

## Report on IMM Taskforce on Coatings Fingerprinting (Phase 1: 2013-2014 & Phase 2 : 2014-2016) IMM



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*a turnkey industry-academia project that is custom-tailored for oil and gas industry*

### WHY FINGERPRINT COATINGS?

Why do we need to FINGERPRINT coatings when anti-corrosion paint failures have never caused structural collapse or direct loss of primary containment?

Should the industry allow non-conforming paints to be supplied just because the price of non-conformance is not a direct cause of leak or structural failure?

The **objectives** of this Taskforce shall include but not limited to the followings:-

1. To review the available standards and specifications requiring Fingerprinting of Polymeric Coatings in the Oil & Gas Industry.
2. To review and/or to propose quality control and quality assurance techniques practiced by the paint manufacturers during manufacture and during storage.
3. To review and/or to propose spectroscopic fingerprinting testing methods in regard to the reliability, speed of testing and costs.
4. To propose a Coating Fingerprint Certificate acceptable to all parties involved in the manufacture, application and usage of Polymeric Coatings in the oil & gas Industry.

#### Deliveries of IMM Taskforce on Coatings Fingerprinting (Phase 1: 2013-2014)

1. Tentative Coating Fingerprint Certificate for 2-component intermediate materials of epoxy coatings was presented.
2. Fourier-transform infrared (FTIR) is a simple and reliable tool for the study of reproducibility (*i.e.* to fingerprint) of the epoxies and hardeners as well as to differentiate different types of epoxies and hardeners without any intrusion of paint formulations.
3. Fingerprinting regions of FTIR for epoxy resin and hardener are proposed and the **confidence level of acceptance** for QA & QC control is proposed at  $\geq 0.900$ .

#### Deliveries of IMM Taskforce on Coating Fingerprinting (Phase 2: 2014-2016)

1. Paint manufacturers' mock implementation of Coating Fingerprint Certificate.
2. Inclusion of Coatings Fingerprinting requirement in

PETRONAS Technical Standards (PTS) 15.20.03.

3. Joint execution for the pilot study on Coating Fingerprint implementation and the development of guideline documents.

#### IMM Taskforce on Coatings Fingerprinting (Phase 3: 2016-2018)

##### Current situation.

Currently, only 2-component epoxy coating (intermediate materials) was used in the evaluation of the practicality of (1) physical analyses [e.g. viscosity, density, color code, non-volatile matter (by mass), mass of Zn metal/Total Zn etc] and (2) structural analyses (*i.e.* FTIR) for **Coating Fingerprint Certificate**. The physical and structural analyses shall not be limited to 2-component epoxy coating, but has to be extended to incorporate the following systems:-

1. inorganic zinc coatings for service up to 400 °C
2. organic zinc coatings for maintenance
3. polyester coatings for splash zone
4. silicone coatings for service up to 650 °C
5. *Etc.*

This taskforce shall comprise representatives from universities, the oil & gas operators, oil & gas fabricators, oil & gas inspection companies, oil & gas engineering consultants, instrument specialists, raw material suppliers, paint manufacturers, SIRIM *etc.*

In addition to the analyses, the task force committee will also be evaluating suitable test houses as Certified Testing Bodies (CTB) to ensure that adequate support will be made available upon full implementation.





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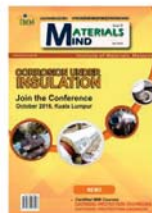
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## EDITORIAL

### Message from Managing Editor of Materials Mind (term: 2016 – 2018)

A new team of Materials Mind committee has been working on Materials Mind, the IMM quarterly magazine, starting 18<sup>th</sup> March 2016 (after 26<sup>th</sup> Annual General Meeting of the IMM). It is my honor to work with the committee members from industry and academia with vast experience in publication.

Materials Mind, with readership of over 8,000 in print and online, is an ideal platform for various committees to promote and report the events and activities of the institute. Readers will have first-hand information on IMM's involvement in the supporting events as well. Technical reports are also published periodically on industry-related topics for the benefits of the readers. For those with higher aspirations to fulfill, there is a wide range of IMM courses designed to meet industrial standards.

Finally, special thanks to all advertisers for this issue of Materials Mind. We are looking forward to working closely with our new and regular sponsors/advertisers in IMM's events and publications. Once again, online articles of Materials Mind can be accessed at [www.iommm.org.my](http://www.iommm.org.my)

Enjoy the magazine...

Dr. Tay Chia Chay  
Managing Editor

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