INSTITUTE OF MATERIALS, MALAYSIA

IMM Coating Certification Scheme

Certified Thermal Spray Coating Applicator

Code: TSCA *HRDF claimable*

The use of protective coatings for corrosion prevention has grown rapidly during the past decade and thermal spray coating (or "metallizing") represents the significant portion of the growth.

Thermal spray coating (TSC) has been used for steel structures for many years in various industrial applications for corrosion control, wear control, metal body repair, and hard surfacing. In the corrosion industry, TSC has proved performance of over 15 years in harsh corrosive environments. As for engineering application, TSC systems such as metallic coating and ceramic coating are widely used in reclaiming and protecting components in the power, oil & gas, marine and general industries. TSC systems include flame-spray, arc-spray, plasma spray, high-velocity oxygen fuel spray etc. To ensure high quality, efficient and cost-effective implementation of thermal spray coatings works, skilled applicators are quintessential.

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

- ISO 14918: Thermal Spraying - Qualification Testing of Thermal Sprayers
- NACE NO.12/AWS C2.23M/SSPC CS-23: Standard Practice - Specification for the Application of Thermal Spray Coatings (Metallizing) of Aluminum, Zinc, and their Alloys and Composites for the Corrosion Protection of Steel

Who should apply

This program is for those in the field of coating who desire to understand and learn the increasing use of thermal spray coating in the fight against corrosion. It is recommended for

- Certified IMM Protective Coating Technician who wish to upskill to become thermal sprayers.
- Those with any other recognised coating certification such as AMPP or equivalent.
- Experienced thermal sprayer who does not have proper skills certification.

Objectives

To assess the following knowledge and skills:

- Understanding the physical principles of thermal spraying
- Knowing the features and benefits of the different thermal spray processes
- Identifying applicable testing methods and currently accepted industrial practices used for quality control of coatings.
- Able to judge the influence of the operating parameters on the coating properties

Examination topics

- Fundamentals of thermal spray coatings
- Surface preparation
- Thermal spray coating application methods
- Common thermal spray coating defects and remedy
- Quality inspection checks and tools for thermal spray coating
- Health, safety and environment precautions

A 2-hour pre-assessment briefing will be conducted prior to the theory examination.

Examination format

The candidate will be assessed over two days on both practical and knowledge skills via a hands-on practical assessment and a written examination.

- Day 1 and Day 2: Practical assessment
- Day 2: Written examination – consisting of 40 multiple choice questions

For the practical assessment, each candidate will be orally and physically tested on knowledge of equipment and requirements of applying thermal spray coatings on the following topics:

- Personal protective equipment
- Thermal spray coatings specifications knowledge
- Environmental conditions check
- Steel surface conditions check
- Surrounding protection
- Air compressor set-up
- Spray equipment set-up
- Spray gun knowledge
- Thermal spray coatings application process
- Quality control test results

Examination duration

Day 1: Practical assessment
Day 2: Pre-assessment briefing, theory examination and conduct adhesion tests

Examination fee

As specified on the IMM website.

Candidate's criteria

Candidate should have

- Minimum academic qualification - SPM or equivalent* OR
- Knowledge and experience in application of thermal spray coatings with having performed at least one thermal spray coating job within the last one-year OR
- Certified IMM Protective Coating Technician Level 2 (Multi-skill) qualification or equivalent*; OR
- Knowledge and relevant working experience in 3G welding* OR
- Attended relevant academic Thermal Spray Coatings Course dedicated to the IMM Thermal Spray Coating Applicator Certification with at least 3 months of practical experience in painting technology.

*Candidate fulfills the minimum academic qualification or Certified IMM Protective Coating Technician Level 2 (Multi-skill) qualification or relevant working experience in 3G welding but without experience in application of thermal spray coatings is considered as candidate without experience.

Pre-requisite training

A candidate without experience is required to attend IMM approved/recognized Thermal Spray Coating Applicator training course with a minimum duration of 3 days (24 hours) which prepares and provides comprehensive guidance and practice aligned to the topics covered in the examination.

A candidate with experience is encouraged to attend an IMM approved/recognized Thermal Spray Coating Applicator training course for examination preparation and scheme alignment.

Note: Evidence of training completion (where applicable) shall be submitted to the IMM prior to examination approval.

Criteria for certification

Pass in both theory paper and practical assessment with a minimum 70% for each assessment.

Certificate awarded

IMM Certified Thermal Spray Coating Applicator

Validity period of certificate

5 years

Re-sit of examination

A candidate who had failed in one or more of the examination parts can apply to re-sit for the failed component(s) of the examination within a year from the date of the first examination. The candidate shall have to pay the full examination fee for the re-sit and without the need to attend any pre-requisite training course.

Information on re-certification

Candidates may submit a recertification application up to six (6) months before or within six (6) months after the certificate expiry date. Applications submitted within this period will be processed as usual and may require attendance at a refresher course, if applicable.

Applications submitted more than six (6) months after the certificate expiry date require the candidate to:

- Attend the refresher course, if applicable; and
- Retake the certification examination, regardless of work experience.

Candidates may apply to renew their certification for an additional five (5) years within six (6) months prior to the expiry of the certification period (after either the initial 5-year certification or the subsequent 5-year renewal) by:

- Providing proof to IMM of employment in a related field; and
- Attending the refresher course, if applicable.

Candidates who have been out of the profession for more than eighteen (18) months at any point during a 5-year certification or recertification period must retake the certification examination.