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MATERIALS MIND

Issue 30

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Institute of Materials, Malaysia

HIGHLIGHTS

- ISO/IEC 17024
- IMM Week
- IMM Regional Chapters

ISSN 2289-9030

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APRIL 2021 Issue 30

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

Introduction of IMM's Continuing Professional Development (CPD) Scheme for Certified Personnel

Introduction of IMM's Continuing Professional Development ("CPD") Scheme for Certified Personnel.

With effect from 1st January 2022, all IMM Certified Personnel will be required to submit their yearly Continuing Professional Development (CPD) report to qualify for renewal of their certification upon expiry. The objective of CPD is to encourage Certified Personnel to regularly improve themselves and keep themselves updated with latest developments in their industry. As such, IMM certified personnel must commence collecting CPD Points during the year 2021 to meet the required one-year CPD Points by January 2022.

CONTINUING PROFESSIONAL DEVELOPMENT ("CPD")
LOG TEMPLATE
(Supporting documents to be submitted wherever applicable)

Date or Period	Professional Development Activity Code & Description	Role	No. of Activity Hours	Weightage	No. of CPD Points

The CPD points calculation shall be based on the weightage factor shown below for each Activity Code.

Professional Development Activity Code	Professional Development Activity Scope	Weightage Factor
A	Attend Training Courses/Workshops	4
B	Course Trainer/Facilitator/Examiner/ Conference Presenter	3
C	Attend Seminar/Conference	2
D	Paper Author Main author (max 30 hours/year) Co-author (max 10 hours/year)	2
E	Attend Committee Meeting	1

The minimum number of CPD Points per year shall be **10 points.**
The minimum number of CPD Points per 5 year for re-certification shall be **100 points.**

COVER STORY

ISO/IEC 17024:2012 Conformity Assessment — General Requirements for Bodies Operating Certification of Persons

Primulapathi Jaya
Secretariat of Institute of Materials, Malaysia (IMM)

With growing need for personnel certification, the International Organization for Standardization (ISO) and International Electro-technical Commission (IEC) have jointly developed a new International Standard ISO/IEC 17024:2012 *Conformity assessment – General requirements for bodies operating certification of persons*, to harmonize all the certification procedures for certifying the competence of personnel in different professions and in different sectors across the world.

The requirements specified in ISO/IEC 17024:2012 aim to help personnel certifying organizations protect the integrity and ensure the validity of their various personnel certification programs. This International Standard has been developed with the objective of achieving and promoting a globally accepted benchmark for organizations operating certification of persons.

The overall purpose of certification of persons is to recognize an individual's competence to perform a task or job. As such the certification body has a responsibility to ensure that only those persons who demonstrate competence are awarded certification. Certification of persons provides value through public confidence and trust. Public confidence relies on a valid assessment of competence, by a third party, reconfirmed at defined intervals.

IMM has been involved in the certification of persons in the different industries for many years and in a bold step, by means of a globally accepted process of assessment, and periodic re-assessments, of the competence of certified persons, it is now in the process of obtaining ISO 17024:2012 accreditation.

What is ISO/IEC 17024:2012?

ISO/IEC 17024 contains requirements a certification body needs to comply with to demonstrate it is competent to certify persons for a specific scope. The standard requires the certification body to establish its structure, policies, and procedures to safeguard impartiality, ensure objectivity, and manage conflict of interest arising from certification activities and includes the development and maintenance of a certification scheme for persons.

The Standard addresses the following requirements for certification bodies:

- General requirements for a certification body,
- Structural requirements,
- Resource requirements,
- Records and information requirements,
- Certification schemes,
- Certification process requirements; and
- Management system requirements.

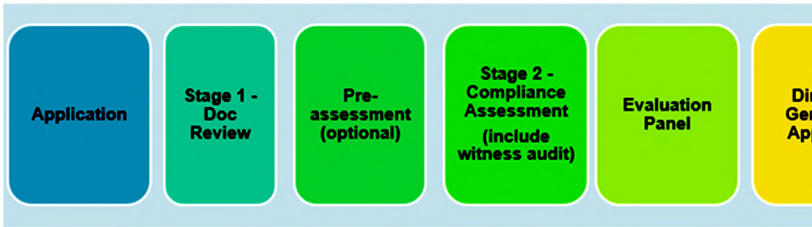


Figure 1 *Flowchart of Accreditation Process*

One of the key areas in this ISO 17024 Standard is that it is necessary for certification bodies and their personnel to be and to be perceived to be impartial in order to give confidence in their activities and their outcomes. Some of the threats to impartiality include, but are not limited to, self-interest threats, subjectivity threats (when personal bias overrules objective evidence). familiarity threats, e.g. an examiner or certification body personnel developing a relationship with a candidate that affects the ability to reach an objective judgement, intimidation threats and financial threats.

The Process of Accreditation

The Department of Standards Malaysia (Standards Malaysia) under the purview of the Scheme for the Accreditation of Certification Bodies (ACB), is responsible for the assessment and accreditation of certification bodies for MS ISO17024:2012.

The process of obtaining accreditation begins with the submission of the application documents and this then starts the process going which involves several stages as shown in Figure 1.

1. Documentation Review

This is also known as an adequacy audit where an assessment of the adequacy of IMM's documented quality system against accreditation criteria is made by Department of Standards Malaysia (DSM).

2. Compliance Assessment

Following the Documentation review, an assessment of IMM's certification system is carried out to verify that the information submitted by IMM complies with the documents and processes. At the same time, this assessment process is to confirm the adequacy of its certification activities. This is examined by the assessment team through the inspection of assessment records, files and other related documentations. The inspection is also to ensure that the documented procedures of IMM are implemented and adhered to which also includes witnessing of IMM's certification auditors in action.

On receipt of the compliance assessment report, IMM will be given the opportunity to correct any items identified by the Standards Malaysia assessment team as not complying with the requirements for accreditation. When IMM fully complies with the relevant criteria, the assessment team will recommend accreditation.

3. Outcome of Compliance Assessment

A comprehensive report, including the assessment team's overall conclusions and proposal for accreditation will be prepared by the team leader and submitted to the Standards Malaysia Secretariat. The final assessment report will be reviewed by an impartial and independent Accreditation Review Panel (ARP).

4. Director General's Approval

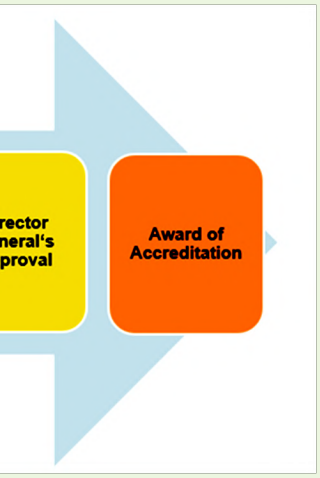
The ARP will come up with appropriate recommendations to the Director General. The Director General shall make the final decision on accreditation.

5. Validity of Certificate of Accreditation

The Certificate of Accreditation which is valid for a period of 3 years will be given to the successful applicant on specific scopes.

Accreditation of IMM to ISO/IEC 17024:2012

The Institute of Materials, Malaysia had applied to be accredited to ISO/IEC 17024:2012 for the following 4 certification schemes identified under Phase 1 - Coating Inspector (CI) Level 1 and CI Level 2 and Mechanical Joint Integrity (MJI) for Flange- Bolted Connections as well as MJI for Small-bore Piping, Tubing and Valves. The compliance audit had been completed and the witnessing audit (previously postponed due to the ongoing Covid-19 pandemic) was carried out on 26 January 2021 and IMM successfully obtained its accreditation to ISO/IEC 17024 from the Department of Standards Malaysia on 29th March 2021. This marked an historic occasion for IMM which is now an accredited body for the certification of persons in the materials science, technology and engineering field.



Certification schemes have already been identified for accreditation under the Phase 2. Preparation for the second phase of the accreditation involving the Vibration, Welding, Corrosion and Coating Fingerprint certification programs has been initiated.

Figure 2 *Practical Training for Certification*

S/N: 1842

STANDARDS MALAYSIA

Certificate of Accreditation

Accreditation No.:
ACB PS 0006

Accredited since:
29 March 2021

INSTITUTE OF MATERIALS MALAYSIA (IMM)
PETALING JAYA, SELANGOR
MALAYSIA

Scan this QR Code or visit
www.jsm.gov.my/cab-directories
for the current scope of accreditation

has been accredited as a Persons Certification Body for the scope of accreditation detailed in the *SCHEDULE* listed on Standards Malaysia website, www.jsm.gov.my/cab-directories, subject to the terms and conditions governing the Scheme for the Accreditation of Certification Bodies.

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

Date of issue: 29 March 2021

Issuance of this Certificate is governed by Section 16 Subsections (2) and (3) of Standards of Malaysia Act 1996 (Act 549)

Schedule

Issue date: 29 March 2021
Valid until: 29 March 2024

NO: ACB PS 0006

PROGRAMME: CERTIFICATION OF PERSONS (PERSONS)

CERTIFICATION BODY LOCATION:

INSTITUTE OF MATERIALS MALAYSIA (IMM)
SUITE 515, LEVEL 5, BLOCK A, KELANA CENTRE POINT (LOBBY B)
NO. 3, JALAN SS 7/19, KELANA JAYA
47301 PETALING JAYA, SELANGOR
MALAYSIA

Scan this QR Code or visit www.jsm.gov.my/cab-directories for the current scope of accreditation.

DATE OF INITIAL ACCREDITATION: **29 MARCH 2021**

ACCREDITATION CRITERIA: **ISO/IEC 17024:2012**

CERTIFICATION STANDARD(S): **IMM CERTIFIED TECHNICIAN IN MECHANICAL JOINT INTEGRITY (MJI) CERTIFICATION SCHEME**

SCOPE OF ACCREDITATION	
MJI-SBV	Certified Technician in Mechanical Joint Integrity for Flange Bolted Connections (MJI-FL)
MJI-FL	Certified Technician in Mechanical Joint Integrity for Small-bore Piping, Tubing and Valves (MJI-SBV)

CERTIFICATION STANDARD(S): **IMM CERTIFIED COATING INSPECTOR SCHEME**

SCOPE OF ACCREDITATION	
CIL1	Certified Coating Inspector Level 1
CIL2	Certified Coating Inspector Level 2

Congratulations!

IMM TRAINING AND CERTIFICATION PROGRAM OVERVIEW

The Institute of Materials, Malaysia (IMM) offers engineering & technical professionals and practitioners a range of Certification Schemes and technical training courses to meet the requirements of the oil & gas, refining, petrochemical, transport, construction and other industries. Our programs have been developed together with the industry, academia and relevant stakeholders to ensure that the technical training and certification provided meet the relevant industry standards and requirements.

PROGRAM: COATING

IMM Certification Schemes and Courses	Technical Training Courses (Non-certification)
• Certified Protective Coating Technician (Blaster and/or Painter) Level 1 and Level 2 • Certified IMM-B1/B2 Assistant Blaster & Painter • Certified Coating Inspector Level 1 • Certified Coating Inspector Level 2 • Certified Blasting and Painting Supervisor • Certified Thermal Spray Coating Applicator • Certified Coating Quality Control Technician	• Refresher Course of Certified Protective Coating Technician (Blaster and/or Painter) Level 1 and Level 2 • Refresher Course of Certified Coating Inspector • Basic Knowledge on Corrosion Protection for Technicians and Engineers • Corrosion Control by Protective Coating • Basic Corrosion & Coating Course

PROGRAM: COATING FINGERPRINTING

IMM Certification Schemes and Courses	Technical Training Courses (Non-certification)
• Certified Coating Fingerprint Quality Controller Level 1 • Certified Coating Fingerprint Quality Controller Level 2 • Certified Coating Fingerprint Trainer	• Coating Fingerprint Foundation Course • Refresher Course of Certified Coating Fingerprint Quality Controller Level 1/Level 2

PROGRAM: CORROSION

IMM Certification Schemes and Courses	Technical Training Courses (Non-certification)
• Certified Corrosion Technician Level 1 • Certified Corrosion Technician Level 2 • Certified Cathodic Protection Technician Level 1 • Certified Cathodic Protection Technician Level 2 • Certified Cathodic Protection Engineer	• Corrosion Control by Cathodic Protection

PROGRAM: VIBRATION

IMM Certification Schemes and Courses	Technical Training Courses (Non-certification)
• Certified Vibration Practitioner Category 1 • Certified Vibration Practitioner Category 2 • Certified Vibration Specialist Category 3 • Certified Vibration Specialist Category 4	-

PROGRAM: MECHANICAL JOINT INTEGRITY (MJI)

IMM Certification Schemes and Courses	Technical Training Courses (Non-certification)
• Certified Technician in Mechanical Joint Integrity (MJI) for Flange Bolted Connection • Certified Technician in Mechanical Joint Integrity (MJI) for Small Bore – Piping, Tubing, Valves	• Mechanical Joint Integrity • Pressure Safety Valve • Small Bore Tubing

PROGRAM: THERMAL INSULATION

IMM Certification Schemes and Courses	Technical Training Courses (Non-certification)
• Certified Thermal Insulation Installer	• Introduction to Thermal Insulation

PROGRAM: WELDING

IMM Certification Schemes and Courses	Technical Training Courses (Non-certification)
• Certified Welding Inspector • IMM-JWES Certified Associate Welding Engineer • IMM-JWES Certified Welding Engineer • IMM-JWES Certified Senior Welding Engineer	• Repair Welding of Pressure Equipment in Refineries & Chemical Plants • Welding & Joining Technology for Non-Welding Personnel • Steel Technology for Non-Technical Personnel

MISCELLANEOUS MATERIALS SCIENCE AND TECHNOLOGY (NON-CERTIFICATION) COURSES

Technical Training Courses	Technical Training Courses
• Materials Selection & Corrosion • Metallurgical Failure Investigation • Basic Course on Operation of Mobile Air Compressor • Competent Mobile Industrial Compressor Operator • Competent Mobile Industrial Equipment Inspector • Practical Approach to Inspection and Maintenance of Steam Turbine	• Practical Approach to Precision Alignment Methods • Practical Approach to Precision Balancing Methods • Reciprocating Compressors: Operations, Maintenance, Inspection and Troubleshooting • Troubleshooting Techniques for Rotating Equipment • Valve Operations, Maintenance and Inspection Including Flange Breaking

Note: A certifcate of attendance will be issued to all participants of non-certifcation professional development training courses while candidates who pass the assessment/examination of IMM-certification schemes will be certified with the issue of IMM competency certificate and IMM certification ID card in addition to the certificate of attendance.

More information on training and certification is available on IMM's website at www.iomm.org.my.

For further enquiries:
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No. 3, Jalan SS 7/19, Kelana Jaya, 47301 Petaling Jaya, Selangor

IMM AUTHORIZED TRAINING BODY (ATB)/ AUT
TRAINING PARTNER (ATP) FOR I

AUTHORISED TRAINING BODIES (ATBs)

(Offer IMM Certification Training Programs and Courses)

ATBs	Training Programs & Courses
Seacademy Sdn. Bhd. (Sarawak) **Topfields Borneo Sdn. Bhd.** (Sarawak) **Sabah Skills & Technology Centre** (Sabah) **Epsilon Skills Academy Sdn. Bhd.** (Peninsular Malaysia) **Schmidt Abrasive Blasting Sdn. Bhd.** (Peninsular Malaysia) **SRC Global Resources Sdn. Bhd.** (Peninsular Malaysia) **NFK Technologies Sdn. Bhd.** (Peninsular Malaysia) **Advance Multiskills Training Centre Sdn. Bhd.** [Excludes courses marked with *] (Sarawak)	**Coating** • Certified Assistant Blaster & Painter Level 1 & Level 2 • Certified Protective Coating Technician (Blaster and/or Painter) Level 1 & Level 2 • Certified Blasting and Painting Supervisor • Certified Coating Inspector Level 1 & Level 2 • Certified Quality Control Technician* • Certified Thermal Spray Coating Applicator* • Basic Knowledge on Corrosion Protection for Technicians and Engineers* • Corrosion Control by Protective Paints* • Corrosion Control by Protective Coating*
Sabah Skills & Technology Center (Sabah) **Epsilon Skills Academy Sdn Bhd** (Peninsular Malaysia) **SRC Global Resources Sdn. Bhd.** (Peninsular Malaysia) **NFK Technologies Sdn. Bhd.** (Peninsular Malaysia)	**Mechanical Joint Integrity** • Certified Mechanical Joint Integrity for Small-bore Piping, Tubing and Valves • Certified Mechanical Joint Integrity for Flange Bolted Connections
Prasarana Malaysia Berhad (Malaysia)	**Thermit Welding** • Certified Thermit Welding Practitioner (Level 1) • Certified Thermit Welding Senior Practitioner (Level 2)

Note: The respective coverage area is indicated in brackets.

AUTHORISED TESTING CENTRE (ATC)

(Offers IMM Examination and Assessments)

ATC: JOTAC Academy Sdn. Bhd.
(Peninsular Malaysia)

Certification Examination/Assessments

- Certified Protective Coating Technician (Blaster and/or Painter) Level 1 & Level 2
- Certified Coating Inspector Level 1 & Level 2
- Certified Corrosion Technician Level 1
- Certified Cathodic Protection Technician Level 1

HORIZED TESTING CENTRE (ATC)/ AUTHORIZED IMM COURSES & CERTIFICATION

ASSOCIATE TRAINING PARTNER (ATP)

(Offers IMM Certification Training Programs and Courses)

ATP: Materials Technology Education Sdn Bhd
(Malaysia and Overseas)

IMM Training Programs & Courses

Coating

- Certified Protective Coating Technician (Blaster and/or Painter) Level 1 & Level 2
- Refresher Course for Certified Protective Coating Technician (Blaster and/or Painter) Level 1 and Level 2
- Certified Assistant Blaster & Painter Level 1 & Level 2
- Certified Blasting and Painting Supervisor
- Certified Coating Inspector Level 1 & Level 2
- Refresher Course for Certified Coating Inspector Level 1 and Level 2
- Certified Coating Quality Control Technician
- Certified Thermal Spray Coating Applicator
- Basic Knowledge on Corrosion Protection for Technicians and Engineers
- Corrosion Control by Protective Paints
- Corrosion Control by Protective Coating

Coating Fingerprinting

- Coating Fingerprint Foundation Course
- Certified Coating Fingerprint Quality Controller Level 1
- Certified Coating Fingerprint Quality Controller Level 2
- Refresher Course of Certified Coating Fingerprint Quality Controller Level 1/Level 2

Train the Trainer

- Certified Trainer

Corrosion

- Certified Corrosion Technician Level 1
- Certified Corrosion Technician Level 2
- Certified Cathodic Protection Technician Level 1
- Certified Cathodic Protection Technician Level 2
- Certified Cathodic Protection Engineer
- Corrosion Control by Cathodic Protection

Thermal Insulation

- Introduction to Thermal Insulation
- Certified Thermal Insulation Installer

Vibration

- Certified Vibration Practitioner Category 1
- Certified Vibration Practitioner Category 2
- Certified Vibration Specialist Category 3
- Certified Vibration Specialist Category 4

Welding

- Certified Welding Inspector
- Repair Welding of Pressure Equipment in Refineries & Chemical Plants
- Welding & Joining Technology for Non-Welding Personnel
- Steel Technology for Non-Technical Personnel

IMM-JWES Courses

- Certified Associate Welding Engineer (AWE)
- Certified Welding Engineer (WE)
- Certified Senior Welding Engineer (SWE)

Mechanical Joint Integrity

- Certified Mechanical Joint Integrity for Small-bore Piping, Tubing and Valves
- Certified Mechanical Joint Integrity for Flange Bolted Connections
- Valve Operations, Maintenance & Inspection Including Flange Breaking

Loss of Primary Containment

- Mechanical Joint Integrity
- Pressure Safety Valve
- Small Bore Tubing

Rotating Equipment

- Competent Mobile Industrial Compressor Operator
- Competent Mobile Industrial Equipment Inspector
- Inspection & Maintenance of Pumps
- Practical Approach to Inspection and Maintenance of Stream Turbine
- Practical Approach to Precision Alignment Methods
- Practical Approach to Precision Balancing Methods
- Reciprocating Compressors: Operations, Maintenance, Inspection & Troubleshooting
- Troubleshooting Techniques for Rotating Equipment

Other Materials Courses

- Materials Selection & Corrosion
- Metallurgical Failure Investigation
- Basic Course on Operation of Mobile Air Compressor

INSTITUTE OF MATERIALS, MALAYSIA INFORMATION NOTE:

IMM-PCT L1/L2 CERTIFICATION PROGRAM

BLASTER AND/OR PAINTER (LEVEL 1/ LEVEL 2)

IMM PROTECTIVE COATING TECHNICIAN LEVEL 1/LEVEL 2 CERTIFICATION PROGRAM

The Institute of Materials, Malaysia (IMM) has in the 4rd quarter of 2020 upgraded the Protective Coating Technician Level 1/Level 2 (Blaster or/and Painter) i.e. IMM-PCT L1/L2 certification program to meet the current and future expectations and requirements of key stakeholders in the Malaysian oil & gas industry, is up to date with current industry developments and is recognized beyond the oil & gas industry. This IMM-PCT L1/L2 certification has been upgraded and is designed to be equivalent to international standards such as SSPC certification and is introduced to replace IMM-SSPC Abrasive Blasting (C7) and Spray Application (C12) certification program which has been discontinued.
All Malaysian Blasters and Painters who possess a valid C7/C12 certification will still be recognized and retained in the IMM database of certified C7 and/or C12 blasting and painting skilled personnel.

While the IMM-SSPC C7 and C12 Certification has been included as part of the requirements for the positions of Blasting and Coating/Painting Supervisor and Lead Blaster & Painter in the PETRONAS Technical Standards i.e. PTS 152003 (November 2017), IMM's PCT L1/L2 has been accorded similar recognition under requirements in the PETRONAS Technical Standard PTS 15.20.03 (2016) - Protective Coatings and Lining and Shell Technical Specification SES 47.1 (2017) – Protective Coatings, Encapsulation and Wrapping Specification.

IMM has reintroduced the L1 and L2 Certification program with an improved syllabus as of 1st January 2021, and from this date the certification of Blasters and/or Painters will be the IMM-PCT L1 and/or L2 Certification.

The examination for IMM-PCT certification comprises of 2 components – Blaster (surface preparation) and Painter (painting). Candidates who pass only one of the two will be awarded the corresponding IMM-PCT L1 (Blaster) or IMM-PCT L1 (Painter) certification while those who pass both components will be certified as IMM-PCT L2 Multiskilled (Blaster and Painter).

All coordination relating to assessment/examination for the IMM-PCT L1/L2 certification is managed directly by the IMM Secretariat while the training courses for the Blaster and Painter program is conducted by IMM Authorised Training Bodies (ATBs) or Associate Training Partner (ATP). Assessments are carried out at the facilities provided by the ATBs/ATP or at the Authorised Testing Centre (ATC).

Note: Currently there are 8 ATBs at regional levels, 1 centralised ATP and 1 centralised ATC.

The IMM-PCT L1/L2 training and assessment will be conducted by experienced IMM certified trainers in dual language i.e. English and Bahasa Malaysia.

Existing Blasters and Painters whose certification has expired and those with valid certification due for expiry, intending to be re-certified, will be required to attend a refresher course based on the upgraded syllabus. In addition, they are also required to accumulate sufficient Continuing Professional Development (CPD) points in line with IMM's new requirements.

The Table below shows the equivalency between the current IMM-PCT L1/L2 certification scheme and the SSPC C7/C12 schemes.

A COMPARISON OF IMM-PCT L1/L2 and IMM SSPC C7/C12 CERTIFICATION PROGRAM

	IMM-PCT L1/L2 (Upgraded)	IMM-SSPC C7 & C12
Certification	The certification is either 1. Single Skilled i.e. L1 Blaster or L1 Painter. 2. Dual-skilled i.e. L2 Multi-skilled certified for both Blaster & Painter.	The IMM-SSPC certifies by skill only i.e. 1. C7 for Blasters. 2. C12 for Painters. A dual skill certified person is known as C7&C12.
Recognition	1. PETRONAS Technical Standards (PTS) forthe Malaysian Oil & Gas industry. PTS 15.20.03 (2016) 2. Shell Engineering Specifications SES 47.1 (2017)	1. PETRONAS Technical Standards (PTS) for the Malaysian Oil & Gas industry. PTS 15.20.03 (November 2017)
Validity	Valid for 5 years.	Valid for 5 years.

	IMM-PCT L1/L2 (Upgraded)	IMM-SSPC C7 & C12
Training & Assessment	**IMM Blasting & Painting** No pre-requisite has been set for course participants. However, applicants are strongly advised to have prior blasting and/or painting experience. For eligibility of assessment, 1. Participants must have at least 2 years of blasting and painting experience supported by testimonial, OR 2. Participants with IMM Assistant Blaster and Painter (B1B2) certification are required to have a 1 year work experience, OR 3. Participants with minimum SPM or equivalent qualifications are required to attend the IMM recognized intensive 4-day Blaster and Painter course for assessment eligibility. 4. Each course is of 2 days duration i.e. classroom & hands-on practical. 5. The assessment is conducted on the 5th day i.e. ½ day for Blaster and ½ day for Painter i.e. both objective tests and individual assessments of blasting & painting based on an ASTM-equivalent panel sample. 6. If a participant passes the assessment for both blaster and painter, then he will be certified as Multiskilled (L2). 7. In the event the participant only passes either one of the two assessments, then he is certified as L1 Blaster or L1 Painter.	**SSPC Abrasive Blasting & Spray Application** Applicants must have prior blasting and/or painting experience. For eligibility: 1. Each participant must have 800 documented hours of blasting-painting experience in an industrial or marine environment prior to applying for the courses. 2. Separate courses are conducted for Blasters & Painters. Participants can decide to take either of the courses only. It is not required to take both the courses together. 3. Each course is of 1 day duration i.e. classroom (theory) & assessment. 4. The assessment is conducted on the 2nd day of each course. i.e. both objective exam and individual assessment of blasting & painting based on an ASTM- equivalent panel sample. 5. If a participant passes the assessment for both blaster and painter, then he will be certified for C7 & C12. 6. In the event the participant only passes either one of the two assessments, then he is certified either as C7 Blaster or C12 Painter.
Recertification	1. All certified IMM-PCT L1 and L2 are required to be recertified before their 5th year anniversary date. 2. 6 months prior to expiry of certification, candidate can apply for re-certification for another 5 years by • providing proof to IMM that he/ she has been employed in a related profession; and • Accumulating sufficient Continuing Professional Development (CPD) points. 3. Prior to the expiry of the 5-year re-certification (at the end of the 10th year of certification), candidate must attend the relevant Refresher Course for certification. 4. The candidate must re-sit the certification examination if he/she has been out of the profession for more than 18 months continuously during the 5-year certification or recertification period.	1. All certified C7 & C12 must re-certify in the fifth year from their initial certification date. 2. The re-certification requirement is to pass the online open book exam before December 31st of the fifth year.
Language	1. English and Bahasa Malaysia.	1. English
Instructors / Trainers	1. Instructors / Trainers are appointed based on their experience and CV. 2. New instructors will be assessed by an experienced /lead trainer / assessor to be a IMM certified trainer. 3. Appointment is by the IMM Examination and Certification Panel	1. Instructor must pass the C7 and C12 class with 90% hurdle. 2 Instructor must have higher level qualification – such as SSPC PCI Level 3 or NACE Level 3. 3. Instructor must demonstrate ability to competently deliver the class as assessed by a lead instructor.
Training Centre	1. Courses are delivered by IMM Authorised Training Bodies (ATBs), or Associate Training Partner (ATPs), audited by IMM.	1. Courses to be delivered by an Accredited Training Body (ATB) appointed by the ATB Accreditation Panel (AAP).

	IMM-PCT L1/L2 (Upgraded)	IMM-SSPC C7 & C12
Application & Candidate Processing	1. Applications are made through ATBs, ATP or ATC (Authorised Testing Centre) 2. The processing of candidate is done by the IMM Secretariat. 3. The payment of fees will be made to ATBs/ATP/ATC. 4. Results are approved by the Examination Panel which also reviews compliance to all criteria and prerequisites of the certification scheme 5. Certificates (signed by the Chairman of the Examination and Certification Panel and IMM President) are issued by the IMM Secretariat and sent to the successful candidate.	1. Applications were made directly to IMM Resources (IMMR), IMM's commercial entity or through ATBs. 2. The candidate processing was done by IMMR including coordination of the C7 and/or C12 registration with SSPC. 3. The payment of fees was made directly to IMMR. 4. The certificates were issued by SSPC. 5. IMMR was responsible for the coordination to provide the certificates to the successful candidates.
Record keeping	1. The records and information for all Blasters & Painters are kept both as manual records and digitally in IMM database. The new IMM Advanced Database Secured (ADS) system is expected to be fully operational during the 2nd quarter of 2021.	1. The records and information for all Blasters & Painters were kept manually in files maintained by IMMR.

Frequently Asked Questions (FAQs)

1. What is IMM?

The Institute of Materials, Malaysia (IMM) is a non-profit professional society (registered with the Registrar of Societies since 1987) that promotes honorable practice, professional ethics and encourages education in materials science, technology and engineering. Engineers, academicians, technicians, skilled workers and professionals are amongst its members exceeding 5,000.

One of the key objectives of IMM include the training and development of individuals and companies in Malaysia to attain certification and professional recognition in materials science, technology and engineering covering various disciplines such as coatings, corrosion, welding, vibration, asset integrity, insulation, polymers and materials fingerprinting. IMM also promotes research and development in these fields in addition to facilitating and encouraging collaboration between the industrial sectors, research institutes and universities.

IMM is administered by a council of 30 members with volunteers who are experts in various fields leading 23 expert committees, and 4 regional chapters, supported by a secretariat staff.

IMM's certification courses are well recognized and endorsed in the oil and gas, shipbuilding and construction industries. Over the years, personnel from these industries have been trained and certified. They include, amongst others, blasters and painters, coating inspectors, welding engineers, welding inspectors, corrosion technicians, cathodic protection technologists, vibration practitioners and coating fingerprint quality controllers. These courses are organised by authorised training bodies.

2. What is the upgraded IMM-PCT L1/L2 certification programs?

The IMM-PCT Blaster and/or Painter program is the latest IMM certification scheme for Blasters and Painters and is an upgrade on the previous scheme, and designed to be on par with international standards such as SSPC/ NACE certification. This PCT L1/L2 certification has been recognized and accepted by Malaysia's oil and gas industry.

3. Why do I require to be a IMM certified Blaster/ Painter?

To elevate the technical knowledge and skill standards for Blasters and Painters and to meet the requirements of industry standards.

4. Is IMM-PCT L1/L2 a requirement for Painter and/or Blaster in Oil & Gas facilities?

Yes. It is required for blasting & painting in oil and gas (O&G) facilities (both upstream and downstream installations), and other industries. The full enforcement of this requirement is subject to the requirements and technical specifications of the specific O&G company or other industry.

5. If my current PCT L1/L2 certification has expired or is about to expire, can I still be recertified for IMM-PCT L1 and L2 Certification?

All certified IMM-PCT L1 and L2 are required to be recertified before their 5th year anniversary date and can apply for re-certification for another 5 years Application for re-certification can be made 6 months prior to expiry by

- providing proof to IMM that he/she has been employed in a related profession; and
- accumulating sufficient Continuing Professional Development (CPD) points.

At the end of the re-certification period (at the end of the 10th year of certification), candidate must attend the relevant Refresher Course for certification.

6. What are the minimum requirements to obtain this certification?

The requirement to be assessed for PCT L1/L2 is a minimum of 2 years blasting and/or painting verified work experience. The verification can be by the Company's HR Manager Project Manager or Supervisor.

Holders of IMM B1B2 (Assistant Blaster and Painter) certification with at least 1 year of work experience as a blaster and/or painter are also eligible to be assessed for certification.

If you do not possess the minimum experience required, and if you have an SPM (or higher educational qualification) you are required to attend a 4-day blaster and painter theory and practical course prior to assessment. However, you are strongly advised to have basic blasting and/or painting experience.

7. How do I register myself for the PCT L1/L2 course and assessment?

Those interested can contact the IMM Secretariat or the ATBs in your region or ATP or ATC to get the registration form and further guidelines and information, if required. You may visit the IMM website www.iomm.org.my for a listing of the ATB/ATP/ATC and the related courses.

8. Is the IMM-PCT L1/L2 course available in two languages English and Bahasa Malaysia?

The courses in Malaysia will be conducted in dual languages, English & Bahasa Malaysia

9. What is the duration of the program?

In addition to the 4-day training course (which is not mandatory for experienced personnel), the competency program includes a 2-hour refresher course followed by assessment comprising 2 theory components, one for surface preparation and the other for painting and likewise 2 practical components.

10. If I am currently a competent IMM Certified Protective Coating Technician with Level 1 or 2 certification, is my certification still valid?

The current certification is valid until the expiry of your certification. However, you need to check what are the Blaster and/or Painter certification requirements at your work site.
You are required to attend the refresher course and/or take the assessment if your certification has expired for more than 6 months.

11. Can I change my IMM-SSPC C7 and C12 certification to IMM-PCT L2 (Multi-skill) certification?

Yes, you can but you only need to do the transfer when your SSPC certification is due to expire and in which case you would have to apply for re-certification as a certified IMM-PCT Blaster and Painter. In the meantime, your IMM-SSPC certification is still valid and recognized by IMM.

12. How long are the IMM-PCT L1/L2 competency certificates valid?

These competency certificates are valid for 5 years.

13. Can I be certified in both blaster and painter competencies?

Yes, a person can be certified as competent person in both blasting and painting subject to passing the assessment for both blaster and painter and in which case you will be awarded a Level 2 (Multiskilled) certification.

14. How much does the PCT L1/L2 Certification program cost?

The training fees charged by the ATBs/ATPs will not exceed the maximum of RM1000 per course- day and may vary with the ATBs/ATPs. For details, please contact the training bodies.

The assessment fee is RM870.00 with effect from 1 April 2021. Refer to the IMM website for updated information.

15. If I fail in the Assessment, can I re-sit? If yes, how many times can I re-sit the Assessment?

Candidates who had failed the examination can apply and re-sit for the failed component (blaster or painter or both) within 12 months from the date of their last examination. The full examination fee shall be payable to re-sit the examination, and without the need to attend any training course. The candidate can re-sit as many times as he wishes.

16. What society membership do I get with the IMM -PCT L1/L2 certification?

Included in the certification is a corresponding five-year IMM membership. The applicable fee for a 5-year ordinary grade membership is RM220 (inclusive of entrance fee).

17. Who should I contact to register for the IMM-PCT Certification Program?

Interested candidates can contact the IMM Secretariat as follows:

Institute of Materials, Malaysia

Suite 515, Level 5
Block A, Kelana Centre Point No.3, Jalan SS 7/19
Kelana Jaya, 47301 Petaling jaya

Tel: +603 7661 1591
Email: secretariat@iomm.org.my
Website: www.iomm.org.my

NEW IMM PROFESSIONAL MEMBERS

IR. JEFFERY PIRAH

Organization: Oreads Buildincare Sdn Bhd
Position: Director and Principal
Working experience(s):
•7 years as Project Manager/Project Coordinator*
•3 years as Resident Engineer*
•3 years as Planning and Control Engineer*
•10 years as Design Engineer*
Qualification(s):
•Master Degree in Business Administration [University Sabah Malaysia]
•Bachelor of Engineering Degree [University Technology Malaysia]
Professional membership(s):
•Professional Civil Engineer, BEM
•Registered Member, IEM
•Internal Auditor for ISO 9001

LT. CDR. MOHD YASSIN MOHD IBRAHIM

Organization: Ministry of Defence Malaysia (Royal Malaysian Navy)
Position: Head of Electrical Engineering School.
Working experience(s):
•3 months as Head of Electrical Engineering School in Royal Malaysian Navy
•2 years as Weapon and Electrical Engineering Officer in Royal Malaysian Navy
•3 years as Deputy Weapon and Electrical Engineering Officer in Royal Malaysian Navy
•1 year as Technical Officer in Royal Malaysian Navy
•2 years as Maintenance Staff Officer in Royal Malaysian Navy
Qualification(s):
•Bachelor (Hons) of Engineering (Computer) [Universiti Teknologi Malaysia]
Professional membership(s):
•Graduate Member of Board of Engineer Malaysia (BEM)
•Graduate Member of Institute of Engineer Malaysia (IEM)
•Graduate Member of Malaysia Board of Technologists (MBOT)

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	Dr. Nazatul Liana Sukiman (Universiti Malaya)
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1) obs: observer
2) Alt: alternate

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	Ms. Nurfanizan Mohd Afandi	Universiti Tenaga Nasional
	Assoc. Prof. Dr. Nurulakmal Mohd Sharif	Universiti Sains Malaysia
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	Dr. Mohd Sani Sarjadi	Universiti Malaysia Sabah
	Dr. Mohamad Zaki Abdullah	Universiti Teknologi PETRONAS
	Mr. Ong Thai Kiat	Tunku Abdul Rahman University College
	Ts. Dr. Pua Fei Ling @ Grace Pua	Universiti Tenaga Nasional
	Assoc. Prof. Dr. Rozyanty Rahman	Universiti Malaysia Perlis
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2020-2022 SESSION

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Secretariat Coordinator: Aberamy Dayalam

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	Yii Ming Sing	Freelance

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	Syazana Shafee	SIRIM Berhad
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	Lt. Kdr. Wan Mariana	Royal Malaysian Navy
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	Mohamad Syamil Naim Mohd Yusof	Universiti Putra Malaysia
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	Nur Hureen Amanda Binti Mokhtar	DNV GL Malaysia Sdn Bhd
	Nurul Nabilah Azhari	Serba Dinamik Sdn Bhd

Compiled by: IMM Secretariat,
The information was updated as of 12th April 2021

National Level

University Round	: March & April 2021
Submission of names	: 28th April 2021
Submission of video	: 24th May 2021
Semi-Final	: 2nd June 2021
Final	: 16th June 2021

Hosted by :
PUSAT PENGAJIAN KEJURUTERAAN BAHAN DAN SUMBER MINERAL
SCHOOL OF MATERIALS AND MINERAL RESOURCES ENGINEERING

IOM³ The Institute of Materials, Minerals and Mining

IMM

Introduction

Materials Lecture Competition is a national event mainly organized by IMM and IOM³ UK. This national-wide competition is an initiative intended to enhance awareness among young materials scientists and engineers in Malaysia on the importance of materials engineering and sustainability in the advancement of technology and humankind.

Rules and Eligibility

Open to any profession/students in Malaysia under the age of 28 (except academic staff) who must deliver a 15-minutes presentation on a topic related to materials or minerals science and engineering (materials development, characterization, processing and applications, minerals and geologically related disciplines).

MATERIALS LECTURE COMPETITION MLC 2021

Winner of MLC 2021 (national level) will represent Malaysia to compete in the Young Persons' World Lecture Competition 2021 (YPWLC2021) which will be organized by IOM³ in November 2021.

Judging Criteria

- Structure of the presentation and clarity of explanation and argument
- Standard of presentation
- Personal enthusiasm for the subject
- Ability to deliver presentation compellingly
- Technical content of the presentation
- Clarity and relevance of any visual aids used
- Ability to deliver a concise and meaningful summary at the end of presentation
- Ability to present within the specified time allocated
- Ability to handle judges' questions

CONTACT:

Chairperson, IMM-MLC Committee :
Dr. Nor Akmal Fadii
norakmal@utm.my

USM (Host)
MLC 2021 Organizing committee:

Assoc. Prof. Dr Nurulakmal Mohd Sharif
(MLC 2021 Chairperson)
smurul@usm.my

Dr Yanny Marliana Baba Ismail
yannymarliana@usm.my


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2021
THE EVOLUTION OF MATERIAL, SCIENCE AND TECHNOLOGY IN THE POST-COVID ERA
15-19 MARCH 2021
KUALA LUMPUR

PROGRAMME ITINERARY

DAY 1
15/03
(Monday)

8.30 AM REGISTRATION

9.00 AM OPENING REMARKS BY EMCEE

9.10 AM WELCOMING REMARKS BY IMM YP CHAIRMAN

9.20 AM OPENING REMARKS BY IMM PRESIDENT,
Dato' Dr. Ir. Ts. Mohd Abdul Karim bin Abdullah,
Chief Executive Officer Serba Dinamik Holdings Berhad

10.00 AM SOFT LAUNCH OF:
- IMM SOCIAL MEDIA CHANNELS
- IMM CPD SCHEME
- IMM ADVANCED DATABASE SYSTEM

10.20 AM MORNING TEA BREAK

10.40 AM SPEAKER 1 | TECHNICAL SESSION 1: CORROSION
"Stray Current from Cathodic Protection – The Concerns to Live With" by Mr. Kang Kim Ang, Managing Director/Corrosion Specialist, Corrtrol Synergy Sdn. Bhd.

11.05 AM SPEAKER 2 | TECHNICAL SESSION 1: CORROSION
"Simulation of Cathodic Protection (CP) Systems with PROCOR Software" by Mr. Chan Chee Yang & Dr. Yoga S Salim, Matcor Services & Technology

11.30 AM 10 MINUTES BREAK

11.40 AM SPEAKER 1 | TECHNICAL SESSION 2: COATINGS
"Surface Preparation for Tomorrow" by Mr. Daniel Sagoh, Area Manager, Syawaja BlastOne Asia Sdn Bhd

12.05 PM SPEAKER 2 | TECHNICAL SESSION 2: COATINGS
"Coating Inspection and Survey" by Mr. Ahmad Badli Shah Aziz, Akzonobel International Paint Sdn. Bhd.

12.30 PM LUNCH

2.30 PM BUZZ SESSION

2.45 PM 10 MINUTES BREAK

2.55 PM SPEAKER 1 | TECHNICAL SESSION 3: CORROSION
"Challenges in Managing Top of Line Corrosion (TLC) in Multiphase Wet Gas Pipelines" by Mr. Leow Chun Ho, Materials Corrosion and Inspection (MCI) Engineer, Sarawak Shell Berhad

3.20 PM SPEAKER 2 | TECHNICAL SESSION 3: CORROSION

3.45 PM 10 MINUTES BREAK

3.55 PM SPEAKER 1 | TECHNICAL SESSION 4: COATINGS
"Failure of Coatings" by Mr. Era Perummal, PS Peruvision Sdn Bhd

4.20 PM SPEAKER 2 | TECHNICAL SESSION 4: COATINGS
"Polyurethene Coating for Internal and External Pipeline Coating" by Mr. Chong Horng Yih & Mr. Sherwin William, IOF International Sdn. Bhd.

5.00 PM FORUM 1 - COATINGS

ALL DAY EXHIBITION

5.30 PM END OF DAY 1

PROGRAMME ITINERARY

DAY 2
16/03
(Tuesday)

8.30 AM	REGISTRATION
8.50 AM	OPENING REMARKS BY EMCEE
9.00 AM	A talk by Datuk Ir. Ahmad 'Asri Abdul Hamid, Chief Executive CIDB Malaysia
9.40 AM	SPEAKER 1 | TECHNICAL SESSION 5: POLYMER AND THE ENVIRONMENT "Investment Opportunities for the Plastics and Rubber Products Industries in Malaysia" by Puan Norhaliza Mohammed Noordin, Deputy Director of Chemical and Advanced Material Division, MIDA
10.05 AM	SPEAKER 2 | TECHNICAL SESSION 5: POLYMER AND THE ENVIRONMENT "The Malaysian Rubber Industry - Origins and Where Are We Heading?" by Mr. Pong Kai See, Managing Director, CY Group of Companies
10.30 AM	MORNING TEA BREAK
11.00 AM	SPEAKER 1 | TECHNICAL SESSION 6: POLYMER AND THE ENVIRONMENT "Recyclable and Environmentally Friendly Polymer Nanocomposites", Prof. Dr. Chow Wen Shyang, Universiti Sains Malaysia (USM)
11.25 AM	SPEAKER 2 | TECHNICAL SESSION 6: POLYMER AND THE ENVIRONMENT "Anti-virus Technology in the Polymer Products: Prospects & Environmental Challenges" by Dr. Harintharavimal Balakrishnan, R&D Manager, Prolexus Berhad
12.00 PM	FORUM 2 - POLYMER: POST COVID-19: WHAT'S NEXT FOR POLYMER?
12.30 PM	LUNCH
2.30 PM	SPEAKER 1 | TECHNICAL SESSION 7: POLYMER AND THE ENVIRONMENT "Layman's Guide to Bioplastics" by Mr Muhammad Agos bin Abul Hasan Ashari, Bioplastic Consultant and Advocate
2.55 PM	SPEAKER 2 | TECHNICAL SESSION 7: POLYMER AND THE ENVIRONMENT "Biopolymers Are More Environmentally Friendly. Really?" by Ir. Assoc. Prof. Dr. Lee Tin Sin, Universiti Tunku Abdul Rahman (UTAR)
3.20 PM	10 MINUTES BREAK
3.30 PM	SPEAKER 1 | TECHNICAL SESSION 8: POLYMER AND THE ENVIRONMENT "Recycling of Plastic" by Mr. Wong Chin Yuan, Director, Ecocytion (M) Sdn Bhd., Recircle Sdn Bhd
3.55 PM	SPEAKER 2 | TECHNICAL SESSION 8: POLYMER AND THE ENVIRONMENT "Recycling of Polylactic Acid (PLA) Wastes from 3D Printing Laboratory at Taylor's University" by Dr Choo Hui Leng, Programme Director, Taylor's University
4.30 PM	FORUM 3 - POLYMER (POLYMER: RECYCLING AND SUSTAINABILITY)
ALL DAY	EXHIBITION
5.00 PM	END OF DAY 2

PROGRAMME ITINERARY

DAY 3
17/03
(Wednesday)

9.00 AM	REGISTRATION
8.50 AM	OPENING REMARKS BY EMCEE
9.15 AM	TECHNICAL SESSION 9: VIBRATION TBA
9.40 AM	10 MINUTES BREAK
9.50 AM	SPEAKER 1 | TECHNICAL SESSION 10: VIBRATION "Video Vibration Amplification: Understanding a New Tool" by Mr. Chad Pasho, Director of Business Development, Mechanical Solutions, Inc.
10.15 AM	SPEAKER 2 | TECHNICAL SESSION 10: VIBRATION "Full-Scale Vibration Analysis Onboard Naval Vessel: Issues and Challenges" by Kdr. Ir. Dr. Arman Ariffin, Commanding Officer - Eastern Naval Maintenance Overseer Unit Labuan, Royal Malaysian Navy
10.40 AM	MORNING TEA BREAK
11.00 AM	SPEAKER 1 | TECHNICAL SESSION 11: VIBRATION "Overview of Vibration Practitioner (Category 1 & 2) and Specialist (Category 3 & 4) Certification Programs Based on ISO 18436" by Dr. Rahizar Ramli, Universiti Malaya
11.25 AM	SPEAKER 2 | TECHNICAL SESSION 11: VIBRATION "Vibration Analysis using Big Data and AI" by Mr. Juaroz Salih Lowe, CEO and Foundor, Bumi Data Mining Sdn. Bhd.
12.00 PM	FORUM 4 - VIBRATION
12.30 PM	LUNCH
2.30 PM	SPEAKER 1 | TECHNICAL SESSION 12: VIBRATION "Rare Occurence of Centrifugal Compressor Double Failures: Impeller and Auxiliaries Pipe Crack Induced by Vibration" by Mr. Khairul Fata B Ahmad Asnawi, Principal (Rotating Machinery) Petronas Carigali Sdn Bhd, Sarawak Gas
2.55 PM	SPEAKER 2 | TECHNICAL SESSION 12: VIBRATION "How AI-IoT Services Using Vibration Measurement Can Provide Engineering Insights and Improve Asset Management" by Dr. Richard Büssow, Founder Industrial Analytics IA
3.20 PM	10 MINUTES BREAK
3.30 PM	SPEAKER 1 | TECHNICAL SESSIONS 13: VIBRATION TBA, Dr. Mohd Shahrul Azmi Mohd Yusoff, SIRIM Bhd
3.55 PM	SPEAKER 2 | TECHNICAL SESSIONS 13: VIBRATION "Expect The Unexpected During New Equipment Commissioning" by Mr. Mohd Amirullah B Abdul Razak, Senior CBM Engineer, Pengerang Refining Company Sdn Bhd
4.20 PM	BUZZ SESSION
ALL DAY	EXHIBITION
5.00 PM	END OF DAY 3

PROGRAMME ITINERARY

DAY 4
18/03
(Thursday)

9.00 AM REGISTRATION

9.30 AM BUZZ SESSION

9.50 AM SPEAKER 1 | TECHNICAL SESSION 14: WELDING
"Effect of HFMI/PIT on The Fatigue Life of Multi-Pass Welds High Strength Steel" by Dr. Dahia Andud, UNIKL MFI

10.15 AM SPEAKER 2 | TECHNICAL SESSION 14: WELDING
"Welding of Uncoated Advanced High Strength Steel (AHSS) by Pulsed Nd: YAG Laser Welding Approach in Dissimilar Metal Joining" by Prof. Dr. Mahadzir Ishak, Faculty of Mechanical and Automotive Engineering Technology, Universiti Malaysia Pahang

10.40 AM MORNING TEA BREAK

11.00 AM SPEAKER 1 | TECHNICAL SESSION 15: WELDING
"Disruptive Technology: Application of Magnetically Impelled Arc Butt (MIAB) in The Oil and Gas Industry in Sustaining The New Normal of Low Petrochemical Prices" by Ts. Dr. Mohamed Ackiel Mohamed, Senior Vice President Information Technology and Education & Training, Serba Dinamik Group Berhad

11.25 AM SPEAKER 2 | TECHNICAL SESSION 15: WELDING
TBA

12.00 PM FORUM 5 - WELDING (WELDING TOWARD IR 4.0)

12.30 PM LUNCH

2.30 PM SPEAKER 1 | TECHNICAL SESSION 16:
ASSET INTEGRITY MANAGEMENT
"Overview of Asset Integrity Management" by Mr. Mohd Azmi Mohd Noor, Kebabangan Petroleum Operating Company Sdn Bhd

2.55 PM SPEAKER 2 | TECHNICAL SESSION 16:
ASSET INTEGRITY MANAGEMENT
"Integrity of Steam Boilers and Pressure Vessels" and "Integrity of Passenger Lift and Escalators" by Dato' Dr. Ir. Johari Basri, Advisor, Serba Dinamik Group Berhad

3.20 PM 10 MINUTES BREAK

3.30 PM SPEAKER 1 | TECHNICAL SESSION 17:
ASSET INTEGRITY MANAGEMENT
"Drone Inspection for Asset Assessment" by Mr. Izwan bin Zainal Abidin, Managing Director/CEO, Terra Drone Malaysia

3.55 PM SPEAKER 2 | TECHNICAL SESSION 17:
ASSET INTEGRITY MANAGEMENT
"Integrity of Vertical Transportation" by Dato' Dr. Ir. Johari Basri, Advisor, Serba Dinamik Group Berhad

4.30 PM FORUM 6 - ASSET INTEGRITY MANAGEMENT

ALL DAY EXHIBITION

5.00 PM END OF DAY 4

PROGRAMME ITINERARY

DAY 5
19/03
(Friday)

9.00 AM	**REGISTRATION**
9.30 AM	**BUZZ SESSION**
9.50 AM	**SPEAKER 1 | TECHNICAL SESSION 18: TBA** **"4IR - What is it and What is it for me?" by Mr. Amir Hisham Albakri, Head of Business Development, Innoveam Sdn Bhd.**
10.15 AM	**SPEAKER 2 | TECHNICAL SESSION 18: TBA** **"MBOT Professional Progression" by Ir. Ts. Noor Hisham Yahaya, Safe Asbestos Solutions Sdn. Bhd.**
10.40 AM	**MORNING TEA BREAK**
11.00 AM	**SPEAKER 1 | TECHNICAL SESSION 19: TBA** **"Professional Registration with The Institution of Mechanical Engineers (MechE)" by Mr. Teng Quan Zen, South East Asia and Oceania Business Development Manager, Institute of Mechanical Engineers**
11.25 AM	**SPEAKER 2 | TECHNICAL SESSION 19: TBA** **TBA**
HALF DAY	**EXHIBITION**
12.00 PM	**LUNCH**
2.15 PM	**REGISTRATION - AGM IMM**
2.50 PM	**OPENING REMARKS BY AGM EMCEE**
3.00 PM	**AGM IMM**
5.00 PM	**END OF DAY 5**

Welcoming Remarks for IMM Week

From The President

Dear VIPs and Guests,

We are delighted to have you all here to participate in this first ever Virtual IMM Week organised by the Institute of Materials Malaysia. Thank you for coming and congratulations on becoming a part of a history of engineering in Malaysia. And in truth, I am in awe with the collected expertise gathered here today. So I thank you again for being here with us in this conference.

To all of you who are unfamiliar with our organisation, here is a brief introduction to 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.

We have the vision to be an internationally recognised leading institution in materials science and technology. To achieve that vision, we have set the following missions:

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

In order to accomplish the missions efficiently, we have created several committees which are divided by regions and expertise throughout Malaysia. Our expertise committees include corrosion, coatings, welding and vibration committees.

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 780 Coatings Inspectors have been trained and certified as well as 3,250 Blaster & Painters, Supervisors and Corrosion Technicians. More than 60 Certified Welding Inspector, Associate Welding Engineers, Welding Engineers and Senior Welding Engineers were trained and certified. Up to date, there are more than 15 Certified Coating QC Technician, 120 Certified Vibration Practitioner, 35 Certified Cathodic Protection Technician and Certified Cathodic Protection Engineer, 80 trained members for Coating Fingerprint Foundation Course and 45 Certified Coating Fingerprint Quality Controller. The Coating Fingerprint Quality Controller is recognised by SIRIM and plays an important role in paint and coating industries.

Since the last couple of years, the IMM has been putting a lot of efforts in spreading awareness of the importance of innovation and technological development especially in the concept of Industry 4.0. The reason is that, even though digitalization may no longer be a stranger to many of us, but statistics still shows that digitalization is still new technologies sweeping through all industries.

With the current pandemic issue griping the world, we are seeing more and more digitalization taking place around the globe. The disruption of direct communication as well as the worldwide travel ban has pushed video conferencing, Internet-of-Things (IoT), cloud computing and other related technologies to become the new norm. And it does not only affect the how the industry players operate, but it also changes the way we provide education as well as changing the lives of the general public.

Dear esteemed guests, this is exactly why we are here today in this conference. IMM hopes that by the end of this week, participants will not only be aware of the key elements and initiatives involved in digital transformation of the industries and learning centers— via evolving technologies and business case considerations, to issues around change management, software strategies and how to make the leap to full digital transformation - but also become familiar with the "disruptive" technologies in Material, Science & Technology space that could range from initial material selection to full life cycle operational asset management. i.e. robotics, automation, non-intrusive remote corrosion monitoring, online vibration monitoring and data analytics. Throughout the week, you will discover the latest technologies, digitalization, best practice, research, lesson learned and innovative solutions surrounding the constant challenges in ensuring the quality and integrity of the assets with new strategies for significant costs improvements. As for our treasured students and young professionals, there will also be experience sharing sessions and relevant awareness campaigns set up just for you.

For today, the conference theme is "The Evolution of Material, Science and Technology In The Post-Covid Era". Our aim is to share knowledge in the concept of Industry 4.0 is a reality in the modern economy, because innovation and technological development play an important role in each organization.

There will be five-day conference. On the first day of the week, the forum will cover on topics of "corrosion and coating". The second day, we will be covering plenty topics related to "Polymer". On the third day, we continue the event with topics related to "vibration" . The next day, we will be covering "welding" and "asset integrity". And on the last day, we will be discussing on general topics such as awareness on MBOT and other professional bodies.

We have an excellent list of speakers for IMM Week 2021, who will be presenting exciting topics, as stated in our agenda. There are representatives from the O&G sector, Defence and even academicians from reputable companies and universities. From pumps to train, from pipework to warship, we will cover everything today. So ladies and gentlemen, be prepared to be challenged, enlightened and excited.

Yet another historic event of the conference is the support of excellent organisation that is CIDB and collaboration initiatives between Institute of Marine Engineering, Science & Technology with IMM . Together, we will officially launch the IMM Week 2021. This is another evidence of our intent for growth in the Evolution Of Material, Science and Technology In The Post-Covid Era. We are looking forward to the future collaborations with CIDB and IMAREST again, and hopefully with other professional bodies in the coming days as well.

And before I handover to our Master of Ceremony, I would like to once more say on behalf of Institute of Materials Malaysia, welcome. It's a pleasure to see many of you here. Thank you and I hope you enjoy the conference.

Thank you.

Dato' Dr. Ir. Ts. Haji Mohd Abdul Karim Abdullah

March 2021

IMM WEEK 2021: THE EVOLUTION OF MATERIAL, SCIENCE AND TECHNOLOGY IN THE POST-COVID ERA

Reported by
Nur Naqiuddin Mdd Nordin, National Oilwell Varco

Date: 15th - 19th March 2021
Venue: Kuala Lumpur

IMM Young Professionals Committee has organized a five-day conference, IMM Week 2021 conference virtually to address the theme: The Evolution of Material, Science and Technology in The Post-COVID Era. The event consisted of technical experts in industry-leading businesses and academia, particularly in corrosion, coating, polymer, vibration, welding, and Asset Integrity Management (AIM). They presented the key elements and initiatives involved in digital transformation in the future jobs with the IR4.0 industry – via evolving technologies and business case considerations, to issues around change management, software strategies, and how to leap full digital transformation.

To make the theme more inclusive of contradicting views, the conference also presented on the "disruptive" technologies in the Material, Science, and Technology space that ranges from initial material selection to full life cycle operational asset management. The event was attended by a total of 305 participants which comprised of industry players, academicians, students, young professionals, job seekers, and technologists.

Finally, IMM Young Professional Committee would like to express its appreciation to our main sponsor, Serba Dinamik Holdings Berhad, sponsors, Temperlite, Malaysia Technology Education Sdn. Bhd., MSI technologies (M) Sdn Bhd., Norimax Sdn. Bhd., Universal Corrosion Engineering (M) Sdn. Bhd., CorrTrol Synergy Sdn. Bhd., DVirtual Expo and Virtual 8 Studio, for making the event a success. The conference has provided the participants with a better understanding of the prospects of Material, Science and Technology post Covid-19. We would also like to express our appreciation to the speakers as well as those who have participated in the conference.

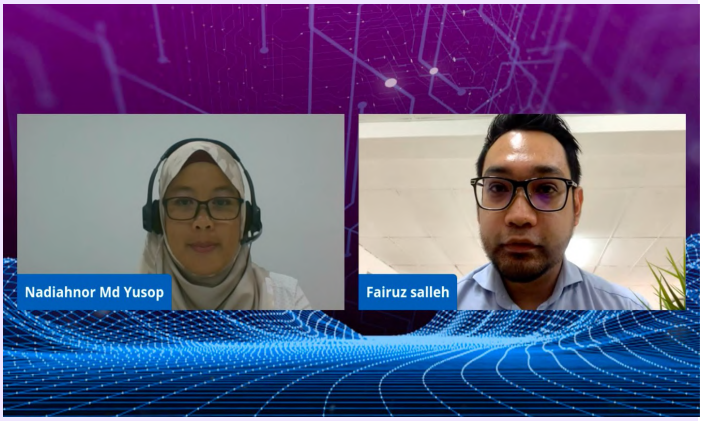

Figure 1: Welcoming Remarks by IMM YP Chairman, Encik Fairuz Salleh

Figure 2: Opening Remarks by IMM President, Dato' Dr. Ir. Ts. Mohd. Abdul Karim bin Abdullah .

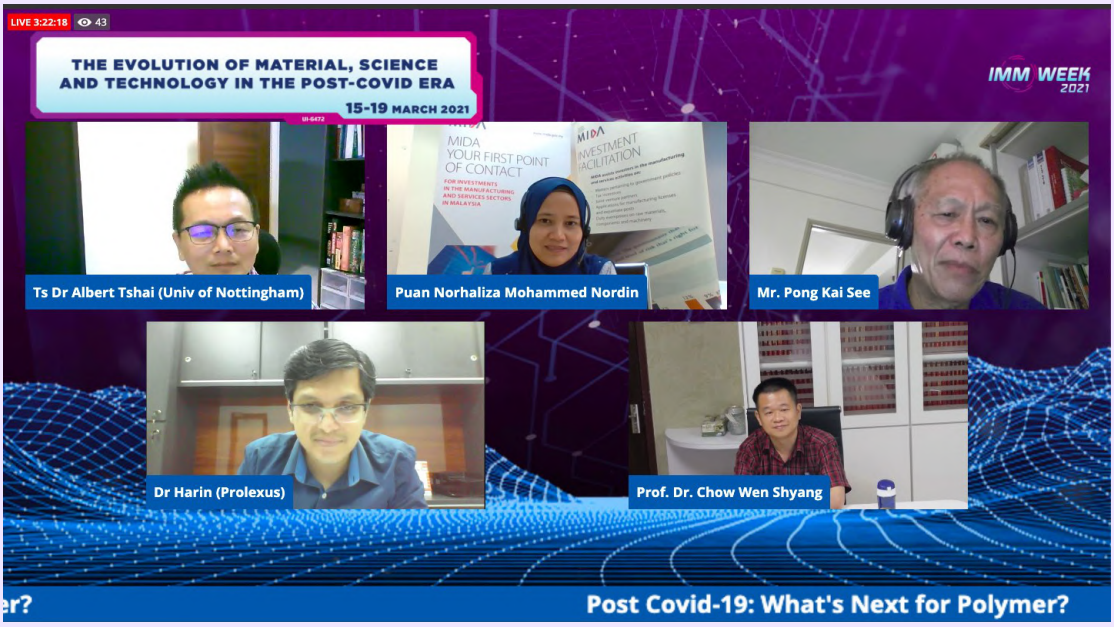

Figure 3: Forum on "Post Covid-19: What's Next for Polymer"

BOOTH/SPONSORS DETAILS

EVENT NAME: IMM2021
CLIENT: Institute of Materials Malaysia
EVENT DATE: 15th March 2021 – 19th March 2021
TOTAL BOOTH: 10 Booths (2 Premium, 8 Basic Plus)

Serba Dinamik Group Berhad	**Materials Technology Education Sdn Bhd**
Website: www.e-serbadk.com	Website: www.mte.com.my
Person in Charge: Karen	Person in Charge: Azlizul Aizat Razali
Email Address: Karen@e-serbadkgroup.com	Email Address: azlizul@mte.com.my
Phone Number: 60172840976	Phone Number: 60137904903
Serba Dinamik Advance Engineering Sdn. Bhd	**MSI Technologies (M) Sdn. Bhd.**
Website: www.e-serbadk.com	Website: https://www.msitech.net/
Person in Charge: Mohd Fairuz Mohd Salleh	Person in Charge: NA
Email Address: fairuz@e-serbadkgroup.com	Email Address: info@msitech.net
Phone Number: 60138787169	Phone Number: 60189875453
Institut of Materials Malaysia	**DVirtual Expo**
Website: https://www.iomm.org.my	Website: www.dvirtualexpo.com
Person in Charge: N. Hithaya Jeevan	Person in Charge: Muhamad Ayman
Email Address: secretariat@iomm.org.my	Email Address: muhamad.ayman@e-serbadkgroup.com
Phone Number: 0189113480	Phone Number: NA
Norimax Sdn. Bhd.	**Universal Corrosion Engineering (M) Sdn Bhd**
Website: http://www.norimax.com.my/	Website: http://www.uce.com.my/
Person in Charge: Ir. Max Ong Chong Hup	Person in Charge: Mark Hew Yoon Onn
Email Address: abdulaziz@norimax.com.my	Email Address: enquiry@uce.com.my
Phone Number: 601119579283	Phone Number: 60122136620
Temperlite Insulation Sdn. Bhd.	**Corrtrol Synergy Sdn. Bhd.**
Website: www.temperlite.com.my	Website: http://www.corrtrolgroup.com
Person in Charge: Nik Khairil Azman Nik Abdullah	Person in Charge: Kang Kim Ang
Email Address: nik@temperlite.com.my	Email Address: corrtrol@corrtrolgroup.com
Phone Number: 60194154654	Phone Number: 60123227178

IMM WEEK 2021
15 - 19 MARCH 2021
KUALA LUMPUR


DOWNLOAD
SPEAKER'S LIST


IMM WEEK 2021
DAY 3
IMM WEEK 2021
EXHIBITORS DIRECTORY
CENTER STAGE
EAST HALL
CO2 - SO Advance Engineering Sdn. Bhd
EO1 - MSI Technologies (M) Sdn. Bhd.
EO2 - Temperite Insulation Sdn. Bhd.
EO3 - Norimax Sdn. Bhd.
EO4 - Universal Corrosion Engineering (M) Sdn Bhd


IMM WEEK 2021
VIRTUAL CONFERENCE


IMM WEEK 2021
DAY 3
LIVE STREAMING
CLICK TO VIEW
MTE
MSI
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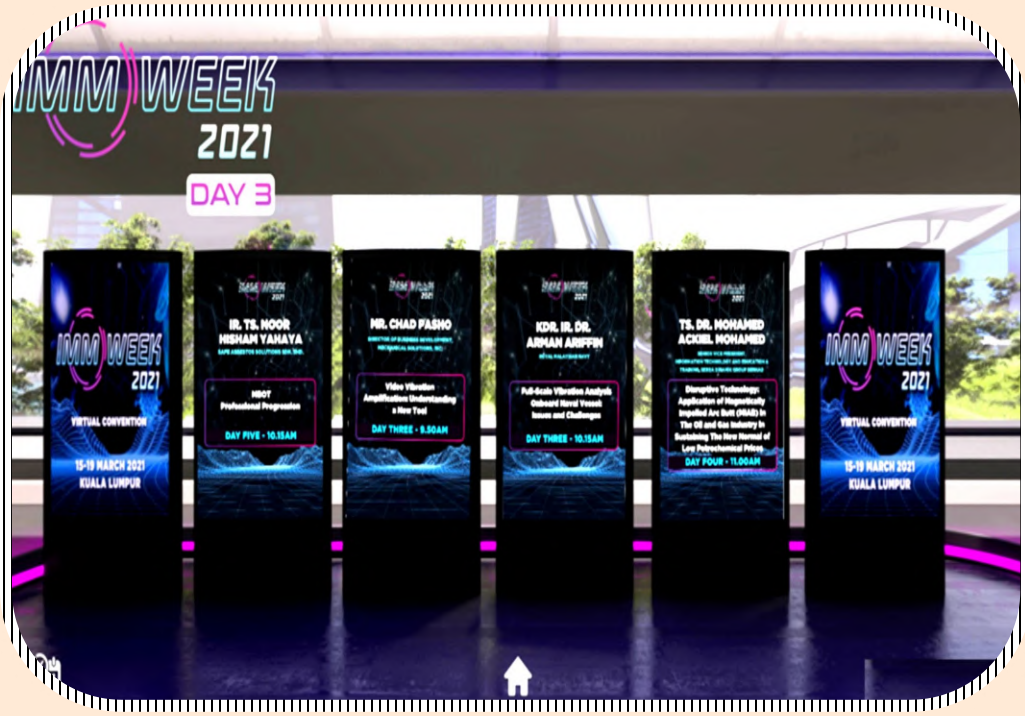
IMM WEEK 2021
DAY 3
IR. TS. NOOR HISHAM YAHAYA
MR. CHAD FASHO
KDR. IR. DR. ARMAN ARIFFIN
TS. DR. MOHAMED ACKIEL MOHAMED
IMM WEEK 2021
VIRTUAL CONVENTION
15-19 MARCH 2021
KUALA LUMPUR

IMM WEEK 2021
15 - 19 MARCH 2021
KUALA LUMPUR


MTE
OVER
YEARS
OF EXPERIENCE


IMM WEEK
2021
DAY 3
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BUSINESS CARD
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2021
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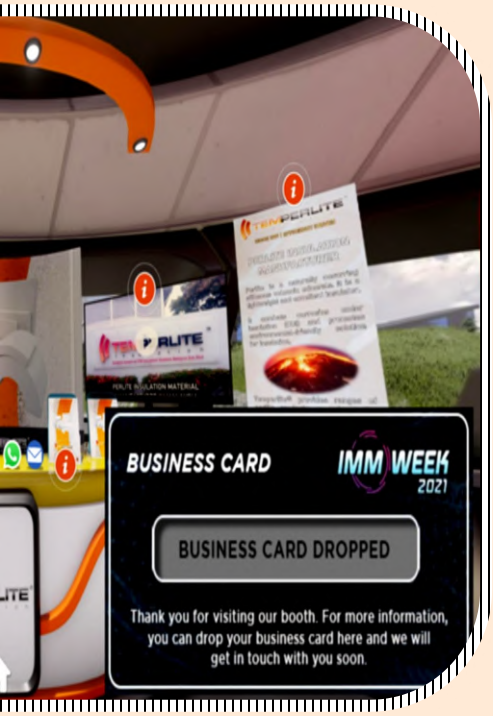
TEMPERLITE
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2021
BUSINESS CARD DROPPED
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IMM WEEK
DAY 3
CORROSION CONTROL
MATERIALS INTEGRITY
ENGINEERING & SERVICES
THERMAL SPRAY COATINGS
Norimax


IMM WEEK
2021
DAY 3
UCE
Your Answer To Protective Coatings
BUSINESS CARD
IMM WEEK
2021
DROP MY BUSINESS CARD
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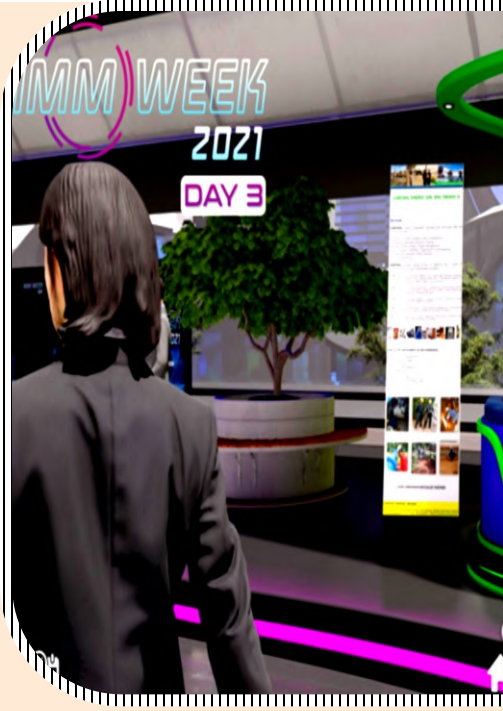

IMM WEEK 2021
15 - 19 MARCH 2021
KUALA LUMPUR


CorrTrol
CorrTrol


IMM WEEK
2021
DAY 3
INSTITUTE OF MATERIALS, MALAYSIA
IMM
ADVANCING MATERIALS SCIENCE AND TECHNOLOGY
CERTIFICATION PROGRAMS
SUCCESS AWARD
IMM


DVE
D-VIRTUAL EXPO


IMM WEEK
DAY 3
CORROSION CONTROL
MATERIALS INTEGRITY ENGINEERING & SERVICES
CORROSION CONTROL
THERMAL SPRAY COATINGS
THERMAL SPRAY COATINGS
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IMM WEEK
2021
DAY 3
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Abadi
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GOOD DECK-A70 LIGHTWEIGHT EPOXY SYSTEM

DESCRIPTION

Good Deck A70 is a three-component, technically advanced self-leveling, epoxy-filler composite. It is 70% lighter than conventional Self Leveling Epoxy and is best to mitigate water ponding issues on metal deck @ Offshore structures.

RECOMMENDED USES

Good Deck A70 is a type of epoxy floor coating that creates a durable, low maintenance flooring surface. Besides, it can be use in uneven/water ponding issue, pitted deck surfaces It can create a smooth, seamless surface, as the epoxy resins is pour onto the floor.

Good Deck A70 can be applied from thicknesses of 5-50mm in uneven metal deck surface.

BENEFITS

- ❖Lightweight Underlayment
- ❖100% Volume Solid
- ❖ Solvent free, low odor
- ❖Easy to apply, can be over coated after 3-4 hours. of applications
- ❖Excellent impact resistance
- ❖Compatible with any Primer system.
- ❖Can to Top Coat with PU

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Email: info@abadiservices.com
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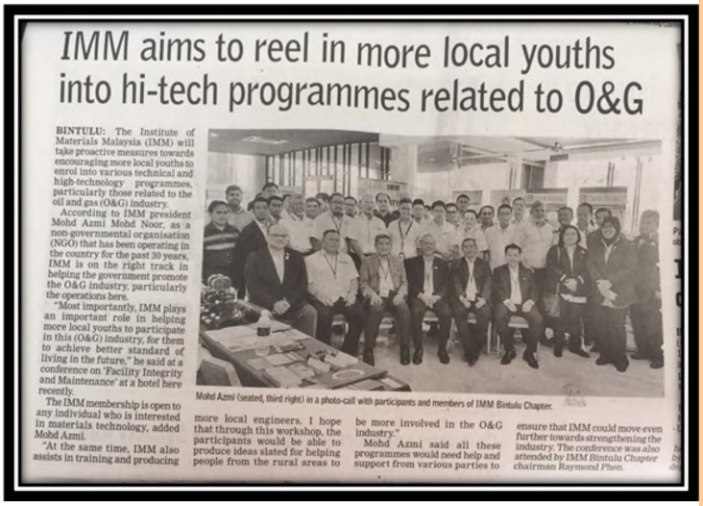
IMM Bintulu Chapter

The IMM Bintulu Chapter was established to raise the industry's awareness of Materials Technology and related topics. Through networking programs, this committee facilitates the exchange of knowledge and experiences among members of the local technical community.

Members of IMM Bintulu include technicians and engineers specializing in Materials, Corrosion, Inspection, and Asset Integrity from various industries such as Asean Bintulu Fertiliser Sdn Bhd (ABF), Malaysia LNG Sdn Bhd (MLNG), Bintulu Port Sdn Bhd, LAKU Management, Shell MDS Sdn. Bhd., Serba Dinamik Group Bhd. and many other local companies.

On 4th May 2017, the Bintulu Chapter successfully organized the Facility Integrity& Maintenance Conference at the Golden Bay Hotel in Bintulu. This conference was co-organized by the IMM-IEM (Bintulu) Upskilling Sarawak Engineers and Technicians (USET) Task Force and the IMM Vibration Committee, where the conference was sponsored by Serba Dinamik Group Bhd. A total of 140 participants attended this conference with the goal to bring together the Bintulu plant and facility operators, as well as service providers, to share their experiences in maintaining their assets and facilities, as well as challenges and problems encountered, potential solutions identified, and lessons learned.

On 31st October 2017, Bintulu Chapter held another conference on 'Prevention of Loss of Primary Containment' at Parkcity Everly Hotel, Bintulu which was initiated by the IMM-IEM (Bintulu) Upskilling Sarawak Engineers & Technicians (USET) Task Force (supported by IEM, Bintulu Section) and sponsored by Serba Dinamik Group Bhd.



IMM aims to reel in more local youths into hi-tech programmes related to O&G

BINTULU: The Institute of Materials Malaysia (IMM) will take proactive measures towards encouraging more local youths to enrol into various technical and high-technology programmes, particularly those related to the oil and gas (O&G) industry.

According to IMM president Mohd Azmi Mohd Noor, as a non-governmental organisation (NGO) that has been operating in the country for the past 30 years, IMM is on the right track in helping the government promote the O&G industry, particularly the operations here.

"Most importantly, IMM plays an important role in helping more local youths to participate in this (O&G) industry, for them to achieve better standard of living in the future," he said at a conference on 'Facility Integrity and Maintenance' at a hotel here recently.

The IMM membership is open to any individual who is interested in materials technology, added Mohd Azmi.

"At the same time, IMM also assists in training and producing more local engineers. I hope that through this workshop, the participants would be able to produce ideas slated for helping people from the rural areas to be more involved in the O&G industry."

Mohd Azmi said all these programmes would need help and support from various parties to ensure that IMM could move even further towards strengthening the industry. The conference was also attended by IMM Bintulu Chapter chairman Raymond Phen.

Mohd Azmi (seated, third right) in a photo-call with participants and members of IMM Bintulu Chapter.

There were 125 participants who attended this conference. This conference aims to find some common grounds on how to deal with loss of primary containment (LOPC) issues and prevent future occurrences. Technical presentations were followed by a high-level Panel Discussion to review LOPC situations and discuss future prevention measures with stakeholders.

IMM conference in Bintulu discusses LOPC issue affecting O&G facilities

BINTULU: The conference conducted by Institute of Materials Malaysia (IMM) at Parkcity Everly Hotel here yesterday was meant to raise the awareness of loss of primary containment (LOPC) among those in workforce of oil and gas (O&G) facilities.

A total of 120 participants took part in the conference, which was initiated by Upskilling Sarawak Engineers and Technicians Task Force (Uset) and organised by IMM Bintulu Chapter, with support from the Institution of Engineers Malaysia (IEM) Bintulu Section.

"The topic for this conference is indeed a timely one – perhaps overdue, in that many O&G facilities are facing this issue but have not identified it as LOPC yet.

"I hope today's programme would assist all in gaining some pointers to prevent LOPC problems at their facilities," said IMM Bintulu chairman Raymond Phen in his opening remarks.

According to him, IMM was established in 1987 to create awareness of the importance of material science and technology in Malaysian industries.

"To achieve its objectives, IMM has conducted numerous conferences, seminars, workshops, training programmes and technical certification courses in the areas of material testing, metals and non-metals, corrosion, weldings, coatings, polymers, composites, vibrations and failure analysis for industries in Malaysia.

"In recent years, IMM has set up collaborations with universities and polytechnics to provide guidance to the students and also open industry-linkages for the lectures," said Phen.

The conference brought in six invited speakers, headlined by Datuk Dr Mohd Abdul Karim Abdullah who is the chief executive officer of Serba Dinamik Group Bhd – the main sponsor of the conference.

The second speaker was Selangor in-situ head office general manager Chua Eng Sin who talked about online leak sealing; followed by Eric Schmitz from Team Furmanite who presented his paper on 'Joint Integrity Management'; Occupational Safety and Health Department director Datuk Johari Basri who is also group advisor to Serba Dinamik; Foo Hwa Chit of MLNG who is also IMM Bintulu deputy chairman; and Petronas head of health, safety and environment (HSE) upstream Yong Sai Chung.

The second session was a panel of discussion on prevention of LOPC, chaired by Yong.

The panellists were Shell MDS Sdn Bhd general manager for manufacturing Tom Wong, IMM-IEM Uset Task Force deputy chairman Lucas Takip, Petronas Sarawak Gas head Morris Mail and PSM/TIPS (Petronas) head Clista Sintian.

Raymond Phen

The topic for this conference is indeed a timely one – perhaps overdue, in that many O&G facilities are facing this issue but have not identified it as LOPC yet.

Raymond Phen, IMM Bintulu chairman

IMM SOUTHERN CHAPTER

Reported and edited by IMM Southern Chapter (Ts. Dr. Wan Fahmin Faiz Wan Ali & Assoc. Prof. Dr. Tuty Asma Abu Bakar).

IMM Southern Chapter comprises 2 southern states namely the states of Malacca and Johor, involving several leading institutions of higher education and IMM registered companies. The IMM Southern Chapter is chaired by **Assoc. Prof. Dr. Tuty Asma Abu Bakar** from Universiti Teknologi Malaysia (UTM) and facilitated by 12 working committee members. The chapter is created to support IMM regional related activities and to initiate research collaboration between academia and industries. The Chapter plays an important role in promoting research development and providing an industrial alternative solution or immediate response. The members of the committee are as follows: -

Chairperson: Assoc. Prof. Dr. Tuty Asma Abu Bakar (UTM)
Ass. Chairperson: Assoc. Prof. Ts. Dr. Muhamad Azizi Mat Yajid (UTM)
Secretary: Ts. Dr. Wan Fahmin Faiz Wan Ali (UTM)
Treasurer: Dr.Abdillah Sani Mohd Najib (UTM)
Running Committee:
1. Prof. Dr. Esah Hamzah (UTM)
2. Assoc. Prof. Ts. Dr. Hamimah Bt. Abdul Rahman (UTHM)
3. Assoc. Prof. Dr. Jariah Mohamad Juoi (UTEM)
4. Dr. Engku Mohd Nazim Engku Abu Bakar (UTM)
5. Dr. Mohd Zamri Mohd Yusop (UTM)
6. Dr. Nor Akmal Fadil (UTM)
7. Dr. Uday M Basheer Al Naib (UTM)
8. Dr. Habibah Ghazali (UTM)
9. Mr.Mohd Noor Fahmi Wichi (PETRONAS)

Up until today, IMM Southern Chapter has organized several notable events/activities.

Southern Chapter to Initiate Research Collaboration and Industrial Visit

Recently, IMM Southern Chapter and UTM School of Mechanical Engineering (SME), Faculty of Engineering visited **Kiswire Sdn. Bhd.**, a leading cable/steel wire manufacturer and supplier to establish potential joint-research collaboration. The company is located at Jalan Senyum, Wadi Hana, Johor Bahru, Malaysia. Cable or steel wire rope is composed of a large number of cold drawn wires wound together into strands which are themselves wound together to form the steel wire rope. For many years, the ropes have been used in environments more “aggressive” than ambient air *e.g.*, in river water or seawater when dredging or fishing, the requirements of the wire ropes have never been more demanding than those which have arisen through the expansion of the offshore oil and gas industry.

Together, 24 members from IMM Southern Chapter and SME-UTM have joined the discussion. The meeting was about sharing problems and deficiencies faced by Kiswire. Besides from the need for improvements by the introduction of some novel ideas, potential innovative and novel solutions to the problems were proposed during the visit. Among the topics discussed were waste -treatment life cycle analysis in the plating process as well as rubber adhesion performance monitoring.

As a result, the collaboration had successfully paved the way for a **RM 240,000** research grant that was awarded by the University under New Generation Materials with the Ultrahigh Performance for High Impact Industries. This is an on-going research which is headed by Assoc. Prof. Dr. Muhamad Azizi Mat Yajid (IMM Southern Chapter committee).

Figure 1 Research visit IMM Southern Chapter and UTM to Kiswire Sdn. Bhd.

Figure 2 Discussion between UTM delegates and Kiswire Sdn. Bhd.

Kiswire Sdn. Bhd. as a research partner in this grant had kindly contributed and facilitated the research by providing accessibility to equipment & testing and raw materials such as single wire or stranded wire to ensure the above-mentioned issues can be solved. The project now is in the final stage of its completion.

Besides this fruitful discussion, the IMM Southern Chapter, together with SME and Faculty of Science (FS) have initiated a kick-off discussion related to the Waste

Waste to Wealth (W2W) with **BASF (Malaysia) Sdn. Bhd.** (located at Pasir Gudang, Johor). The discussion was held as a response towards an initiative to find out a sustainable approach in converting scheduled wastes from the BASF factory to innovative un-scheduled wastes and valuable products to preserve our environment for our sustainable future.

Figure 3 Visit to BASF (Malaysia) Sdn. Bhd.

Looking beyond the current take-make-waste extractive industrial model, the initiative which is premised on the principle of circular economy aims to redefine growth, focusing on positive society-wide benefits. It entails gradually decoupling economic activity from the consumption of finite resources and designing waste out of the system. Underpinned by a transition to renewable energy sources, the circular model builds economic, natural, and social capital. The project aims to provide a short-term alternative solution for reducing moisture of scheduled waste, however, subjected to the preliminary investigation of the sludge. Several alternative solutions for scheduled waste conversion to non-scheduled waste or innovative valuable products (*e.g.,* intermediate alloy) were also reviewed. The project which is still under discussion might be worth **RM 121,000** once approved.

W2W WASTE TO WEALTH INITIATIVE

From IMM Southern Chapter to Community

IMM Southern Chapter in collaboration with UTM-IMM Student Chapter has organized a **3 km Charity Walk around Tasik Ilmu-Jalan Ladang, UTM** on 14th April 2019. The event was aimed at increasing public awareness in helping the less fortunate across all ages and ethnicities in Johor Bahru. Approximately 50 participants took part in the event which had successfully raised **RM 1,750** and was subsequently distributed through the respective co-organizer NGOs.

IMM Southern Chapter also has taken an initiative to bring the Mechanical - Material students to visit the industries. One of the recent visits was carried out at **Unisteel Technology (M) Sdn. Bhd.**, which is one of the world's leading manufacturers of precision engineered components. The organization offers a

Figure 4 Walk for Hope

comprehensive range of fastening systems, precision metal and plastic components that are manufactured to stringent quality standards. The company is located in Taman Perindustrian Nusa Cemerlang in Nusajaya, Johor and is the main supplier of hard disk components for Western Digital (WD), Seagate and Intel. The visit was conducted on 17th April 2019, attended by thirty (30) 3rd-year students of Bachelor of Engineering (Mechanical-Materials) together with a few IMM Southern Chapter members. The visit was aimed at exposing the students related to manufacturing processes. They were shown the operative conditions of the CNC machine for the components' mould. This includes everything from complex machined parts and high-volume production washers to fabrication of screws as well as a brief explanation on how the machine and components works.

Figure 5 Students visit to Unisteel Sdn. Bhd.

IMM Southern Chapter has also organized a series of technical talks or sharing sessions from the expert of various industries. One of the notable talks was carried out by **Mr. Ashraf bin Arshad** from **ITS Technical Solution** with the presentation topic entitled "Overview in Nondestructive Testing (NDT) Inspectioneering". The speaker has more than 8 years experience related to corrosion monitoring and non-destructive testing besides being an expert in phase array ultrasonic testing (PAUT). The method is an advanced NDT method used to detect cracks in process equipment. Nevertheless, advanced inspection method using a drone in the delicate nature of oil and gas industries require closed and careful monitoring. Hence, the rate of failures and unplanned shutdowns can be reduced.

Figure 6 *Token appreciation deliverability by Director of Materials, Manufacturing & Industrial Engineering Department to ITS Speaker*

IMM Southern Chapter to Adapt the New Norm

Since the Covid-19 pandemic in Malaysia started to get the people's attention in March 2020, it has become the biggest turning point in our daily activities. The outbreak has affected a lot, especially those in the financial activities. However it has become an indicator for the Internet-of-things (IoT) readiness. Most of the events/activities now are being held virtually. IMM Southern Chapter has also taken similar steps by conducting several sharing sessions using an online platform (*i.e.*, Webex, Meet, Zoom *etc.*). The Chapter has invited **Mr. Jalil Rasheed**, **former Chief Executive of Permodalan Nasional Berhad (PNB)** with more than 10 years of experience in the field of investments and Islamic Banking to give a talk on corporate financial planning during the pandemic. The talk began with experience sharing as a graduate trainee at Aberdeen Asset Management for the Islamic fund management team. The speaker mentioned that to gain more knowledge on the subject matter, one should not only rely on classroom learning but also on seeking knowledge from other resources. Current issues were also being discussed, specifically the effects of Covid-19 on the global market and Malaysia's Budget 2021. All in all, the talk has managed to increase the understanding of its audience on investments and their many repercussions either personally or a corporate level.

Figure 7 Sharing session by Mr. Jalil Rashid of former PNB CEO

IMM Southern Chapter: Future Planning and Direction

IMM Southern Chapter has planned to organize a few webinars in the near future as follows:

Webinar: Insights into state-of-the-art mechanical surface characterization
Speakers: Representatives from Anton Paar Malaysia Sdn. Bhd.
Date: 25th May 2021
Platform: Facebook/YouTube platform

Researching surface modification to develop high-performing materials is one of the main objectives in surface characterization today. Similar to the quality control of manufacturers, it calls for accurate analysis of a range of parameters, including mechanical, chemical, and tribological surface properties: surface roughness, hardness, stiffness or elasticity, resistance, potential/charge, structure, and many more.

Webinar: Asset Integrity & Corrosion Control
Speakers: Ir. Max Ong / Dato' Sri Jai Suboh
Date: Early May 2021
Platform: Facebook/YouTube platform

This sharing aims to introduce the audience on related area of asset integrity and corrosion control especially for an aging offshore oil field infrastructure. The platforms, pipelines and onshore facilities were aged and needed some extensive refurbishment and a new inspection and integrity regime put in place.

IMM Southern Chapter cordially invites all interested parties/bodies in the southern region to scan the QR code here to be part in IMM Southern Chapter activities.

Scan the QR Code here

TECHNICAL PAPER 1 Geopolymer Coating Technology

Reported by Dr. Farah Farhana Zainal, CeGeoGTech - UniMAP (IMM Northern Chapter, Treasurer) and Ts. Noorina Hidayu Jamil CeGeoGTech - UniMAP (IMM Northern Chapter, Committee)

Edited by Ts. Wan Mohd Arif W. Ibrahim, UniMAP (IMM Northern Chapter, Chairperson)

Geopolymers belong to a group of materials with increased interest due to low CO_2 emission and energy consumption. Hence, environmental preservation has become a driving force behind the search for new sustainable and environmentally friendly materials. Geopolymers are obtained by a geosynthesis process involving natural or synthetic aluminosilicates in which the amorphous silicon and aluminum oxides react in strongly basic medium to form networks which are chemically and structurally similar to natural rock [1].

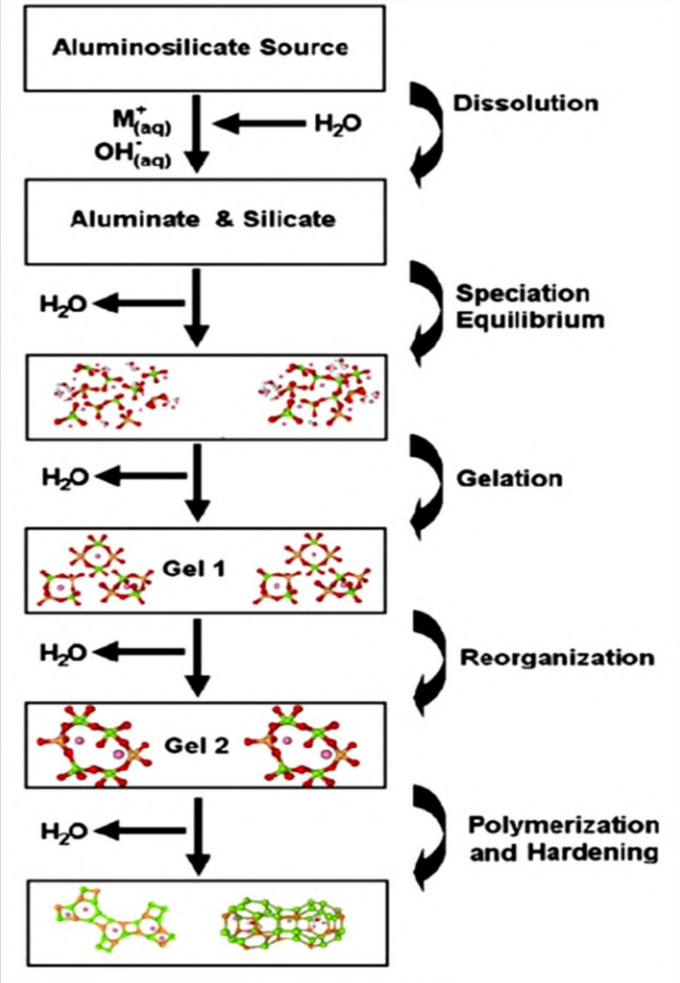


Figure 1 Conceptual model of geopolymerization [2].

The geopolymerization process has been described by the following stages, under high alkaline condition, dissolving of oxide minerals from the alumina-silica rich source materials, transportation/orientation of dissolved oxide minerals followed by gelation, and polycondensation to develop 3-D stable network of silicoaluminates structures.

The reaction mechanism of the fundamental processes occurring in the transformation of a solid aluminosilicate source into a synthetic alkali aluminosilicate is shown in *Figure 1.* In geopolymerization, aluminium and silicon dissolution is critical because it is the first stage that releases aluminate and silicate monomers by alkali attack on raw aluminosilicates restructure this sentence [3]. Dissolution of the solid aluminosilicate sourced by alkaline hydrolysis produces aluminate and silicate species. This phenomenon has a robust exothermic character [4]. Geopolymers have found application in virtually all fields of industry, which provides, among its properties, high mechanical strength, high chemical inertness and excellent fire resistance.

Concrete is a complex material of construction that enables the high compressive strength of natural stone to be used in any configuration. In tension, however, concrete can be no stronger than the bond between the cured cement and the surfaces of the aggregate. This is generally much lower than the compressive strength of the concrete. Concrete is therefore frequently reinforced, usually with steel. When a system of steel rebar or a steel mesh is incorporated in the concrete structure in such a way that the steel can support most of the tensile stresses and leave the immediately surrounding concrete comparatively free of tensile stress, then the complex is known as “reinforced concrete”. However, the steel rebar tends to have a corrosion problem. It is because steel rebar is made largely from steel or iron, which is an unstable material in nature when it is exposed to corrosive agents such as salt, carbonation, and even air.

Surface deterioration of exposed materials such as steel and concrete are a major problem in construction, especially in or near seawater environment because of the loss of cover and ensuing reinforcement corrosion that affect the structure [5]. Thus, geopolymer is used as an alternative way to solve this crucial corrosion problem. Geopolymer have a few advantages such as light weight, good tensile strength, durability and high corrosion resistance [6]. Geopolymer has excellent anti-corrosive and protective coating for tanks, pipelines and steel or concrete structures, including coatings that can even be used under constant spillage, immersion conditions or highly abrasive applications. Designed to protect steel and concrete that is submerged in saltwater such as offshore oil equipment and other marine applications, geopolymer can solve a variety of coating needs.

Corrosion in concrete especially in seawater environment mainly occurs due to the chloride ion and carbon dioxide. The diffusion characteristic of chloride and other corrosion-inducing substances depend on the porosity and pore of the concrete and these have influence on the initiation and the rate of corrosion. Penetration of chloride ion depends on a single parameter that is the coefficient of diffusion [7].

This situation could be shown as Figure 1 where the geopolymer coating can be applied at cracked concrete part as shown in *Figure 2* (a) and (b). *Figure 2* (a) shows the cracked concrete part which was located near

environment while *Figure 1* (b) shows the geopolymer coating was applied to repair the cracked concrete surface without having to do common rehabilitation concrete technique.

Figure 2 Application geopolymer coating on site; (a) Before coating, (b) After coating

Geopolymer coatings have received great interest for industrial applications especially among oil and gas companies. As we all know, Saudi Aramco has massive pipeline projects which are worth billion of dollars. Since pipelines are usually manufactured from high quality steels, highly efficient technology is required to provide protection to the pipeline's surface. For that reason, one agreement has been signed between Center of Excellence Geopolymer & Green Technology (CEGeoGTech), UniMAP and Saudi Aramco Oil Sdn. Bhd. as shown in *Figure 3*. The title of the project is "Development of High Pressure & High Temperature Material for Oil Piping System with KACST & Saudi Aramco Oil Sdn. Bhd.".

Currently, there are many studies involving geopolymer coating for corrosion protection and the studies are increasing rapidly. Some of the studies have recorded good performance of geopolymer as corrosion resistance material.

Figure 3 Technology transfer of geopolymer technology with Saudi Aramco Oil Sdn. Bhd., Saudi Arabian Oil Company [8]

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TECHNICAL PAPER 2

Coffee Talk with The President of Tin Solder Technology Research Group (TSTRG)
Topic: Exploration of Tin Solder Material from Malaysia Perspective

Reported by Dr. Khairul Anwar Abdul Halim, UniMAP (IMM Northern Chapter, Committee)

Edited by Ts. Wan Mohd Arif W. Ibrahim, UniMAP (IMM Northern Chapter, Chairperson)

Date: 18th March 2021
Venu : Kangar, Perlis
Panel: Assoc. Prof. Ir. Dr. Mohd Arif Anuar Mohd Salleh
President
Tin Solder Technology Research Group (TSTRG)
Tin Industry (Research and Development) Board
Ministry of Energy and Natural Resources

Ir. Dr. Mohd Arif Anuar Mohd Salleh received his PhD from the University of Queensland, Australia in the field of materials engineering focusing on light metal alloys specifically in the development of solder materials. He is currently the President of Tin Solder Technology Researchers Malaysia under the Tin Board (Research and Development), Malaysia. He is currently an Assoc. Prof. and holds the Deputy Dean (Academic) post at the Faculty of Chemical Engineering Technology – Universiti Malaysia Perlis and was previously the Deputy Director at the Research Management and Innovation Centre (RMIC). He has experience working and lecturing in the electronic packaging materials field. Before joining Universiti Malaysia Perlis he was a Failure Analysis Engineer at Intel Malaysia. He worked as a part time research officer for a few research projects on solder materials development at the University of Queensland Australia (2013-2014) and Imperial College London (2015). The Academy of Science Malaysia (ASM) awarded him as one of the Top Research Scientist Malaysia (TRSM) recipient in 2020. He was a visiting professor at Universitiy of Ubudiyah Indonesia, honorary research fellow at Gheorge Asachi Technical University of Iasi, Romania and research advisor to Makassar State University, Indonesia.

Q : What is Tin Solder Technology Research Group (TSTRG)? What are the functions and who can be a member of the group?

Arif Anuar : Tin Solder Technology Research Group (TSTRG) is a group established in year 2019 to bridge the gap amongst academia and industries for the advancement of the tin solder industry in Malaysia. The primary aims of TSTRG are to promote sharing of knowledge and expertise, research facilities, organizing seminars, workshops or conferences that focus on networking and communications, as well as activities that contribute to the promotion and advancement of tin solder technology. The group was established under Tin Board Malaysia where the board serves to facilitate and coordinate activities for TSRTG. The establishment of TSTRG also serves as catalyst to revive the tin industry in Malaysia.

Q : What are solder materials? What kind of materials that are currently explored by the industries?

Arif Anuar : A solder material is a metallic material that is used to bond electrical connection in an electrical or electronic circuit. The main material that is used widely in the industries are made of tin and lead materials. In recent years, the advancement in the solder technology had opened the opportunities in the exploration of a lead-free solder in order to minimize the use of hazardous material that will have an impact on human and the environment.

Q : How can academia involve in the development of solder materials? Any support from the industry?

Arif Anuar : As we all know, in general, the academia world focuses on the fundamentals and science behind the area of interest whereas the industries seeks the potential application that creates business opportunity with minimum proven solution to minimize their risk. Therefore, a successful university-industry collaboration should support the mission of each individual entities that fosters long-term partnerships to achieve common goals. In Malaysia, there are industries that play active role such as for instance the collaboration of Nihon Superior (M) Sdn. Bhd. with Universiti Malaysia Perlis (UniMAP) where they have been working together for over a decade in the development and the advancement of lead-free solder.

Q : What is the impact of solder technology towards electronic packaging industries in Malaysia economy? Is it significant?

Arif Anuar : Yes, it is significant. This is due to the fact that Malaysia is also home for multinational semiconductor industries such as Intel, Inari, Silterra, TF-AMD and many more. Thus, the rapid advancement of technology in the area such as communications, medical devices, manufacturing industries directly had an impact on the progress in solder technology.

Q : How do you see the impact of solder materials especially "Tin" as a main material from the Malaysian perspective? Any local industry player involved?

Arif Anuar : The current market price for tin is estimated around USD 20,000.00 per tonne and Indonesia is said to be one of the largest producer of tin in the ASEAN countries. I believe in the Malaysian perspective, the revival of the tin mining industries which are taking advantage of the recent discoveries of new potential tin mining sites will greatly benefit our electronic and semiconductor industries. These will also attract foreign direct investments and create job opportunities that will significantly contribute to our country's economic growth. Currently, there are few key players in the tin-mining industries in Malaysia, among them is Rahman Hydraulic Sdn. Bhd. in Perak.

Q : How important is the knowledge of metallurgy/ materials in order to be involved in the development of solder materials – from the perspective of a Researcher?

Arif Anuar : In my opinion, the fundamental aspect that evolves within the field of solder technology offers vast areas for researchers to explore. This will in turn require researchers to masters the knowledge in materials/ metallurgy science and engineering such as in the area of structure-property and also mechanism-behavior of materials which will affect the performance and properties of the solder materials.

Q : As a chairman of TSTRG, what is your hope on the exploration of Tin towards the development of solder material?

Arif Anuar : As the President of TSTRG for the second term, it is my utmost hope to see the country's tin industries revive back to its glorious days. These without a doubt will accelerate the progress in the development of solder materials in Malaysia. TSTRG will actively engage to work with the academia and also industries as well as the government in order to bring the tin agenda and materialise the effort for the benefit of tin solders industries in Malaysia. Beside that, on behalf of TSTRG we are looking forward to collaborate with the Institute of Materials, Malaysia (IMM) in related to tin and its applications.

INSTITUTE OF MATERIALS, MALAYSIA

Updated on 30th December 2020

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 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 more than 15 materials committees and more than 4 regional chapters, and supported by a secretariat with full time staff.

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.

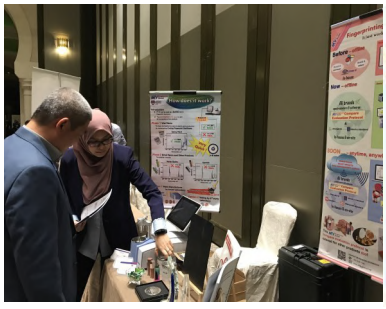
Over the years, IMM have conducted courses on coatings, coatings fingerprinting, corrosion, welding, vibration etc in support of the oil and gas industry in Malaysia. Over 750 Coatings Inspectors have been trained and certified as well as more than 3300 Blasters & Painters, Supervisors, Corrosion Technician and Vibration Practitioners. Its certification programmes are recognized by PETRONAS and all oil & gas operators. Since January 2011, more than 80 Associate Welding Engineers, more than 90 Welding Engineers, more than 30 Senior Welding Engineers and more than 45 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 open 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; +603-76611591 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 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 2020

REGULATIONS GOVERNING ADMISSION AND TRANSFER OF MEMBER GRADES

The Council shall establish a Membership Committee which will be responsible for these Regulations and for review of applications for new membership and transfer to other grades (upgrades). The Membership Committee shall recommend for Council approval for admission and transfer of membership. 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.

Every application for membership, individual or company, shall be proposed and seconded according to these regulations and shall be forwarded to the IMM Secretariat who on behalf of the Honorary Secretary will process for consideration and approval of the Membership Committee before tabling for Council's endorsement. The Council may at its discretion reject any application without assigning any reason thereof. The Council may use its discretion to exempt the need for proposer and seconder for Student, Ordinary and Company membership.

Each company on admission as a member shall be entitled to nominate one representative to exercise all rights of membership. Only representatives of Company membership, as well as 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 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 have membership to 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.

First IMM International Applied Vibration Conference (IAVIC) 2020

1-Day Symposium on Materials Processing, Inspection & Testing 2020

UiTM Materials Lecture Competition 2020

Exhibition at KLESF @ MIECC 2020

FREE Ordinary Membership for Affiliates:

The Institute of Materials, Malaysia will recognize members of various professional institutions and societies for membership at "Ordinary Grade" without any annual subscriptions. Such members shall submit to IMM proof of their current membership of the respective institutions together with their application.

Members of the following institutions and societies are eligible to apply for affiliate membership:

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 associations for membership at "Company Grade" without any annual subscriptions.

Companies registered with the following Trade Associations are recognized for Affiliate Company Memberships:

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)

The companies shall submit to IMM proof of their current membership at the respective trade associations together with their application.

NOTE: The above provisions for affiliate membership for individuals and companies was approved by the IMM Council in accordance with the powers vested in the Council as per Clause 6.1.3 of the IMM Constitution and was subsequently endorsed by members at its 21st Annual General Meeting held on 19th March 2011.

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

STUDENT EDITORIAL

DEVELOPMENT OF COCONU
BEEHIVE FOR

Introduction

Coconut is one of the biggest and most valuable commercial crops in Malaysia. The coconut production industry is still expected to expand as the demand for coconut products in both domestic and global markets are increasing gradually, with its annual growth rate (CAGR) forecasted to be 9.65% between the year 2020-2025 [1]. However, as the production of coconut ramps up, the quantity of coconut waste needed to be disposed also increases. This has caused an abundance of coconut waste that needs to be disposed of. In fact, it is estimated that around 1.2 million tonnes of agricultural waste (including coconut waste) are disposed of into landfills all around the country [2]. Therefore, it is important to add/create values for coconut waste by developing more products and methods which utilise coconut waste as a main constituent.

In order to utilize coconut waste, we have designed and produced a Coconut Fibre- Based Solitary Beehive *(Figure 1)* which will also bring benefits to the Malaysia's agricultural industry as a whole. The Solitary Beehive is designed to attract solitary bees for pollination purposes. Solitary bees, which make up over 90% of the entire bee population, are bees that live alone and do not live in hives. They typically nest in small holes that can be found on wood, plant stems, and even manmade structures such as brick walls or steel poles. This product artificially increases the population of solitary bees in a designated area, thus potentially increasing the pollination rate and subsequently the quality and value of agricultural produce.

Figure 1. *Coconut Fibre-Based Solitary Beehive*

Design

The Coconut Fibre-Based Solitary Beehive contains 2 different parts, a waterproof outer shell and a coconut fibre pulp inner bee quarters. The inner bee quarters were fabricated using coconut fibre paper pulp completely to recreate empty living spaces (holes) for the solitary bees. The usage of the coconut fibre paper pulp stems from two different reasons: 1) Solitary bees will be able to live in any object with varying materials as long as the hole meets the required diameter and length for its size. 2) The inspiration from some species of bees, wasps and hornets who make their nests out of paper pulp (by chewing dead wood and regurgitating to form the nests). The main benefit of using the coconut fibre pulp to make the inner bee quarters is that it has very low cost of production, since coconut waste is abundant. Additionally, the entire process will be suitable for mass production and the dimensions of the hole openings may be varied based on the size of bees a user intends to house.

Lastly, the coconut fibre paper pulp is breathable, which can assist in stopping the growth of molds and parasites in the bee nest. The composition 87CF8WP5S (87% Coconut Fibre, 8% Waste Paper, 5% Starch) was chosen to produce the coconut fibre-based artificial solitary beehive as it displayed the highest tensile strength (8.53 MPa) and the lowest water absorption (0.0037) as shown in *Figure 2* and *Figure 3*, respectively. This allows for a higher durability, lifespan and weather resistance for the coconut fibre-based artificial beehive.

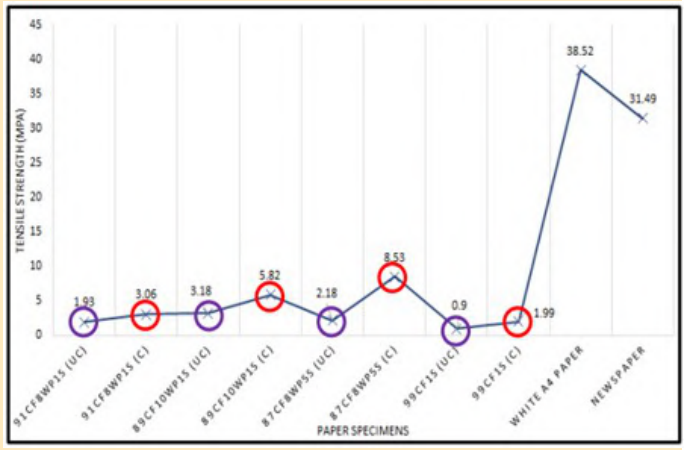


Figure 2 *Tensile strength of paper specimens of pulp compositions based on TAPPI T 494om-01 Tensile Properties of Paper and Paperboard.*

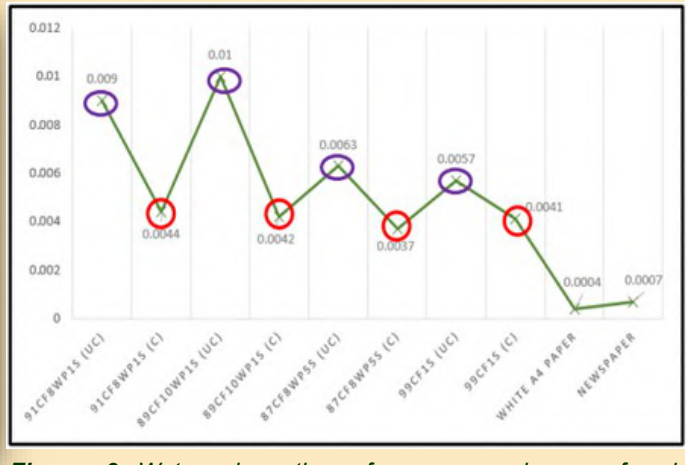


Figure 3 *Water absorption of paper specimens of pulp compositions*

Production Procedure

There are 9 main steps involved in the production of the Coconut Fibre-Based Solitary Beehive (*Figure 4*). First, discarded young coconut husks were collected from local coconut vendors. The exocarp, outer layer, endocarp, the inner layer and endosperm (the meat) were removed to only obtain the mesocarp which mostly consists of coirs. Next, the coconut husks were sent through a cleaning process to remove the dirt attaching to the coirs by using a metal brush for effective dirt cleaning. The clean coconut husks were then sent into an aging oven at a temperature of 100 ^{o}C for four to five hours to remove excess moisture. The dried coirs were then shredded into smaller bits of coirs using the shredding machine. In step 5, the shredded coirs were boiled in water at 100 ^{o}C for one hour with the addition of baking soda (sodium bicarbonate) to soften the coirs and remove the lignin found

UT FIBRE-BASED SOLITARY POLLINATION

The cooked coconut fibre was then blended together with a small amount of waste paper and starch to form a pulp. Lastly, the fiber pulp was inserted and compacted in a 3D honeycomb mould surrounded by the frames using the press which the equipment are shown in *Figure 5,* and dried in the oven at 35 °C until completely dry. Finally, the coconut fibre pulp inner bee quarters was formed.

Figure 4. *Production procedure of the Coconut Fibre-Based Solitary Beehive*

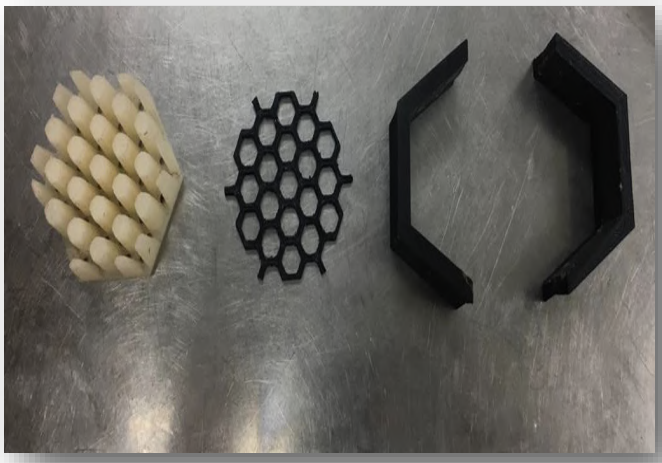


Figure 5 *Beehive honeycomb mould, press and frame produced using 3D printer (left to right)*

Conclusion

In conclusion, the coconut fibre-based artificial solitary beehive is anticipated to be implemented by the farmers in Malaysia in future to promote artificial pollination in the agricultural industry. This can greatly increase the number of crop production, and at the same time preserves the rapidly declining solitary bee population.

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Webinar: Molding Simulation

in collaboration with Moldex3D MOLDING INNOVATION

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Edited by Ts. Dr. Chew Khoon Hee, Tunku Abdul Rahman University College

Date: 3rd March 2021

Venue: Online Platform - Google Meet

Polymer Committee of the Institute of Materials, Malaysia (IMM) has been actively connecting people from the industry with academicians for knowledge and experience sharing. Meanwhile, the Faculty of Engineering and Technology (FOET), Tunku Abdul Rahman University College (TAR UC) has also been working hard in closing the gap between the academia and the industry. Numerous industrial talks and visits have been held for its engineering students to enhance their learning and understanding of various aspects of engineering.

Whilst students have been mostly learning online from home during the COVID-19 pandemic, IMM and FOET, TAR UC have never stopped bringing the industry experts to share their knowledge and experience with students. Together with IMM, FOET had organized a free webinar on molding simulation on March 3, 2021. The event was co-organized by the Materials Engineering Society (MESO), TAR UC.

The guest speaker, Mr. Steven from Moldex3D Taiwan, delivered his talk on moulding simulation via Google Meet. During the webinar, Mr. Steven had shared his knowledge on injection moulding manufacturing and the role of computer-aided engineering in the manufacturing process. The webinar was well received by the students and the public. A total of 94 participants had attended the webinar. A group photo of the webinar is shown in Figure 1. A Q&A session, which lasted for 45 minutes, was held with Mr. Steven and Mr. Edward (from Moldex3D) to answer all the questions from the participants (Figure 2). The webinar ended at noon after the Q&A session.

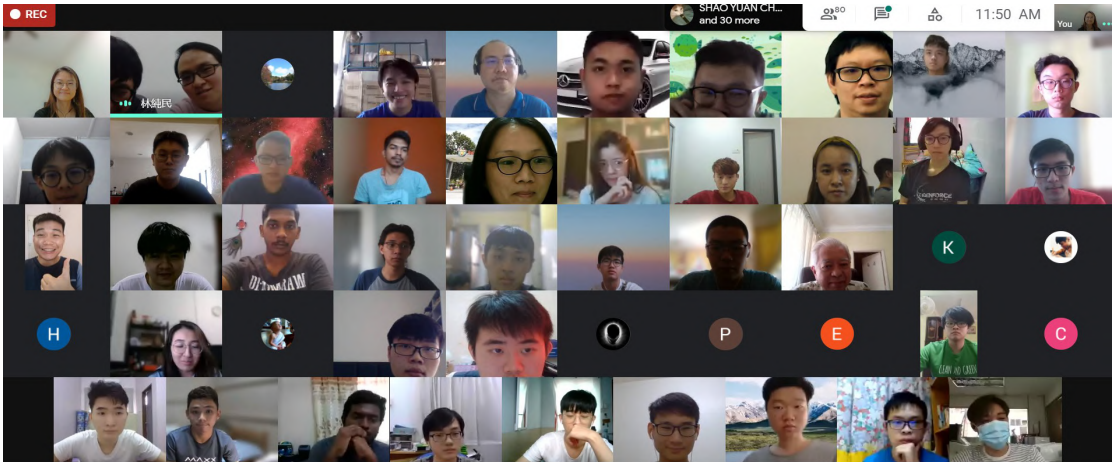

Figure 1: Group photo of the speaker and participants

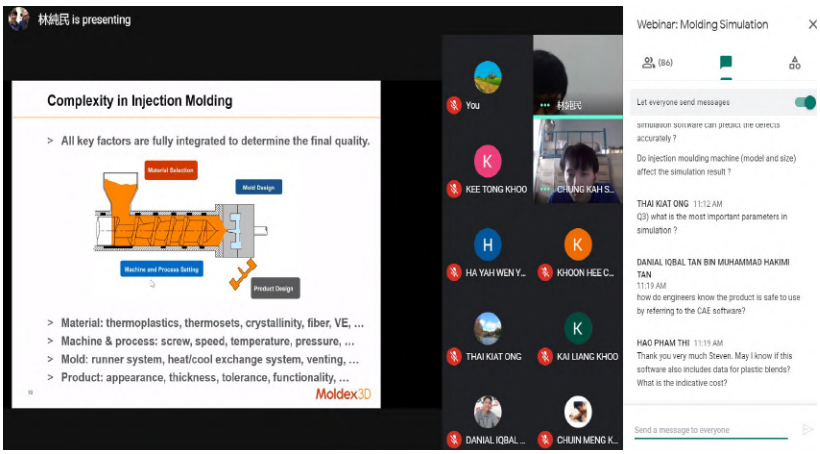

Figure 2: Participants posted their questions during the Q&A session

Figure 3: The event poster

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2nd Symposium on Railway Infrastructure & Engineering

Reported by: Prof. Dr. Andy Chit Tan, UTAR, Symposium Chairperson
Edited by: Asst. Prof. Dr. Ong Chuan Fang, UTAR

Date: 3rd February 2021
Venue: Online Zoom Platform
Virtual symposium hall: https://crie.research.utar.edu.my/Symposium.html

The symposium was jointly organized by Centre for Railway Infrastructure and Engineering (CRIE) of Universiti Tunku Abdul Rahman (UTAR), Malaysia Rail Industry Corporation (MARIC), and Institute of Materials, Malaysia (IMM). Due to the current COVID-19 pandemic, a virtual 1-day symposium has been organized from 8:30am until 4:30pm. The symposium is aimed at bringing together practitioners from railway industries, owners, operators, researchers and academia to share and promote research activities to support the new initiatives of expanding the rail network in Malaysia and promoting railway connectivity within the ASEAN region. It has provided a forum for exchange of ideas and opportunities to network with researchers, universities, practitioners and owners in the following areas:

1. Railways infrastructures
2. Safety and standards
3. Operation safety, reliability and maintainability
4. Social, environmental and economic issues
5. Education and training
6. Transportation and optimization of traffic control

The symposium received overwhelming response with a total of 756 local and foreign participants who attended the virtual symposium which was organized from the web -based symposium hall via Zoom platform. After the opening speeches delivered by the Symposium Chair, Prof. Andy Tan and UTAR President, Prof. Dr. Ir. Ewe Hong Tat, the symposium was officiated by the Minister of Transport, YB Datuk Seri Ir. Dr. Wee Ka Siong. The minister has underscored the government's commitment on railway network expansion throughout the country such as the first and second phase of MRT Sungai Buloh – Kajang Line, and the East Coast Rail Link (ECRL). Such initiatives would catalyse the momentum on the need for railway services, training, education, and research.

Figure 1. Virtual Symposium Hall

At this symposium, 2 keynotes speakers, 3 local speakers and 4 overseas speakers were invited. All the speakers are distinguished industry players or researchers in the railway area. The topics addressed by each speaker are shown as below in chronological order:

1. 1st Keynote topic: Capacity and capability building	YBhg Datuk Dr. Mohd Yusoff Sulaiman (President of MARIC)
2. 2nd Keynote topic: Digital transformation in railway industry and technology	YBhg Dato' Dr. Ir. Ts. Mohd Abdul Karim Abdullah (President/Group CEO of Serba Dinamik Group Berhad)
3. Topic: Education and training in railway: collaboration, co-exist and centre of excellence	En. Zaki Mohamad (Principal of Prasarana Center of Excellence (PACE))
4. Topic: Key technologies for smart operation and maintenance of urban rail transit	Prof. Lin Jianhui (Prof., State Key Laboratory of Traction Power; President of Southwest Jiaotong University Qingdao Rail Transit Research Institute)
5. Topic: Maintenance of railway assets in the era of industry 4.0	Prof. Lee Kang-kuen (Prof. of Transportation Practice, The Hong Kong Polytechnic University)
6. Topic: Recent topics on the maintenance of degraded tracks in japan.	Dr. Yoshitsugu Momoya (Senior Chief Researcher, Head of Track Structures and Geotechnology Laboratory, Track Technology Division, Railway Technical Research Institute)
7. Topic: Rubber as an excellent engineering material for vibration and seismic control in civil engineering structures	Dr. Or Tan Teng (Director of Doshin Rubber Engineering Products (M) Sdn. Bhd.)
8. Topic: Design & operational parameters influencing environmental noise & vibration impact and its mitigation - review and examples	Prof. Mohd Salman Leong (Director of HiCoE, Institute of Noise and Vibration, Universiti Teknologi Malaysia)
9. Topic: Use cases and trends in high speed rail	Mr. Tom Kutscher (High Speed Expert, Vice President, Sales for Siemens' High-speed and Intercity Trains Siemens Mobility GmbH)

Figure 2. Officiating remarks by Minister of Transport, YB Datuk Seri Ir. Dr. Wee Ka Siong

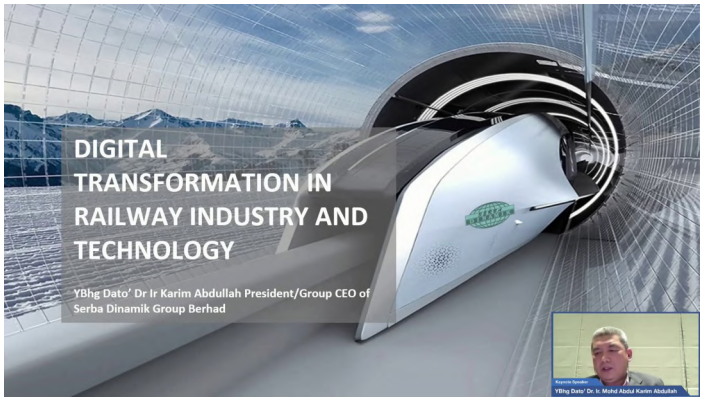

Figure 4. Keynote speech by YBhg Dato' Dr. Ir. Ts. Mohd Abdul Karim Abdullah

Figure 3. Keynote speech by YBhg. Datuk Dr. Mohd Yusoff Sulaiman

The symposium ended at 4:30pm. Prof. Ts. ChM. Dr. Melissa Chan Chin Han, the Honorary Secretary of Institute of Materials, Malaysia was invited to deliver the closing remarks. She recapped on the focus of topics shared by the honourable speakers at the symposium such as building human capital, operation and maintenance of railway, seismic control, noise, vibration, and high-speed train.

Last but not least, the organising committee wishes to express their appreciation to the gold and silver sponsors, Serba Dinamik Group Berhad, Doshin Rubber Engineering Products (M) Sdn. Bhd., and Colas Rail Asia Sdn. Bhd. Without their generous contribution, this event would not have been a success.

Figure 5. Speech delivered by the distinguished speakers in online Zoom platform.

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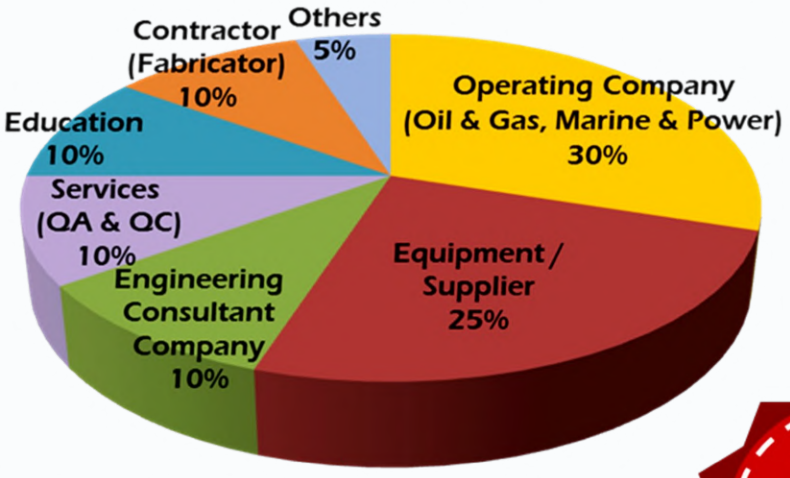

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