	Suez Water Treatment (M) Sdn Bhd
	Wong Chung Han	Cargill Food Ingredients Sdn Bhd

Compiled by: IMM Secretariat,
The information was updated as of 16th April 2019



IMM

Mission

1. To be the technical authority on material science and technology
2. To develop and enhance competency and skills for all categories and practitioners
3. To become an internationally recognized certifying body
4. To be the forum for industry and academia collaboration
5. To positively contribute to society and quality of life

Vision To be an internationally recognised leading institution in materials science and technology

www.iomm.org.my

INSTITUTE OF MATERIALS, MALAYSIA

Updated on 30th December 2018

Institute of Materials, Malaysia (IMM) is a non-profit professional society that promotes honourable practice, professional ethics and encourages education in materials science, technology and engineering. Engineers, academicians, technicians, skilled workers and professionals are amongst its members exceeding 6800.

Registered with the Registrar of Societies on 6th November 1987, the Malaysian Materials Science & Technology Society (MMS) changed its name to the Institute of Materials, Malaysia (IMM) on 16th June 1997. The objectives of the IMM include the training and development of individuals and companies in Malaysia to attain professional recognition in various fields of materials science, technology and engineering.

IMM is administered by a council of 30 members, with volunteers leading 18 materials committees, and 5 regional chapters, and supported by a secretariat with full time staffs.

IMM Vision
To be internationally recognised leading institution in Materials Science and Technology.

IMM Mission
(1) To be the technical authority on material science and technology
(2) To develop an enhance competency and skills for all categories and practitioner
(3) To become an internationally recognized certifying body
(4) To be the forum for industry and academia collaboration
(5) To positively contribute to society and quality of life

The IMM membership is categorised into 6 different grades and open to anyone above the age of 17 years - individuals and companies keen in developing and contributing towards the growth of materials science, technology and engineering in Malaysia.

Over the years, IMM have conducted courses on coatings, coatings fingerprinting, corrosion, welding, vibration etc in support of the oil and gas industry in Malaysia. Over 600 Coatings Inspectors have been trained and certified as well as 2500 Blasters & Painters, Supervisors, Corrosion Technician and Vibration Practitioners. Its certification programmes are recognized by PETRONAS and all oil & gas operators. Since January 2011, 72 Associate Welding Engineers, 80 Welding Engineers, 20 Senior Welding Engineers and 24 Coating Fingerprint Quality Controllers were trained and certified.

IMM has also organised 10 International Materials Technology conferences (IMTCE) on a biennial basis, and numerous technical seminars, educational programmes, technical visits, and materials awareness programmes since 1988.

Public courses, such as Microbiologically Influenced Corrosion (MIC) and Welding Technology for Non-Welding Personnel, are being offered occasionally. Training on materials awareness has also been conducted in public listed companies.

The courses and programmes are being organised by Authorized Training Body/Bodies and Authorized Event Organizer/Organizers.

Collaborations with the Asian Welding Federation, The Society for Protective Coatings, US (SSPC), Sabah Skills Technology Centre (SSTC), and local universities continue to be part of IMM's vision and long term mission to educate, train and serve the materials fraternity.

GENERAL INFORMATION ON MEMBERSHIP

The IMM Membership is opened to all individuals and companies in developing the contribution of Materials science, technology and engineering towards industrial growth in Malaysia. The technology of materials is advancing day-to-day throughout the world. Membership to the IMM will enable networking and exchange of knowledge from a very wide variety of specialised areas of expertise. Please feel free to download or print a copy of the application form together with the IMM regulations. If you have any doubt, please do not hesitate to contact our secretariat through the phone; +603-4256-2286 or email to secretariat@iomm.org.my

Annual subscriptions shall be payable in advance on 1st January of each year. Those admitted into the IMM between 1st July and 31st December in any year shall pay only half the annual subscription. Seniors (above 55 years old) get 50% discount off their annual subscriptions.

We have an online application for membership for selected grades. Membership application forms in document format can be accessed from www.iomm.org.my.

Kindly fill the form and email to secretariat@iomm.org.my or fax it to: +603-7880 1753 or send it to :

IMM SECRETARIAT

Suite 515, Level 5, Block A, Kelana Centre Point (Lobby B),
No. 3 Jalan SS 7/19, Kelana Jaya,
47301 Petaling Jaya, Selangor

IMM MEMBERSHIP BENEFITS

(1) IMM activities offer members to interact and network with representative from the industry, academia and government related to the Materials profession.

(2) Members will gain knowledge on career opportunities for their children, friends etc as IMM offers certification courses in skilled trades e.g. Welding, Painting, Inspection, Corrosion etc.

(3) IMM-JWES Welding Engineer Certification program leading to a Welding Engineer Certification which offers great employment opportunities in the oil & gas, heavy industry, marine and energy sectors.

(4) IMM publications – quarterly magazine plus annual conferences offer presenters an opportunity for their technical research or industry-academia papers to be published in ISI- and Scopus-index journals.

(5) IMM organizes many free technical events for members to acquire new knowledge and networking opportunities. Participants to these events will also receive Certificate of Attendance for their Continuing Professional Development records.

IMM MEMBERSHIP FEES SCHEDULE AS PER BELOW:

Description	Amount			
	Entrance Fee	Processing Fee	Transfer Fee	Annual Subscription
Fellow (F.I.M.M)	-	RM 300.00	RM 10.00	RM 150.00
Professional (M.I.M.M)	-	RM 150.00	RM 10.00	RM 100.00
Associate (A.M.I.M.M)	-	RM 150.00	RM 10.00	RM 80.00
Company	RM 50.00	-	-	RM 200.00
Ordinary	RM 20.00	-	-	RM 40.00
Student	RM 10.00	-	-	RM 10.00
Ordinary/ Company for affiliates	RM 40.00/ RM 50.00	-	-	NIL

INSTITUTE OF MATERIALS, MALAYSIA

Updated on 30th December 2018

REGULATIONS GOVERNING ADMISSION AND TRANSFER OF MEMBER GRADES

The Council shall establish a Memberships Committee which will be responsible for review of applications for transfer of membership grades. The Memberships Committee shall recommend transfers for Council approval at Council Meetings. All grades of memberships are awarded at the discretion of the Council and may be withheld or withdrawn in the event of conduct likely to prejudice the standing of the Institute. Every member shall receive a membership certificate.

The Memberships Committee shall be responsible for drafting the "Regulations Governing Admission and Transfer of Member Grades" for Council approval. These regulations may be changed from time to time subject to Council approval.

Every application for membership shall be proposed and seconded according to these regulations and shall be forwarded to the Honorary Secretary who shall, at the first convenient opportunity, submit it to the Council for approval the Council may at its discretion reject any application without assigning any reason thereof.

Each company on admission shall be entitled to nominate one representative to exercise all rights of membership. Only representatives of Company membership, Fellows (F.I.M.M.). Professional Members (M.I.M.M.) and Ordinary members shall have the right to vote and to hold office in IMM.

Only Malaysian Citizens, and Blue Identity Card Holders can become Ordinary Members, Associate Members (A.M.I.M.M.), Professional Members (M.I.M.M.) and Fellow Members (F.I.M.M.) with voting rights. Foreigners can join similar grades but shall have no voting rights.

MEMBERSHIP GRADE & REQUIREMENT

Honorary Fellow (Hon. F.I.M.M.)
The Council shall have the power to elect Honorary Fellows who shall be persons of eminence in science or industry. The election shall be based on a majority vote within the Council. Honorary fellows shall enjoy such privileges as may from time to time be determined by the Council.

Fellow (F.I.M.M.)
A person at least 35 years of age with approved academic qualifications, training and 8 years relevant responsible experience who has made significant contributions to the science and practice of profession of Materials Science and Engineering or has given distinguished service to industry or education.

Professional Member (M.I.M.M.)
A person at least 25 years of age, with approved academic qualifications and training, having at least 3 years responsible experience in Materials Science and Engineering, or a person at least 40 years of age, with at least 15 years of experience with practical responsibility, as demonstrated by thesis/dissertation or report and interview.

Associate Member (A.M.I.M.M.)
A person at least 25 years of age, who possesses an interest in Materials Science and Engineering but have not acquired the necessary experience or obtained the qualification, governing entry to Member grade. An Associate Member, on obtaining the necessary qualifications, may apply for transfer to Member grade.

Company Member
Any company that is involved or has interest in Materials Science and Engineering will be qualified to join as a company member.

Ordinary Member
Any Malaysian Citizen and above the age of 18 years engaged in activities related to research, development and applications in Materials Science and Engineering shall qualify for Ordinary Membership. Only Ordinary Members who meet the necessary minimum requirements may apply for transfer to membership grades of Fellow, Member and Associate Member and may use the abbreviated titles upon transfer.

Student Member
A student member shall be a person not under 17 years of age who at the time of application satisfies the Council that he has received a good general education and is studying subjects related to Materials Science or Engineering. A student member shall transfer to the grade of Ordinary Member after graduation provided he or she is suitably qualified and as soon as he or she is earning a full-time salary. A Student shall not become member of the IMM without the prior approval of the Vice-Chancellor or Head of Department of the university or relevant authority concerned.

Coating Fingerprinting Workshop

IMM Vibration Conference 2018

MOGSEC 2018

MLC 2018

FREE Ordinary Membership for Affiliates:

The Institute of Materials, Malaysia will recognize various professional institutions and societies for **free membership** at "Ordinary Grade". Members of the recognized professional institutions and societies can become Ordinary Members of the IMM without any annual subscriptions. The Council of the IMM approved the proposal in accordance to IMM Rules clause no. 3.2.3 and the members at its 21st Annual General Meeting unanimously approved the proposal on 19th March 2011.

Members of following institutions and societies are welcome to apply.

(1) American Welding Society
(2) Asian Welding Federation
(3) Board of Architects Malaysia
(4) Board of Engineers, Malaysia
(5) Engineering Institutes under the Engineering Council of UK
(6) Geological Society of Malaysia
(7) Institut Kimia Malaysia
(8) Institute of Corrosion UK
(9) Institute of Materials Singapore
(10) Institute of Physics Malaysia
(11) Institution of Engineers, Malaysia
(12) Jabatan Minerals & Geoscience
(13) Malaysian Medical Association
(14) Malaysian Nurses Association
(15) Malaysian Society for Non-Destructive Testing
(16) Malaysian Welding & Joining Society
(17) National Association of Corrosion Engineers USA
(18) Persatuan Arkitek Malaysia
(19) Plastics & Rubber Institute of Malaysia
(20) Singapore Welding Society
(21) Society of Petroleum Engineers
(22) Steel Structures Painting Council USA
(23) The Welding Institute UK

FREE Company Membership for Affiliates:

The Institute of Materials, Malaysia will recognize various professional institutions and societies for free membership at "Company Grade". Company Members of the recognized professional institutions, societies & associations can become Company Members of the IMM without any annual subscriptions. The Council of the IMM approved the proposal in accordance to IMM Rules clause no. 3.2.3 at its Penultimate Council Meeting on 10th January 2014 which was endorsed at the 24th Annual General Meeting held on 21st March 2014.

List of Free Company Memberships for Trade Associations:-

(1) Federation of Malaysian Manufacturers (FMM)
(2) Malaysian Offshore Contractors Association (MOCA)
(3) Malaysian Oil & Gas Engineering Council (MOGEC)
(4) Malaysian Oil & Gas Services Council (MOGSC)

Email : secretariat@iomm.org.my Website : www.iomm.org.my

IMM STANDARD

IMM FP01:2019

First edition
04:04:19

COATING FINGERPRINTING OVERALL PROCEDURES FOR PAINT SYSTEMS USING FTIR AND OTHER RELATED METHODS

INSTITUTE OF MATERIALS, MALAYSIA

Disclaimer

Whilst every effort has been made to ensure the accuracy of the information contained in this publication, neither IMM nor any of its Members past present or future warrants its accuracy or will, regardless of its or their negligence, assume liability for any foreseeable or unforeseeable use made thereof, which liability is hereby excluded. Consequently, such use is at the recipient's own risk on the basis that any use by the recipient constitutes agreement to the terms of this disclaimer. The recipient is obliged to inform any subsequent recipient of such terms.

This publication is made available for information purposes and solely for the private use of the user. IMM will not directly or indirectly endorse, approve or accredit the content of any course, event or otherwise where this publication will be reproduced.

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

Copyright notice

These Terms and Conditions shall be governed by and construed in accordance with the laws of Malaysia. Disputes arising here from shall be exclusively subject to the jurisdiction of the courts of Malaysia.

For further information on this Standard, please contact:

Institute of Materials, Malaysia
Suite 515, Level 5, Block A, Kelana Centre Point,
No. 3, Jalan SS7/19, Kelana Jaya,
47301 Petaling Jaya, Selangor, Malaysia

Tel: +603 7880 1753

https://www.iomm.org.my
Email: secretariat@iomm.org.my

Contents

Contents *(continued)*

Foreword

Institute of Materials, Malaysia (IMM) is a non-profit professional society that promotes honourable practice, professional ethics and encourages education in materials science, technology and engineering. Engineers, academicians, technicians, skilled workers and professionals are amongst its members exceeding 6800. Registered with the Registrar of Societies on 6th November 1987, the Malaysian Materials Science & Technology Society (MMS) changed its name to the Institute of Materials, Malaysia (IMM) on 16th June 1997. The objectives of the IMM include the following:

- Training and development of individuals and companies in Malaysia to attain professional recognition in various fields of materials science, technology and engineering.
- Development of IMM standards as recommended guidelines for good technical practice for consideration and implementation by various industries of materials science, technology and engineering.

IMM FP01:2019, *Coating fingerprinting overall procedures for paint systems using FTIR and other related methods* was developed by the IMM Task Force on Coating Fingerprinting.

This standard will be subjected for review to reflect current needs and conditions. Users and other interested parties may submit comments on the contents of this standard for consideration in future versions.

Compliance with this Standard does not of itself confer immunity from legal obligations.

COATING FINGERPRINTING OVERALL PROCEDURES FOR PAINT SYSTEMS USING FTIR AND OTHER RELATED METHODS

1. Scope

This Standard emphasises fingerprint checking of manufacturer's paint system, with the aim of reaffirming the consistency of the paint supplied with reference to the qualified paint. This Standard covers the fingerprint requirement of both single and multi-component paint systems for qualification, quality control and verification.

This Standard includes:

i. Coating fingerprinting qualification
ii. Test method to fingerprint the paint supplied in the manufacturer's container
iii. Criteria and execution of Fingerprint Coating Certificate

NOTE. The requirement of coating fingerprinting is stated in various specifications and standards, namely ISO 12944-9:2018, *Paints and varnishes- Corrosion protection of steel structures by protective paint systems-- Part 9: Protective paint systems and laboratory performance test methods for offshore and related structures*, ASTM D7588-11(2018) *Standard guide for FTIR fingerprinting of a non-aqueous liquid paint as supplied in the manufacturer's container*, and ASTM D2621-87 *Standard test method for infrared identification of vehicle solids from solvent-reducible paints*. However, all of these standards are lacking with respect to the interpretation of FTIR spectra or the estimation of the degree of similarity between two FTIR spectra. Hence, there is a need to establish a working standard for the execution of coating fingerprinting.

2. Terms and definitions

For the purposes of this document, the following terms and definitions apply.

2.1. 3rd-party laboratory

laboratory independent of the manufacturer, supplier, designer or owner of the tested items, nor the authorized representative or a subsidiary of any of these parties.

2.2. attenuated total reflectance (ATR)

measures the changes that occur in an internally reflected IR beam when the beam comes into contact with a sample.

2.3. auditor

a person who conducts a systematic review on the execution of coating fingerprinting certificate.

2.4. certificate of analysis (COA)

document that confirms a product meets its product specification, as obtained from testing performed.

2.5. correlation

the interdependence of the spectra from sample to that of Reference.

2.6. Fourier-transform infrared (FTIR)

when infrared radiation is passed through a sample, some radiation is absorbed by the sample and some is transmitted. The resulting signals are generated at the detector. The Fourier Transform converts the detector output to an interpretable spectrum that may provide molecular structural insights.

2.7. material safety data sheet (MSDS)

document that provides information regarding safety and health of related substances and products.

2.8. owner

a person who acquires possession, ownership, or rights to the use or services of the paint by payment.

2.9. paint

pigmented coating material in liquid form that when applied to a substrate, forms a solid film having protective, decorative, or specific technical properties.

2.10. Reference sample

the sample that has been subjected to qualification test and referred to as standard.

2.11. shall

expressing an instruction, command or a strong assertion

2.12. should

used to indicate obligation, duty, or correctness

2.13. technical data sheet (TDS)

document that provides information regarding a specific product.

2.14. triplicate

the repetition of the set of experiment by means of same sample in three replications.

3. Coating fingerprinting qualification

Coating fingerprinting qualification shall be imposed for coating projects with total surface area of 1000 m^2 or more, or as required by the owner. The new coating has to pass all the performance tests, as agreed by the owner. The coating formulation that has changed after qualification shall be requalified. The coating formulation after qualification shall be consistent for batch-to-batch production.

The qualification tests shall be carried out or witnessed and certified by an independent 3rd-party authority, or to be agreed by the owner. The recommended 3rd-party testing laboratory shall be recognized by the owner for a grace period of at least 3 years prior to accreditation by authorized body.

Fingerprint check may serve as a verification tool to confirm that the paints supplied are identical to those subjected to qualification test, by means of the degree of similarity (r) of FTIR spectra.

Routine batch check shall be carried out on the first and every subsequent batch of the paint in a qualified paint system to substantiate the accuracy of batch-to-batch production.

NOTE. Routine batch check discloses the distinction between the paints supplied with qualified paint.

Coating Fingerprinting Qualification shall be made to the whole wet paint in the *as-is* basis but not solvent-reducible to ensure the consistency of the solvent component for batch-to-batch production. In addition, Coating Fingerprinting Qualification shall be applicable to both single and multi-pack paint systems. For single-pack, the sample is analysed directly. For multi-pack paint, each pack is analysed separately.

4. Sample collection (by paint manufacturer)

For every new paint system, three samples are required from the **T**op (1 sample), **M**iddle (1 sample) and **B**ottom (1 sample) (*c.f.* Figure 1) of the mixing tank, respectively. Subsequently, one sample is obtained from the **B**ottom of the mixing tank for each batch of production.

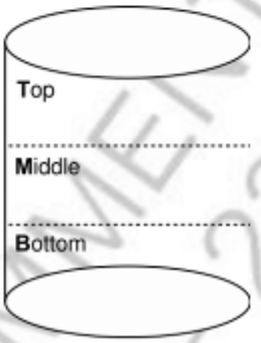


Figure 1. Schematic diagram of sampling location at **T**op, **M**iddle and **B**ottom of the mixing tank / paint container

5. FTIR test method

5.1. FTIR spectrophotometer

Both mobile and handheld FTIR spectrophotometers are suitable for on-site analysis, while the benchtop spectrophotometer shall be used for laboratory analysis. The results obtained from benchtop, mobile and handheld spectrophotometers should be comparable.

The FTIR spectrophotometer shall encompass a wavelength range of at least 4000 cm^{-1} – 700 cm^{-1} with resolution of no less than 4 cm^{-1}. In addition, the FTIR spectrophotometer shall be equipped with single or multi-bounce ATR with horizontal arrangement. The common ATR crystal materials are diamond, zinc selenide (ZnSe) and germanium (Ge), with the spectral range of 4000 cm^{-1} – 650 cm^{-1}, 4000 cm^{-1} – 650 cm^{-1}, and 4000 cm^{-1} – 700 cm^{-1} respectively. The ATR crystal material shall be compatible and not react with the respective paint sample. The finite comparison of the spectra is recommended (but not essential) to be obtained with same ATR crystal material.

5.2. Sample preparation

The paint sample shall be stirred and the **T**op of the paint sample shall be withdrawn and applied on the ATR crystal.

5.3. Sample annotation

Sample annotation is required to reproduce the spectrum and the information shall include:

a) Sample name;
b) Batch number;
c) Date and time being analyzed;
d) Analyst and/or company name;
e) FTIR brand and model, spectral range, number of sample scans (min 32), number of background scans (min 32), resolution;
f) ATR crystal material; and
g) Spectral correction (if any).

5.4. Instrumental analysis

The analyses are recorded in transmittance mode by averaging 32 scans at a maximum resolution of 4 cm^{-1}. Each sample is required to have a minimum of triplicate analysis. A background infrared spectrum shall be collected prior to each sample analysis.

The paint sample is applied on the ATR crystal and the spectrum is collected immediately. A sufficient amount of sample shall be used as the sample volume of less than 1 mL is prone to solvent loss and/or reaction with atmospheric component.

5.5. Spectra analysis

A comprehensive examination of the original spectrum is required prior to spectrum processing. It is recommended to retain the original spectra for further deliberation. The spectra shall not be baseline corrected or subjected to any other types of spectral correction.

The commercially available FTIR software contains different algorithms for processing FTIR spectra. For the Coating Fingerprint Certificate, only the Compare function is involved. A Compare function or equivalent shall be used in all cases.

The range of wavenumbers as fingerprint regions for resin and hardener is as shown in Annex A. For other paint systems, the range of fingerprint region is as per agreed upon with owner.

5.5.1. Reference spectrum

Reference spectrum shall be generated from the average spectra of **T**op, **M**iddle and **B**ottom of the mixing tank (refer Clause 4).

Paint manufacturer shall average a minimum of nine spectra from **T**op, **M**iddle and **B**ottom of the mixing tank (with minimum of three spectra from each location).

5.5.2. Degree of similarity (*r*)

The degree of similarity, which is termed correlation (*r*), of the spectra is generated by comparing the spectra of the sample to that of the Reference spectrum using Compare features of the FTIR software.

The degree of similarity is directly proportional to quantities of *r*, i.e. $r = 1$ represents the complete matching of the sample spectrum to that of the Reference spectrum. The acceptance criterion is set at $r \geq 0.900$, with tentative tolerance of ± 0.002 (or the range of 0.898 – 1.000).

It is to be noted that the degree of similarity has no correlation with the performance of the coating. The $r \geq 0.900$ is only an indication that the batch of the paint supplied has high degree of similarity as compared to the Reference paint that passed the qualification test.

6. Qualification of paint system

6.1. Qualification of Reference sample (new formulation)

The qualification of the Reference sample is approximated by degree of similarity (r) from the in-house and 3rd-party testing laboratory, as given by Equation 1.

$$r_{\mathrm{Ref}} = \sqrt{r_{\mathrm{Ref_{in-house}}} \times r_{\mathrm{Ref_{3rd-party}}}} \qquad \text{(Equation 1)}$$

The Reference spectrum for 3rd-party testing laboratory ($\mathrm{Ref_{3rd-party}}$) is obtained by averaging nine spectra generated from the **T**op (one sample), **M**iddle (one sample) and **B**ottom (one sample) of the mixing tank. The $r_{\mathrm{Ref_{3rd-party}}}$ can be estimated by referencing $\mathrm{Ref_{3rd-party}}$ to $\mathrm{Ref_{in-house}}$, which is submitted by the 3rd-party testing laboratory to paint manufacturer.

The Reference spectrum for in-house ($\mathrm{Ref_{in-house}}$) is obtained by averaging nine spectra generated from the **T**op (one sample), **M**iddle (one sample) and **B**ottom (one sample) of the mixing tank. The $r_{\mathrm{Ref_{in-house}}}$ can be estimated by referencing $\mathrm{Ref_{in-house}}$ to $\mathrm{Ref_{3rd-party}}$, which is carried out in-house by paint manufacturer.

The acceptance criterion for the qualification of Reference sample is $r_{\mathrm{Ref}} \geq 0.90$ for the whole FTIR region and fingerprint region. The successfully qualified Reference sample is employed as standard for in-house batch-to-batch monitoring, random/scheduled on-site analysis, and retained paint sample analysis.

6.2. In-house batch-to-batch monitoring

For each batch of the paint production, one sample from the **B**ottom of the mixing tank is obtained. The r is approximated by referencing the Reference sample to the sample collected from the **B**ottom of the mixing tank for every subsequent batch of the paint production.

If the r of the sample spectrum is ≥ 0.900 (with tentative tolerance of ±0.002) for whole FTIR region and fingerprint region as compared to the Reference spectrum, then the sample is accepted.

If the r of the sample spectrum is < 0.900 for whole FTIR region and fingerprint region as compared to the Reference spectrum, a verification test using samples from each location (**T**op, **M**iddle and **B**ottom) of the mixing tank is required, prior to rejection of the whole lot of paint sample.

6.3. Random/scheduled on-site analysis (by owner)

For the on-site paint sampling (using handheld or mobile FTIR spectrophotometer), one sample from the **T**op of the randomly selected paint container is required. The r for on-site sample spectrum is approximated by referencing the Reference sample to the on-site collected paint sample.

If the r of the sample spectrum is ≥ 0.900 (with tentative tolerance of ±0.002) for whole FTIR region and fingerprint region as compared to the Reference spectrum, then the sample is accepted.

If the *r* of the sample spectrum < 0.900 as compared to the Reference spectrum for whole FTIR region and fingerprint region, verification test of the on-site paint sample shall be carried out by 3rd-party testing laboratory (recommended by the owner).

If the 3rd-party analysis of on-site paint sample demonstrated *r* < 0.900 as compared to the Reference spectrum, an additional verification test of the retained paint sample shall be carried out by 3rd-party testing laboratory, prior to rejection of the whole lot of paint sample.

6.4. Retained paint sample

The paint manufacturer shall retain one sample from every new paint system and submit for 3rd-party testing laboratory (recommended by the owner) to act as a verification tool whenever there is a dispute on the paint delivered on-site. For each batch of the paint production, one sample from the **T**op, **M**iddle and **B**ottom of the mixing tank is kept as retained paint sample.

The *r* is approximated by referencing the Reference sample to the retained paint sample from **B**ottom of the mixing tank. If the *r* of the sample spectrum is ≥ 0.900 (with tentative tolerance of ±0.002) for whole FTIR region and fingerprint region as compared to the Reference spectrum, then the sample is accepted.

If the *r* of the sample spectrum is < 0.900 for whole FTIR region and fingerprint region as compared to the Reference spectrum, a verification test using samples from each location (**T**op, **M**iddle and **B**ottom) of the mixing tank is required, prior to rejection of the whole lot of paint sample.

6.4.1. Dispute of results from 3rd-party testing laboratory

The 3rd-party laboratories (recommended by the owner) yielding contrasting results shall complete the Test Method Assessment checklist (Annex B) in the presence of representatives from the respective laboratories. Upon completion of the checklist and site verification, the respective laboratories shall perform the testing of samples (not limited to certified reference material) prepared by the paint manufacturer in the presence of representatives from all respective laboratories.

7. Coating Fingerprint Certificate

The Coating Fingerprint Certificate is comprised of two parts, namely physical analyses and structural analyses, as shown in Annex A. This certificate is applicable for paint system with 1-pack or more.

7.1. Physical analyses

Physical analyses are performed by in-house testing laboratory, with parameters including viscosity, density, colour code, non-volatile matter, mass of Zn metal/Total Zn, and others required by the owner. The MSDS, TDS, COA and certificate of % purity by manufacturer shall be appended wherever applicable.

7.1.1. Anomaly

7.1.1.1. Specific coating system

For those parameters listed in Section 2 (under *Physical analyses*) of Annex A but not being evaluated by the paint manufacturer, an alternative of appending the related COA with remarks on the Coating Fingerprint Certificate is recommended.

7.1.1.2. Organic and inorganic zinc coating

For the calculation of weight solid (zinc metal/total zinc), the paint manufacturer shall either attach the original COA with Coating Fingerprint Certificate or reproduce the data from the original supplier without appending the COA. However, the latter shall be cross-referenced to the original supplier's COA document number for future traceability.

7.2. Structural analyses

Structural analysis is performed using FTIR. The inorganic components in the paint that are IR inactive shall be appended with other compliances such as certificate of percent purity by the metal manufacturer.

The FTIR analysis shall provide the spectrum that is properly identified and labelled, as listed in Clause 5.3. Other information necessary to duplicate the sampling and/or spectral collection shall be provided as well.

7.3. Confidentiality

The Coating Fingerprint Certificate shall be converted into non-editable digital format and/or encrypted, e.g. in PDF format and recommended to be with password protection. It shall not be circulated through social media which would violate the confidentially of the company or to the customers.

7.4. Signatory

The Coating Fingerprint Certificate shall be signed by a certified signatory who has passed the IMM Certified Fingerprint Quality Controller course. The certified signatory shall include name, function, IMM membership number and Coating Fingerprint Quality Controller rubber stamp. All pages of Coating Fingerprint Certificate shall be either signed or initialed by certified signatory.

The Coating Fingerprint Certificate can be signed by employee under the supervision of the certified signatory. The signatory (i.e. the employee) shall include name, function of the employee and shall be counter-signed by the same certified signatory giving his/her name, function, IMM membership number and Coating Fingerprint Quality Controller rubber stamp.

8. Execution of coating fingerprinting

8.1. Certified signatory for in-house Coating Fingerprint Certificate

The Coating Fingerprint Certificate shall be generated per batch basis by the paint manufacturer for qualification of coating fingerprinting, for routine batch check on every subsequent batch of the paints for the qualified paint system, for scheduled client's audit or random client's audit as requested by client as deemed necessary, and for verification test of the retained paint sample.

8.2. 3rd-party testing laboratory

The 3rd-party testing laboratory shall perform the qualification of coating fingerprint and certify the on-site paint sample delivered on schedule or random basis. In addition, 3rd-party testing laboratory shall verify the retained paint sample whenever there is a dispute on the on-site paint sample.

8.3. Coating inspector

Coating inspector shall prepare and certify the Coating Fingerprint monitoring report for on-site paint delivered on schedule or random basis. In addition, coating inspector shall perform the schedule or random basis on-site coating fingerprint structural analysis by handheld or mobile FTIR spectrometer.

8.4. Fabricator, contractor, sub-contractor

The fabricator, contractor or sub-contractor will receive the 1-pack or 2-pack paint on-site attached with the Coating Fingerprint Certificate either in hard copy or submitted separately in digital format. The fabricator, contractor or sub-contractor shall validate the Coating Fingerprint Certificate submitted by paint manufacturer. He/she shall certify the Coating Fingerprint Certificate submitted by 3rd-party testing laboratory on a scheduled or random basis for on-site coating fingerprint structural analysis by handheld or mobile FTIR spectrometer.

8.5. External auditor

The external auditor shall review and validate the Coating Fingerprint Certificate and coating fingerprint (scheduled/random) monitoring report.

8.6. End user

The end user shall review and validate the Coating Fingerprint Certificate and coating fingerprint (scheduled/random) monitoring report.

Annex A
(informative)

Coating Fingerprint Certificate

Company name:	*e.g.* Company ABC	**Country:**	*e.g.* Malaysia
Certificate number:	*e.g.* epoxy/001/02Jan2016	**Date:**	*e.g.* 2 Jan 2016
Number pages:	*e.g.* 05		

Section 1: General information			
Product name:	*e.g.* EPOXY123	**Product type:**	*e.g.* epoxy, polyurethane, polyester, inorganic zinc, epoxy zinc, *etc*

Date of issue:	**Base material** (*e.g.* epoxy / epoxy zinc / polyacrylate / polyester / inorganic zinc / silicone)	**Curing agent / hardener** (*e.g.* amine / isocyanate / peroxide / ethyl-silicate)
Specify base material & curing agent	*e.g.* epoxy	*e.g.* amine
Trade name	*e.g.* Epikote123	*e.g.* Amine123
Generic	*e.g.* Epoxy	*e.g.* Hardener
Factory location	*e.g.* Shah Alam, Selongor	*e.g.* Shah Alam, Selongor
Batch number	*e.g.* 1234567A	*e.g.* 1234567B
Production date	*e.g.* 02 Jan 2016	*e.g.* 02 Jan 2016
Product technical data sheet number	*e.g.* TDS123A	*e.g.* TDS123B
Material safety data sheet number	*e.g.* MSDS123A	*e.g.* MSDS123B
Shelf life	*e.g.* 24 months	*e.g.* 24 months

Section 2: Test methods and results					
Physical analyses					
Parameters	**Method**	**Base material**		**Curing agent / hardener**	
		Specification with tolerance	**Test result**	**Specification with tolerance**	**Test result**
Viscosity	*e.g.* ASTM D4287 ASTM D5125 ASTM D562 ISO 2431 ISO 2884-1	*e.g*…..± 0.05 P	*e.g* 3.24.± 0.02 P	*e.g*…..± 0.05 P	*e.g* 2.78.± 0.03 P
Density	*e.g.* ISO 2811-4	*e.g*…..± 0.05 g cm^{-1}	*e.g.* 1.48 ± 0.03 g cm^{-1}	*e.g*…..± 0.05 g cm^{-1}	*e.g.* 0.943 ± 0.02 g cm^{-1}
Color code	*e.g.* BS 4800 RAL Color Standards	*e.g.* colour difference (dE) < 1	*e.g.* Light grey	*e.g.* colour difference (dE) < 1	*e.g.* clear
Non-volatile matter (by mass)	*e.g.* ISO 3251	*e.g*…..± 2 %	*e.g* 78.± 2 %	*e.g*…..± 2 %	*e.g* 99.± 2 %

Weight Solid: Zn metal/Total Zn **Note:** submit certificate of % purity by manufacturer **Note:** applicable to organic zinc paint and inorganic zinc paint only	*e.g* ISO 14680-2	*e.g*…..± 1 %	*e.g.* N/A for epoxy system	*e.g*…..± 1 %	*e.g.* N/A for epoxy system
Structural analysis					
Infrared spectra	**Wet sample as supplied in can. Degree of similarity (*r*) ≥ 0.900*** (tentative tolerance = ± 0.002 or range of *r* = 1.000 – 0.898)				
	Method	**Base material**		**Curing agent / hardener**	
Base material: **epoxy** Curing agent: **amine**	ASTM D7588	700-4000 cm^{-1}	0.988	700-4000 cm^{-1}	0.970
		1000-1300 cm^{-1}	0.995	1000-1400 cm^{-1}	0.957
		700-900 cm^{-1}	0.996	N/A	N/A
Base material: **polyacrylate / polyester** Curing agent: **isocyanate**	ASTM D7588	700-4000 cm^{-1}		700-4000 cm^{-1}	
		1600-1800 cm^{-1}		2000-2500 cm^{-1}	
		3000-3800 cm^{-1}		3000-3800 cm^{-1}	
Base material: **polyester** Curing agent: **peroxide**	ASTM D7588	700-4000 cm^{-1}		700-4000 cm^{-1}	
		1600-1800 cm^{-1}		900-1200 cm^{-1}	
		2700-3100 cm^{-1}		N/A	N/A
Base material: **epoxy zinc** Curing agent: **amine**	ASTM D7588	700-4000 cm^{-1}		700-4000 cm^{-1}	
		1000-1300 cm^{-1}		1000-1400 cm^{-1}	
		700-900 cm^{-1}		N/A	N/A
Base material: **inorganic zinc** Curing agent: **ethyl-silicate**	ASTM D7588	700-4000 cm^{-1}		700-4000 cm^{-1}	
		N/A	N/A	2700-3200 cm^{-1}	
		N/A	N/A	1000-1500 cm^{-1}	
Base material: **Silicone-aluminum**	ASTM D7588	700-4000 cm^{-1}		N/A	N/A
				N/A	N/A
				N/A	N/A

*average results of triplicate analyses

Section 3: FTIR test details (as per ASTM D7588)				
Analyst & company name	*e.g.* Name & Company ABC Sdn Bhd			
Brand & model of FTIR	*e.g.* FTIR Brand XYZ & model: 2016			
Type of FTIR spectrophotometer	*e.g.* benchtop / mobile / handheld			
Benchtop: ATR crystal material	*e.g.* diamond, zinc selenide (ZnSe), germanium			
Spectral correction (circle) **Note:** correction is NOT recommended.	YES / (NO) [**Note**: if **YES**, please state the correction(s) made] *e.g.* automatic baseline correction			
Spectral range (cm^{-1})	*e.g.* 600 - 4000 cm^{-1}			
No. of sample scans (min 32)	*e.g.* 32 scans			
No. of background scans (min 32)	*e.g.* 32 scans			
Resolution (min 4 cm^{-1})	*e.g.* 4 cm^{-1}			
High sensitivity of correlation compare algorithm for matching ratio in absorbance mode	**Note:** Correlation compare algorithm of the FTIR software should depend on both ***x***- (wavenumber) and ***y***- (absorbance) vectors. High sensitivity compare algorithm, which analyzes the variations *via* summation of the squared differences of each variation from the overall mean OR equivalent, should be used.			
	Dependence on BOTH ***x***- and ***y***-vectors (circle)	(YES) / NO	High sensitivity compare algorithm (circle)	(YES) / NO

Trade name and batch number of reference spectrum for base material	*e.g.* Epikote123 & 1234567A-Reference
Trade name and batch number of reference spectrum for curing agent / hardener	*e.g.* Amine123 & 1234567B-Reference

Notes:

1. Full range of FTIR spectra for both base and curing agent without automatic baseline correction and in absorbance mode are to be attached with this report (raw data).
2. Compliance to matching criteria values does not exclude meeting the requirements of other QA/QC checks *e.g.* drying time, gloss, hiding power *etc.*
3. Methods used shall refer to the latest published document.
4. This certificate is applicable to all systems.
5. This certificate can be submitted in CD or other digital formats.

The undersigned hereby declare that all the analytical tests were performed according to the procedures specified herein and that this report represents a true and accurate record of the results obtained.

Authorized QA/QC Executive:	**Validated by**:
e.g. **NAME** **Company ABC Sdn Bhd** (123456-X) QC Department	*e.g.* COATING IMM Yoga Sugama Salim FP002 FINGERPRINT QC
Signature: *e.g.* *Name*	**Signature**: *e.g.* *Yoga Salim*
Date: *e.g.* 2 Jan 2016	**Date**: *e.g.* 2 Jan 2016
IMM membership member: (optional to be IMM member)	**IMM membership member**: *e.g.* O-1234

Section 4: Compulsory appendices (to be submitted in CD or other digital formats)	
Appendix 1	Overlay reference and sample FTIR spectra for base materials (**Note**: In addition, raw data of reference and sample FTIR spectra must be provided in two raw data files)
Appendix 2	Overlay reference and sample FTIR spectra for curing agent / hardener (**Note**: In addition, raw data of reference and sample FTIR spectra must be provided in two raw data files)
Appendix 3	Certificate of analyses which are relevant to the in-house standard testings
Appendix 4	Certificate of % purity of zinc by metal manufacturer for organic zinc paint & inorganic zinc paint **OR** certificate of analysis of alum paste for silicone-aluminum paint **/** glass flake for glass flake poyester / inorganic filler for any paint

END OF REPORT

Received & checked:
Date: *e.g.* 15 Jan 2016

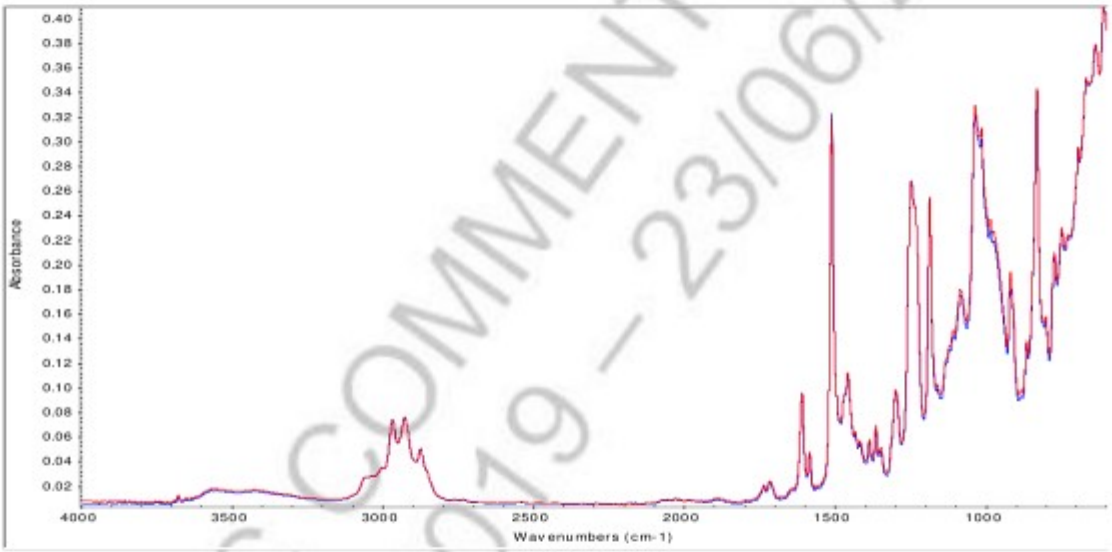
COATING IMM CHAN CHIN HAN FP001 FINGERPRINT QC

Melissa Chan

Appendix 1 Overlay reference and sample FTIR spectra for base materials
Reference spectrum – red (generated by averaging the FTIR spectra from **T**op, **M**iddle and **B**ottom of the mixing tank for the sample sent for qualification for painting systems and products for offshore application)

Sample spectrum – blue (for each batch of production, sample at the location of **B**ottom of the mixing tank)

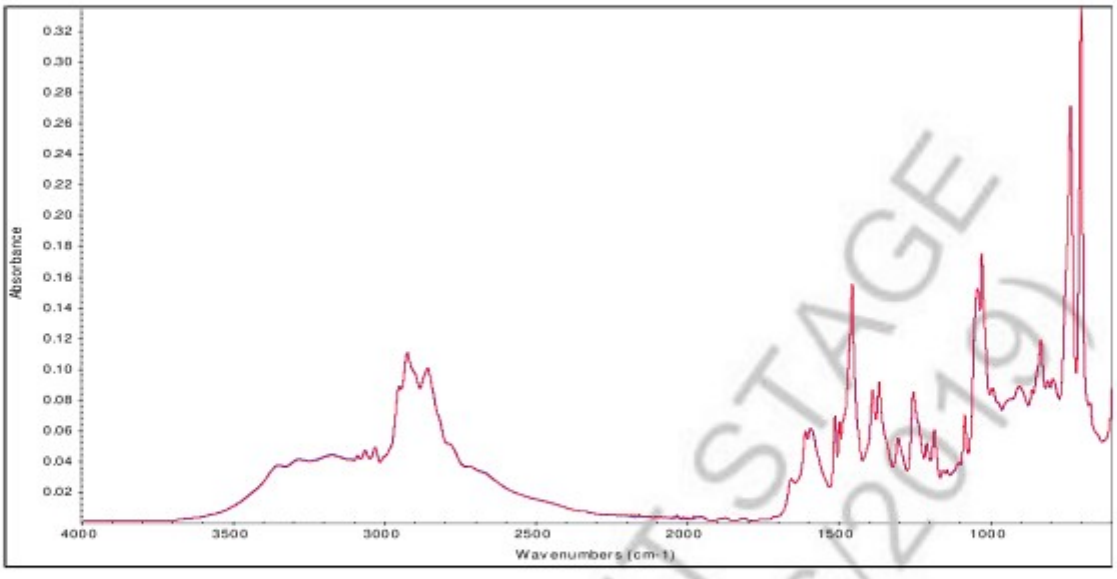
Degree of similarity (*r*) = 0.986



Appendix 2 Overlay reference and sample FTIR spectra for curing agent / hardener
Reference spectrum – red (generated by averaging the FTIR spectra from **T**op, **M**iddle and **B**ottom of the mixing tank for the sample sent for qualification for painting systems and products for offshore application)

Sample spectrum – blue (for each batch of production, sample at the location of **B**ottom of the mixing tank)

Degree of similarity (*r*) = 0.970



Annex B
(informative)

Test Method Assessment of 3rd-Party Testing Laboratory in relation to dispute in Fingerprint Coating Certificate for paint sample

Test Method Assessment of 3rd-Party Testing Laboratory in relation to dispute in Fingerprint Coating Certificate for paint sample Attach all the analysis data as references.		
SECTION 1: Information of the 3rd-Party Testing Laboratory		
Name of the laboratory		
Representative of (which company)		
SECTION 2: Requirement of the laboratory		
SECTION 2.1: Accreditation		
Company/Institution is accredited to the following: [ ] SAMM/ MS ISO IEC 17025 [ ] Others (Specify_____)		
Date of last audit		
Pending/ Unresolved non-compliances report (If any)		
SECTION 2.2: Competency of FTIR Analyst		
Haw many years of experience? (Min: One year)		
Qualification		
Professional Membership		
SECTION 3: FTIR Spectrophotometer		
SECTION 3.1: Description of Benchtop FTIR		
Brand and Model		
ATR Crystal material		
No. of background scans (min 32)		
No. of sample scans (min 32)		
Resolution (4 cm^{-1})		
Spectral range (min 4000 – 700 cm^{-1})		
SECTION 3.2: Calibration and Maintenance		
Calibrated by [ ] In-house [ ] 3rd-party (Specify_____)		
Last calibration date		
Last Maintenance Record		
SECTION 3.3: Analysis		
Standard operation procedure (SOP)		
SECTION 4: Certified Coating Fingerprint Quality Controller (FPQC)		
Name of FPQC		
IMM membership number		
Certificate of Certified Coating Fingerprint Quality Controller (FPQC)		

Bibliography

[1] ISO 12944-9:2018, *Paints and varnishes - Corrosion protection of steel structures by protective paint systems -- Part 9: Protective paint systems and laboratory performance test methods for offshore and related structures*)

[2] ASTM D7588-11(2018), *Standard guide for FTIR fingerprinting of a non-aqueous liquid paint as supplied in the manufacturer's container*

[3] ASTM D2621-87(2016), *Standard test method for infrared identification of vehicle solids from solvent-reducible paints*

[4] DEP 30.48.0031-Gen (2009), *Protective coatings for onshore facilities.*

[5] PTS 15.20.03 (2016), *Protective coatings and linings*

[6] SP0108-2008-SG, *Corrosion Control of Offshore Structures by Protective Coatings*

Acknowledgements

Members of Task Force on Coating Fingerprinting

Co-Chairmen	Prof. Ts. Dr. Mohamad Kamal Harun Prof. Dr. Melissa Chan Chin Han	Universiti Teknologi MARA
Treasurer	Nurul Fatahah Asyqin Zainal	Universiti Teknologi MARA
Members	Chow Mee Ling Phuah Shok Chan (Alternate)	Agilent Technologies Sales (M) Sdn Bhd
	Dr. Chew Kong Chin	Becker Industry Coatings (M) Sdn Bhd
	Renee Teo Yong Yin	Bruker (M) Sdn Bhd
	Dr. Mahmood Anwar	Curtin University, Sawarak
	Selvandran Vello Paramjit Singh Darjit Singh (Alternate)	Hempel (M) Sdn Bhd
	Ahmad Badli Shah Abdul Aziz Mokhtar Othman (Alternate)	International Paints (M) Sdn Bhd
	Lee Choon Siong Quah Kean Gin (Alternate) Teh Tiong Poh (Alternate)	Jotun (M) Sdn Bhd
	Chang Yau Chong	Kansai Asia Pacific Sdn Bhd
	Dr. Ismaliza Ismail	Malaysia Rubber Board
	Kelly Hong Mun Key	Nexus Analytics Sdn Bhd
	Ir. Max Ong Chong Hup Nik Muhmmad Fitri	Norimax Sdn Bhd
	Kenneth Way Elson Wah Eng Keong (Alternate)	Perkin Elmer (M) Sdn Bhd
	Muhammad Hawari Hasan Nurul Asni Mohamed	PETRONAS Group Technical Solution
	Terence Wee Tee Hin Mohd Wahidduzzaman Zainal (Alternate)	PPG-Sigma Coatings (M) Sdn Bhd
	Mohammad Ariff Sukur Leow Chun Ho (Alternate)	Sarawak Shell Bhd
	Lim Chuan Gee	SIRIM Bhd
	Abdul Aziz Haron Ir. Zarina Rasmin	SIRIM QAS International Sdn Bhd
	Assoc. Prof. Dr. Lim Teck Hock Ts. Dr. Chew Khoon Hee	Tunku Abdul Rahman University College
	Asst. Prof. Dr. Yu Lih Jiun	UCSI University
	Mark Hew Yoon Onn	Universal Corrosion Engineering (M) Sdn Bhd
	Hairunnisa Ramli	Universiti Teknologi MARA
Secretariat Coordinators	Noorul Shafika Misbah Aberamy Dayalam	Institute of Materials, Malaysia

Appreciation dedicated to Dr. Thang Lee Yien for her editing work of part of the content of this standard.

INSTITUTE OF MATERIALS, MALAYSIA

(ROS-4186/87)

COMMENT FORM FOR PUBLIC COMMENT

IMM Standard No.	:	**IMM FP01:2019 (DRAFT)**	**Public Comment Period**	:	25th April – 23rd June 2019
Draft Title	:	**Coating fingerprinting overall procedures for paint systems using FTIR and other related methods**			
Name	:				
Organisation	:				

Clause No./ Subclause No./ Annex/Figure/ Table	Type of comments[1]	Comment (justification for change)	Proposed change

[1] **Type of comments:** ge = general te = technical ed = editorial

Interested parties or industries or any member of the public are invited to comment on the draft IMM Standard during this Public Comment stage which is one of the most important stage in the development of standards. Your input and feedback may contribute to enhance the draft standard during this Public Comment stage which will be ongoing for two months (60 days). The Drafting Committee will then review and consider in detail the comments submitted on the draft standard and incorporate changes if necessary.

The draft IMM FP01:2019 Standard is now open for public comment from 25th April until 23rd June 2019 and can be downloaded from the website at no charge. Please use the form attached herewith for comments on the draft standard and submit the completed form via email to shafika.imm@gmail.com or to secretariatoffice.imm@gmail.com.

INSTITUTE OF MATERIALS, MALAYSIA

COATING FINGERPRINT CERTIFICATION SCHEME

IMM COATING FINGERPRINT FOUNDATION COURSE

Supported by:

PerkinElmer
For the Better

The paint & coatings industries have initiated the requirement for a polymeric Coating Fingerprint Certificate similar to a Mill Certificate for metals) to improve quality assurance. Fourier Transform Infra-Red (FTIR) method has been selected as the appropriate method to provide the fingerprinting requirement in addition to other physical & chemical tests which are regularly conducted by the paint & coating manufacturers.

This 1 day course will consist of a half-day theory lectures on the FTIR method followed by half-day of demonstration of the FTIR equipment to provide participants to understand the mechanics of the FTIR testing, appreciation of the strengths and limitations of FTIR method, interpretation and analysis of FTIR results, and a first-hand experience of running the FTIR testing with the actual FTIR equipment in the classroom.

Course Content

(1) Coating Fingerprint Certificate
(2) Sampling standards of materials
(3) FTIR analysis standard for protective coatings
(4) Basic introduction to FTIR
(5) Basic application of a FTIR software
(6) Generation of reference FTIR spectrum
(7) Estimation of degree of similarity for samples
(8) Rejection and acceptance of samples
(9) Dos and Don'ts in FTIR analysis
(10) Running samples using ATR accessories
(11) Interpretation of FTIR test results
(12) Quality control tools in a FTIR software
(13) Data analysis using a commercial FTIR software

Who should attend?

Anyone interested in the topic and their applications including graduates with bachelor degree through Ph.D level, researchers, chemists, engineers, physicists, or technicians from academic and industry who work in or are beginning to work in the field. Managers in this industry will greatly benefit from this in-depth lecture course.

Pre-Requisite:

No previous experience required.

Certification:

Upon completion of this course, graduates will be issued an "IMM Coating Fingerprint Foundation Certificate" with validity of 5 years.

Language:

This course will be conducted in English.

REGISTER NOW!

3 April 2019 | Kuala Lumpur

13 November 2019 | Bintulu, Sarawak

HRDF CLAIMABLE

MTE Materials Technology Education Sdn Bhd
info@mte.com.my | www.mte.com.my

Ikmal: 013-2527660 (ikmal@mte.com.my)
Azlizul: 013-7904903 (azlizul@mte.com.my)
Amirah: 018-6698494 (amirah@mte.com.my)

INSTITUTE OF MATERIALS, MALAYSIA

COATING FINGERPRINT CERTIFICATION SCHEME

IMM CERTIFIED COATING FINGERPRINT QUALITY CONTROLLER

Supported by:

BRUKER

The first-of-its-kind, two-days course on "Coating Fingerprint Certificate" in the world

The oil & gas and petrochemical industries with implement the requirement for Coating Fingerprint Certificate (equivalent to the Mill Certificate for Metals) for all the protective coatings and paints supplied to the oil & gas and petrochemical operators. As such, paint manufactures will be required to engage a **"IMM Certified Coating Fingerprint Quality Controller"** to conduct FTIR structural tests and all associated physical tests to produce a Coating Fingerprint Certificate. This course aims to formalize or improve the skills of carrying out basic quality control test using Fourier Transform Infra-Red (FTIR) method for structural analysis and other related physical analyses (e.g chemical and corrosion tests) associated with protective coatings. The course uses formal lectures, demonstrations & extensive practical exercises as teaching methods.

Who should attend?

This course has been designed specifically for persons carrying out assessment of quality control and quality assurance on coating systems, or those on the behalf of their employer, such as quality assurance managers and supervisors for coating contractors, representatives of coating suppliers, end-client project supervisors and QA/QC personnel, analyst of testing laboratories, coating inspectors, paint factory chemists and assistant chemists, paint QC technicians etc. It will also be of interest to estimators, steel fabricators and structural engineers involved in designing or maintaining steel structures. This course will equip the graduate with the knowledge and skills to demand sufficient authority for his / her decisions to be recognized by both client and contractor, in the preparation of Coating Fingerprint Certificate for 3rd-party or in-house laboratories and on-site testings.

Certification

Upon completion of this course, graduates will be issued an "IMM Certified Coating Fingerprint Quality Controller" certificate with validity of 5 years.

5 - 6 April 2019 | Kuala Lumpur

15 - 16 November 2019 | Bintulu, Sarawak

REGISTER NOW!

HRDF CLAIMABLE

MTE Materials Technology Education Sdn Bhd
info@mte.com.my | www.mte.com.my

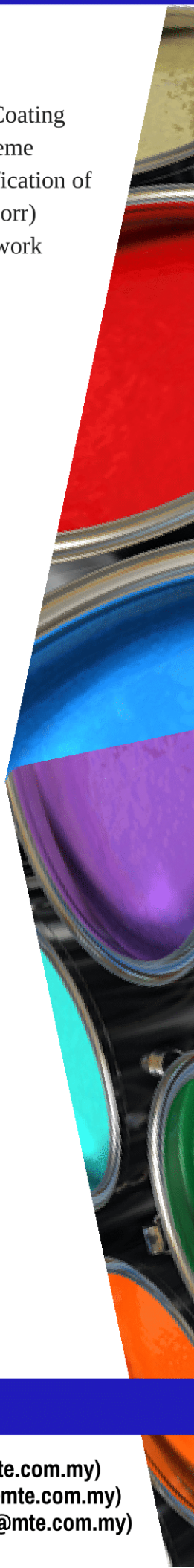
Ikmal: 013-2527660 (ikmal@mte.com.my)
Azlizul: 013-7904903 (azlizul@mte.com.my)
Amirah: 018-6698494 (amirah@mte.com.my)

Pre-requisite

(1) IMM Coating Fingerprint Foundation Course (a 1-day classroom & laboratory course) OR
(2) IMM Coating Inspector Level 2 OR equivalent [e.g. Society for Protective Coatings (SSPC) Coating Inspector Level 2, NACE International Coating Inspector Level 2, the British Gas Approved Scheme (BGAS) Coating Inspector Level 2, the Norwegian Professional Council for Education and Certification of Inspectors for Surface Treatment (FROSIO) Coating Inspector Level 2, Institute of Corrosion (ICorr) Coating Inspector Level 2, Association for Certification and Qualification of Anticorrosive Paintwork (ACQPA) Coating Inspector Level 2 etc].

Course Content

(1) Why do we need to FINGERPRINT coatings?
(2) IMM Coating Fingerprint Certification Scheme & the execution of Coating Fingerprint Certificate by coating manufacturer/supplier, fabricator/contractor/sub-contractor, external auditor, end-user and 3rd-party testing laboratory
(3) Preparation, review and validation of the Coating Fingerprint Certificate and the compulsory & optional appendices
(4) Basic components of protective coatings (e.g. epoxy coatings, inorganic zinc coatings, organic-zinc coatings, polyurethane coatings, acrylic coatings, polyester coatings etc)
(5) Related physical analyses associated with protective coatings (e.g. viscosity, density, color code, non-volatile matter, weight solids for organic- and inorganic-zinc coatings etc)
(6) ISO and ASTM standards on Attenuated Total Reflection-Fourier Transform Infra-Red (ATR-FTIR) testings and the fingerprinting regions for different types of protective coatings
(7) Users' technical specification on FTIR fingerprinting on coatings
(8) Sampling standards of materials for in-house and on-site
(9) In-house and on-site FTIR testings for protective coatings
(10) Basic introduction to FTIR hardware: desktop, mobile and handheld
(11) Basic application of a FTIR software: desktop, mobile and handheld
(12) Generation of reference FTIR spectrum before the qualification for new maintenance painting system and products for offshore application.
(13) Estimation of degree of similarity for in-house / on-site sample FTIR spectrum with reference FTIR spectrum
(14) Rejection and acceptance of samples based on threshold set using different Compare algorithms
(15) Dos and Don'ts in FTIR analysis: desktop, mobile and handheld
(16) Running samples using ATR accessories for desktop & mobile; and running samples using handheld device
(17) Interpretation of FTIR test results: in-house, 3rd-party laboratory and on-site
(18) Common quality control tools in a FTIR software
(19) Data analysis using a commercial FTIR software



INSTITUTE OF MATERIALS, MALAYSIA

(ROS-4186/87)

RECOMMENDATION OF 3RD-PARTY TESTING LABORATORY IN RELATION TO FINGERPRINT COATING CERTIFICATE FOR RETAINED PAINT SAMPLE

GENERAL REQUIREMENTS

The 3rd-party testing laboratory shall:

i. Be independent and shall not be the manufacturer, supplier, designer or owner of the tested items, nor the authorized representative or a subsidiary of any of these parties;

ii. Be free from any undue commercial, financial and other pressures which may interfere with their independence, judgement capability and integrity;

iii. Possess a benchtop FTIR spectrophotometer for FTIR structural test;

iv. Have at least one IMM certified Coating Fingerprint Quality Controller (FPQC) signatory personnel;

v. Be listed in the "Recommended list of 3rd-party testing laboratories" by Institute of Materials, Malaysia; and

vi. Be recognized by the owner for a grace period of at least 3 years. After the grace period, the appointment as the 3rd-party testing laboratory for Coating Fingerprint Certificate shall be made based on its accreditation by authorized body

NOTE: Compliance to ISO/IEC 17025 General requirements for the competence of testing and calibration laboratories is encouraged but not compulsory.

Updated on 19th February 2019

INSTITUTE OF MATERIALS, MALAYSIA

(ROS-4186/87)

RECOMMENDED 3RD-PARTY TESTING LABORATORIES LISTING FORM

To be filled by Applicant (Section I to IV)

SECTION I: DETAILS OF COMPANY/INSTITUTION

Name : _____ Reg. No. : _____

Address : _____

_____

Tel. No. : _____ Fax No. : _____

Website : _____ Email : _____

Company/Institution is accredited to the following:

☐ Skim Akreditasi Makmal Malaysia (SAMM) / MS ISO/IEC 17025

☐ Others: _____

SECTION II: DETAILS OF APPLICANT

Name : _____ Position : _____

Tel. No. : _____ Email : _____

SECTION III: DETAILS OF THE APPLICATION

We are interested to be listed as a 3rd-Party Testing Laboratory in relation to the following:

☐ Fingerprint Coating Certificate for retained paint sample

☐ Others: _____

_____

Name of the certified personnel : _____

IMM Membership No. : _____

SECTION IV: PAYMENT INFORMATION

New Registration : RM200

Payment Type : ☐ Cheque/Telegraphic Transfer/Bank Draft* ☐ Interbank Transfer/Cash Deposit

Details of the bank account are as follows. Please email the transaction receipt/bank-in slip to secretariat@iomm.org.my.

Account Name	:	Institute of Materials, Malaysia			
Account No	:	8009055156	Swift Code	:	CIBBMYKL
Bank Name	:	CIMB Bank Berhad	Country	:	Malaysia

* Please send the cheque to Suite 515, Level 5, Block A (Lobby B), Kelana Center Point, No.3, Jalan SS 7/19, Kelana Jaya, Petaling Jaya, 47301 Selangor

Signature of applicant:

_____

Name : _____

Date : _____

Company/institution's official stamp:

Updated on 19th February 2019

INSTITUTE OF MATERIALS, MALAYSIA

(ROS-4186/87)

NOTE: Completed application form and proof of payment shall be submitted before 31st December 2019.

To be filled by authorized IMM personnel

Checklist for the Recommendation of 3rd-Party Testing Laboratory in relation to Fingerprint Coating Certificate for retained paint sample

- Staple this checklist on the front page of each application form.
- Attach all the documentations and manual/online **application form**.

SECTION 1: Requirement of the laboratory	
SECTION 1.1: Accreditation	**Remarks**
Company/Institution is accredited to the following: [ ] SAMM / MS ISO/IEC 17025 [ ] Others (Specify _____)	
Date of last audit	
Pending/ Unresolved non-compliances report (If any)	
SECTION 1.2: Competency of FTIR Analyst	**Remarks**
Haw many years of experience? (Min: One year)	
Qualification	
Professional Membership	
SECTION 2: FTIR Spectrophotometer	
SECTION 2.1: Description of Benchtop FTIR	**Remarks**
Brand and Model	
ATR Crystal material	
No. of background scans (min 32)	
No. of sample scans (min 32)	
Resolution (4 cm^{-1})	
Spectral range (min 4000 – 700 cm^{-1})	
SECTION 2.2: Calibration and Maintenance	**Remarks**
Calibrated by [ ] In-house [ ] 3rd-party (Specify _____)	
Last calibration date	
Last Maintenance Record	
SECTION 2.3: Analysis	**Remarks**
Standard operation procedure (SOP)	
SECTION 3: Certified Coating Fingerprint Quality Controller (FPQC)	**Remarks**
Name of FPQC	
IMM membership number	
Certificate of Certified Coating Fingerprint Quality Controller (FPQC)	

Updated on 19th February 2019

MATERIALS MIND

Invitation to Advertise in Materials Mind, published by Institute of Materials, Malaysia for in Print and Online

Please tick your preferred date, write the year and preferred code for advertisement.

☐ 1st Quarter – **January** ☐ 2nd Quarter – **April**

☐ 3rd Quarter – **July** ☐ 4th Quarter – **October** of the **year**: _____

Preferred **code**: _____ (refer front page of this leaflet)

Technical Requirement

- JPG / Ai / PDF / PSD Format
  Ai / Illustrator – Text must be outlined and saved together with high resolution picture embedded.
- Image quality should be at least 150 pixel per inch.
- Artwork prepared by the customer.

Payment

Full payment to be made 2 weeks before date of the advertisement.

Cancellation

10-day notice before the advertisement date, otherwise deposit will be forfeited.

PAYMENT NOTE

1) Payment can be made by cheque, telegraphic transfer & bank draft as follows:

Account Name: **Institute of Materials, Malaysia**
Account No: **8009055156**
Swift Code: **CIMBMYKL**
Bank Name: **CIMB BANK**
Country: **Malaysia**

Cheque can be sent to
Suite 515, Level 5, Block A,
Kelana Center Point (Lobby B),
No. 3 Jalan
SS 7/19, Kelana Jaya, 47301
Petaling Jaya, Selangor
via post/mail or direct bank-in.

2) Payment can also be made by IBG, GIRO or Cash Deposit Machine (CDM) as follows:

Account Name: **Institute of Materials, Malaysia**
Account No: **8009055156**
Bank Name: **CIMB BANK**

Please email your bank-in slip as your payment proof to **secretariat@iomm.org.my**

Your Answer To
Protective Coating

Blasting & Painting Services

STANDARDS MALAYSIA
ACCREDITED CERTIFICATION BODY

QS 04082009 CB 10

ISO 9001:2015
BUREAU VERITAS
Certification

UKAS

UCE

UNIVERSAL CORROSION ENGINEERING (M) SDN BHD