



INSTITUTE OF MATERIAL, MALAYSIA

IMM Welding Certification Scheme

Certified Thermit Welding Senior Practitioner (Level 2)

Code: TWSP

HRDF claimable

This specialised competency program on Thermit Welding Senior Practitioner Level 2 has been developed to fulfill the requirement of competency skills for track workers in performing and supervising the maintenance activities for achieving optimum operation.

Upon completion of this competency participants will be able to:

- Identify, advise and assemble welding components
- Identify and understand the thermit welding equipment and able to give instruction on the tools to carry out the process
- Understand, identify and can advise the operational flows in order to carry out the process in a safe and efficient manner
- Effectively and quality in preparation and also can give good advice or instruction on Thermit welding works to subordinated
- Enhance in technical maintenance skill and knowledge as a supervisor
- Perform the best practice of thermit welding
- Understand and able to perform the job scope of a supervisor
- Justify the quality of joining and the job that is related to thermit welding.

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

- TBA

Who should apply

Supervisors, professional practitioners or any personnel with related work experience and/or has been certified with IMM Certified Thermit Welding Practitioner Level 1 certification.

Objectives

Certified personnel should be able to:

- Professionally perform the thermit welding task as required by the industry.
- Monitor and supervise the works related to the thermit welding and has the criteria of a supervisor.

Examination topics

- Identify thermit welding components
 - » General usage
 - » Advice and assemble welding components
- Safety awareness
 - » Safety precautions
 - » Safe work practices (do n don't)
 - » Safety with gases
 - » Safety apparel and equipment
- Identifying and understanding the thermit welding equipment
 - » Tools used to carry out the process
 - » Instruction on the usage of the tools
- Rail cutting setting
 - » Dismantle old rail and insert new rail
 - » Rail fixing

- Rail end preparation and rail alignment
- Installation
 - » Install universal mounting
 - » Fixing the mould
 - » Luting the mould
 - » Install slag bowl
- Preheat
 - » Preheat rail end and mould
 - » Placing crucible
 - » Ignition
 - » Shearing
- Clearing
 - » Clearing the riser
 - » Grind smooth the welding
 - » Finishing

Examination format

The exam/assessment consists of the following format:

- Theory (Written): 13 multiple choice and 7 subjective questions.
- Practical (hands-on) assessment: Prepare rail to be welded by setting the weld gap, applying mould and pour thermit portion into the crucible, preheat end of the rails, ignite and pour steel, demolding and grinding process.

Examination duration

Theory examination – 2 hours and 30 minutes

Practical assessment – 2 days

Examination fee

As specified on the IMM website.

Candidate's criteria

Candidate should have

- Valid IMM Certified Thermit Welding Practitioner (Level 1) AND
- Minimum 5 years on-site working experience related to rail changing/joining AND
- Fit-for work for Track network site AND
- Able to read and understand in English

Pre-requisite training

A candidate without experience is required to attend IMM approved/recognized training course which prepares and provides comprehensive guidance and practice aligned to the topics covered in the examination.

A candidate with experience is encouraged to attend IMM approved/recognized training course.

Criteria for certification

Successful in all of the following:

- Passing criteria for Theory Examination Minimum: 70%
- Passing criteria for Practical Assessment Minimum: 80%

Certificate awarded

IMM Certified Thermit Welding Senior Practitioner (Level 2)

Validity period of certificate

3 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

6 months prior to the expiry of certification (at the end of the 3rd year of certification), the candidate can apply for re-certification for another 3 years by

- sitting for an examination (theory paper only)
- providing proof to IMM that he/she has been employed in handling the thermit welding job routine (testified by the project manager or human resource/training/learning manager of the candidate) for at least 15 times joining without fail in the last 3 years.;

Prior to the expiry of the 3-year re-certification (at the end of the 6th year of certification), the candidate can continue to be certified for a further 3-year period by

- sitting for the exam/assessment, as follows:
 - (a) Examination paper – check format Achieve minimum 70% mark
 - (b) Practical (hands-on) assessment – Passed as competent

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.