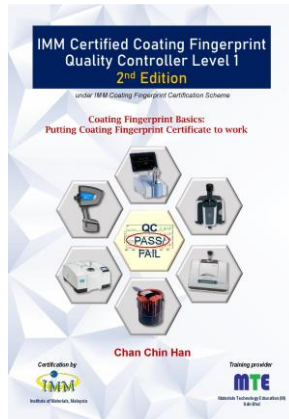




IMM Certified Coating Fingerprint Quality Controller Level 1



The oil & gas and petrochemical industries have implemented the requirements for **Coating Fingerprint Certificate** (equivalent to the Mill Certificate for metals) for all the protective coatings and paints supplied to the industry operators. As such, paint manufacturers will be required to engage an IMM Certified Coating Fingerprint Quality Controller (FPQC) to conduct FTIR analysis and associated physical tests [*i.e.* the quality control tests (QC)] on paints to produce a **Coating Fingerprint Certificate** that ensures the batch-to-batch consistency of the paints supplied. An FPQC will be engaged by the (sub-)contractors / auditors / owners to review the **Coating Fingerprint Certificate** submitted to the job site. An FPQC can be employed to carry out on-site authentication FTIR analysis on paints using mobile or handheld equipment for quality assurance (QA) purpose or in a 3rd-party laboratory to perform QA FTIR analysis.

Reference standards (reference used shall refer to the latest published document):

- (1) **IMM FP01**, *Coating fingerprinting overall procedures for paints using FTIR and other related methods*
- (2) **IMM FP02**, *Paint raw material fingerprinting overall procedures using FTIR and other related methods*
- (3) **IMM FP03**, *Dried coating fingerprinting overall procedures using FTIR and other related methods*

Who should apply

This certification scheme is for those who will be involved in conducting quality control and quality assurance on coating/paint systems such as quality assurance managers and supervisors for coating contractors, representatives of coating suppliers, end-client project supervisors and QA / QC personnel, analysts at testing laboratories, coating inspectors, paint factory chemists and assistant chemists, paint QC technicians *etc.* It will also be of interest to estimators, steel fabricators and structural engineers involved in designing or maintaining steel structures.

Objective

The objective of this certification scheme is to assess and certify personnel on the knowledge and skills required in conducting quality control and quality assurance on coating / paint systems. As a result, the **Coating Fingerprint Certificate** issued by the persons certified as IMM Coating Fingerprint Quality Controller Level 1 will be recognized by both client and contractor.

Exam topics

- Why do we need to fingerprint paints?



- IMM Coating Fingerprint Certification Scheme and the execution of **Coating Fingerprint Certificate** by paint manufacturer / supplier, fabricator / contractor / sub-contractor, external auditor, end-user and 3rd-party testing laboratory
- Preparation, review and validation of the **Coating Fingerprint Certificate** and the compulsory & optional appendices
- Basic components of protective coatings (*e.g.* epoxy coatings, inorganic zinc coatings, organic-zinc coatings, polyurethane coatings, acrylic coatings, polyester coatings *etc.*)
- Related physical analyses associated with protective coatings (*e.g.* viscosity, density, color code, non-volatile matter, weight solids for organic/inorganic-zinc coatings *etc.*)
- ISO and ASTM standards on attenuated total reflectance-Fourier transform infrared (ATR-FTIR) testing and the fingerprinting regions for different types of protective coatings
- IMM FTIR analysis standards for protective coatings
- Users' technical specification on FTIR fingerprinting on coatings
- Sampling standards of materials for in-house and on-site
- In-house and on-site FTIR testing for protective coatings
- Basic introduction to FTIR hardware: desktop, mobile and handheld
- Basic application of a FTIR software: desktop, mobile and handheld
- Generation of Reference FTIR spectrum before the qualification for new maintenance painting system and products for offshore application
- Estimation of degree of similarity for in-house / on-site sample FTIR spectrum with Reference FTIR spectrum
- Rejection and acceptance of samples based on threshold set using different *compare* algorithms
- Dos and don'ts in FTIR analysis: desktop, mobile and handheld
- Running samples using ATR accessories for desktop & mobile; and running samples using handheld device
- Interpretation of FTIR test results: in-house, 3rd-party laboratory and on-site
- Common quality control tools in a FTIR software
- Data analysis using a commercial FTIR software

Exam format

The exam / assessment paper consists of 100 - 120 multiple-choice questions

Exam duration

≤100 min

Candidate's criteria

Candidate shall possess the following criteria:

- (1) Has attended the IMM Coating Fingerprint Foundation Course (a 1-day classroom & laboratory course); **OR**
- (2) Has been certified as IMM Coating Inspector Level 2 or equivalent [*e.g.* Society for Protective Coatings (SSPC) Coating Inspector Level 2, NACE International Coating



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Inspector Level 2, the British Gas Approved Scheme (BGAS) Coating Inspector Level 2, the Norwegian Professional Council for Education and Certification of Inspectors for Surface Treatment (FROSIO) Coating Inspector Level 2, Institute of Corrosion (ICorr) Coating Inspector Level 2, Association for Certification and Qualification of Anticorrosive Paintwork (ACQPA) Coating Inspector Level 2 *etc.*]

Pre-requisite training

Candidate is required to attend the IMM Coating Fingerprint Quality Controller Level 1 training course as the training prepares and provides comprehensive guidance and practice to the candidate aligned to the topics covered in the examination.

Criteria for competency

Successful in the examination with a minimum pass mark of 70%

Certificate awarded

IMM Certified Coating Fingerprint Quality Controller Level 1

Candidate will also be authorized to use the Coating Fingerprint Quality Controller Rubber Stamp (**Figure 1**) in all documents and reports, including the **Coating Fingerprint Certificate**, in relation to coating fingerprinting to any person, company or authority in Malaysia.



Figure 1

Validity period of certificate

5 years

Information on re-certification

Prior to expiry of the 5-year certification, candidate can apply for re-certification for another 5 years by providing proof to IMM that he / she has been employed in the profession that involves coating fingerprinting.

Before the end of the 5-year re-certification period, the candidate must sit for the IMM Certified Coating Fingerprint Quality Controller Level 1 certification examination again. Prior to that, the candidate must attend the Refresher Course for Certified Coating Fingerprint Quality Controller.

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 re-certification period.

Training and examination program

Conventional classroom format



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Day 1

Time

9.00 am – 9.15 am
9.15 am – 10.30 am
10.30 am – 11.15 am
11.15 am – 12.30 pm
12.30 pm – 2.00 pm
2.00 pm – 3.15 pm
3.15 pm – 3.45 pm
3.45 pm – 5.00 pm

Activities

Opening speech and IMM Montage
Lecture 1
Tea break
Lecture 2
Lunch
Lecture 3
Tea break
Demo 1 and Hands-on 1

Day 2

Time

9.00 am – 10.15 am
10.15 am – 10.45 am
10.45 am – 12.45 am
12.45 am – 2.30 pm
2.30 pm – 4.30 pm
4.30 pm – 4.35 pm
4.35 pm – 5.00 pm
5.00 pm

Activities

Hands-on 2
Tea break
Hands-on 3
Lunch
Exam
Closing speech
Tea break
Adjourn

Virtual classroom format

Day 1

Time

9.00 am – 9.15 am
9.15 am – 9.45 am
9.45 am – 10.00 am
10.00 am – 10.30 am
10.30 am – 11.00 am
11.00 am – 11.30 am
11.30 am – 11.45 am
11.45 am – 12.15 pm
12.15 pm – 12.30 pm
12.30 pm – 1.00 pm
1.00 pm – 2.00 pm
2.00 pm – 2.30 pm
2.45 pm – 3.00 pm
3.00 pm – 3.30 pm
3.30 pm – 4.00 pm
4.00 pm – 6.00 pm

Activities

Opening speech and IMM Montage
Lecture 1 (part 1) and Q&A
Break
Lecture 1 (part 2) and Q&A
Self-learning and break
Lecture 2 (part 1) and Q&A
Break
Lecture 2 (part 2) and Q&A
Break
Lecture 3 (part 1) and Q&A
Lunch
Lecture 3 (part 2) and Q&A
Break
Demo 1 and **guided Hands-on 1**
Exercise for **Hands-on 1**
Homework

Day 2

Time

9.00 am – 9.30 am
9.30 am – 10.00 am
10.00 am – 10.30 am
10.30 am – 11.00 am
11.00 am – 11.30 am
11.30 am – 12.00 pm
12.00 pm – 12.30 pm

Activities

Guided Hands-on 2
Exercise for **Hands-on 2**
Self-learning and break
Guided Hands-on 3
Exercise for **Hands-on 3**
Self-learning and break
Discussion on **Hands-on 2** and **Hands-on 3**



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| | |
|--------------------|-------------------------|
| 12.30 pm – 2.00 pm | Self-learning and lunch |
| 2.00 pm – 2.30 pm | Revision |
| 2.30 pm – 3.30 pm | Self-revision |
| 3.30 pm – 5.10 pm | Examination |

Note: Max 4 hours **online classes** in addition of extra hours of self-learning and private interaction with the course instructor per day.

Synopsis of the book

This book serves as one of the course materials for the IMM Coating Fingerprint Certification Scheme: the first-of-its-kind courses on “**Coating Fingerprint Certificate**” in the world. This is the first source to consolidate the information on the practical guide on execution of **Coating Fingerprint Certificate** for protective coatings. It provides a one-stop reference for the QA / QC personnel of paint manufacturers, QA / QC coating inspectors, coating supervisors, clients’ site QA / QC representatives, 3rd-party QA / QC authorities’ representatives, 3rd-party laboratories’ chemists / technicians and management personnel who have experience in QA / QC procedures for polymeric coatings.