

PROTECTIVE COATINGS TECHNICIAN (BLASTING & PAINTINGS) COMPETENCY CERTIFICATION SCHEME

INTRODUCTION

This brochure serves as a guide on how to go about obtaining the Institute of Materials, Malaysia (IMM) protective coating technician assessment and certification. It is designed to satisfy the need of the Malaysian Oil & Gas Exploration & Production (EP) industry for formally assessed and certified blasters and painters as per requirement in the Standard Malaysia EP Oil & Gas industry blasting and painting specification no: PETRONAS Technician Standard PTS 30.48.00.31P Protective Coatings and Lining.

The PTS Blaster and Painter Training/Assessment & Certification Scheme was established in response to the EP industry, which has identified a need to enhance the skills of blasters and painters in the industry. The scheme is aimed at improving the quality of workmanship thereby reducing overall costs. In the Malaysian EP industry, the total cost from rework, in service repair and total recoating is estimated at a staggering RM45m annually. The lesson learnt by all assets operators/ owner is premature failures not matching the system's lifespan capability are often encountered. Root cause analysis by manufacturers and industry research attributed up to 70% of it to surface preparation and application weakness.

The local industry mindset needs to change and recognize the importance of coating. By default, the term "painting", is often associated with cosmetic and not to protective function that it provides. Hence the often lower priority provided. Recognize that in most cases, the typically 0.325mm to 1.0mm resultant paint "skin" is the only barrier protecting against expensive environmental corrosion. Blasting and painting deserves to be recognized as a skilled task to effectively deliver this "high tech" protection.

Traditionally, blaster and painters acquire their trade through on the job trial and error experience. Unlike their more "glamorous" welder colleagues, there is very limited training or do they undergo any assessment/certification. Hence, quality of the final protection coating may not be as optimal as it could be; sometimes requiring costly recoating works at short cycle times.

The objective of this project is to help the industry design, setup and facilitate implementation of a training/assessment & certification scheme for blaster and painters. The target result is that the industry can look forward with better confidence to higher quality paintings and lower overall cost. This aspect in line with ISO9001 process control and also reduces micro inspection. A cross industry project team was charged with this task. A comprehensive yet fit-for purpose program was formulated and a suitable implementation vehicle sought.

Duration
5 days

SSTC Member
RM 3,816.00

Non SSTC Member
RM 3,922.00

SME
Training Grant
RM 1,176.60

*all rates are inclusive
of 6% GST

For more information or registration, contact:

Sabah Skills & Technology Centre

No. 8, Jalan 1C, KKIP Selatan, Industrial Zone 1 (IZ1), KKIP, 88460, Kota Kinabalu, Sabah

Tel: 088-496613/4 (Ms. Jennifer/ Shariffah) Fax: 088-499615,

Email: jennifer@sstc.org.my , shariffah@sstc.org.my

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THE SCHEME (HOW IT WORKS)

Graduates of the program will be issued with a Certificate and Identification Card and be graded as “IMM Certified Protective Coating Technician Level 1(Blaster)” or “IMM Certified Protective Coating Technician Level 1(Painter)” or “IMM Certified Protective Coating Technician Level 2 (Multi-skill)”.

The program consists of one day classroom theory lesson followed by another one day of assessment test. The assessment test comprises 2 parts. The first part is a multi-choice theory test. The second part is a practical test whereby the candidates are assessed on their skills in blasting and painting on a mild steel test panel. Candidates have a choice to sit for only the Blaster or Painter examination or both. The competency certification program will be coordinate by the IMM register and candidates and issue the certificates. The theory lesson and practical tests will be conducted by IMM certified trainers at SSTC.

Graduate Blaster who have acquired painting skills and wish to sit for Painter Assessment must submit a record prior to the examination showing proof of their experience over a 12month period. The same procedure applies to Graduate Painter who wishes to sit for the Blaster Assessment. All graduates must keep a record of their work and kept in the database of the manpower optimization System (PRIMOS) as their certification is valid for five years only. Proof of continuous working experience without a lapse of more than 18 months will entitle the Graduates to automatic recertification for another five years.

TYPICAL TEST PIECE (MILD STEEL) FOR PRACTICAL ASSESSMENT

Round pipe/I-Beam/ Angled Plates; preferably with welded sections/attachments
Abrasive blast to SA 2.5 and coat with 2 pack coating.

TRADE ASSESSMENT

After the completion of the theoretical section, the candidates will be assessed through two parts:-

Part 1:

A theory assessment consisting of:

True/False & Objective Questions

(For Blaster) =100%

True/False & Objective Questions

(for Painter) =100%

Part 2:

A practical assessment consisting of:

Blasting skills =100%

Painting skill =100%

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Adding the percentage values from part 1&2 and averaging them, the grading of candidates will as follow: -

70% - 100%	Certified Protective Coating Technician Level 1 (Blaster) for Part 1 (i) & Part 2 (ii) Level 1 (Painter) for Part 1 (iii) & Part 2 (iv) Level 2 (Multi-Skill) for Part 1 (i) + (iii) & Part 2 (ii) + (iv)
Below 70%	FAIL

ASSESSMENT RECORD

Graduate Blaster who have acquired coating skills and wish to sit for Painter Assessment must submit a record prior to the examination showing proof of their experience over a 12 month period. The same procedure applies to Graduate Painter who wish to sit for the Blaster Assessment.

JOB DEVELOPMENT RECORD BOOK

All graduates will be registered (subject to the current fee paid) and added to the manpower Optimization Scheme (PRIMOS) which will be used for re-certification purposes. Should a candidate's record shows that there has been a lapse of more than 18 months without working as a blaster or painter, the candidates will have to re-sit the one day assessment do recertification. Candidates who have continuous relevant experience will be automatically recertified after 5 years.

VALIDITY OF CERTIFICATION

5 YEARS; Graduates must register as an IMM member for the certification period of 5 years. Membership fees for the 5 years shall be accordance to their membership grade.

CANDIDATES ELIGIBILITY

Candidates should have 2 years if blasting and/or painting experience. Candidates with less than 2 years' experience must submit a testimonial from employer or client to demonstrate their eligibility. The decision to accept candidates will be by the IMM. All decisions by IMM is final.

LANGUAGE

The lectures and assessments will be conducted in English or Bahasa Malaysia. Where a candidate cannot read or write, the examiner shall conduct the assessment orally and record the results. Candidates must advise their preferred choice language at the time of registration.

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COURSE SYLLABUS

The course will cover all aspects of the work of the Blaster & Painter.

- **HOW TO READ PRODUCT TECHNICAL DATA**

The prime importance before coating is to know the nature of paint. All necessary information can be easily gathered from the product technical data. The following should be covered: generic type of product, volume solid, surface preparation required, recommended spray equipment, drying time, mixing ratio, type of thinner etc.

- **SURFACE PREPARATION**

Mechanisms which determine the bonding / adhesion of protective coating to substrate. Only methods (STANDARD) being specified in coating specification to be discussed in term of the equipment, abrasive and achievable surface quality. In addition, site protection and setting up of wind breaker are important. How to handle sharp edges and weld seam? How to clean or grease contaminant?

- **PAINT DRYING MECHANISM**

Candidate to be exposed to three major paint drying mechanism: OXIDATION, PHYSICAL and CHEMICAL REACTION. The common defects related to the nature of drying mechanism.

- **USE OF VOLUME SOLID**

Definition of volume solid. Candidates should be exposed to the calculation of wet film thickness required for a particular Dry Film Thickness and the theoretical and practical coverage per liter of paint.

- **WHAT IS MIXING RATIO**

Definition of mixing ratio. The importance of correct measured ratio in small mixing.

- **FUNCTION OF THINNER**

Definition of Thinner. The function of thinner.

- **WHAT AFFECT DRYING TIME**

Factors affecting the drying time in term of product nature, substrate and external environment.

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- **POT LIFE AND SHELF LIFE**

Definition and what is the difference between the two. How it affect the coating process and coating performance. Proper storage conditions and handling of paint stocks.

- **APPLICATION METHODS**

Technique used to prepare and mix paint for application to the substrate. Methods of paint application and equipment set up.

- **HOW TO GET CORRECT WET FILM THICKNESS??**

How to get even WFT by various application methods? Stripe coating.

- **WASTAGE? HOW TO MINIMIZE**

This issue is to look into from five angles:

- Substrate dimension
- Mixing of paint
- Application methods
- Equipment used
- External condition

- **COMMON SITE DEFECTS AND REMEDY**

The following common site defects to be discussed: sagging, dry spray, low thickness, orange peel, wavy, not dry, pinpoint rust, delamination, mud cracking etc.

- **QUALITY CHECK AND INSPECTION TOOLS**

The condition check before blasting and painting which include Relative Humidity, Steel Temperature, Dew point, substrate surface quality etc. QC check on point work including visual appearance and Dry Film Thickness.

- **SAFETY PRECAUTION**

Personal protection equipment (PPE) for surface preparation, during paint mixing, coating. Safety in confined space. Emergency procedure.

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RESIT OF EXAMINATION

A candidate who failed in one or all examination can apply to re-sit for the certification. The candidates must again attend the complete training and practical in order to be eligible to sit for the examination. The candidate must pay for the Registration Fee plus the appropriate examination fee. However, the candidates will have to wait until next available training schedule. SSTC will notify the candidate of the next available date and location (if different from original location).

RECERTIFICATION

All graduates of IMM Protective Coating Technician (Blaster & Painter) Certification Scheme shall maintain 5-year record of their work experience. The work experience may be recorded in a log-book prepared by the certificate holder or his employer, and verified by an IMM Coating Inspector or a Client Representative, or in the form of testimonial from the various project/client representatives.

Within six (6) month prior to expiry of the certification, the certificate holder shall submit an application to IMM for re-certification for another five (5) years. Upon lapse of 6 months from expiry date, the certificate holder must re-sit for Blaster & Painter Scheme to qualify for re-certification.

The certificate holder must submit the work experience record plus payment of the re-certification fee and IMM membership fee. The re-certification fee shall be RM50.00 for another 5 years. The IMM membership fees for another 5 years shall be in accordance to the membership grade of the certificate holder. Upon receipt of the full payment of RM50.00 plus the 5-years IMM membership fee, the work experience record will be reviewed by the IMM Coating Committee and IMM Examination, Certification, & Accreditation Panel (ECAP) for approval. Once approved, the certificate holder will be issued a new certificate and I.D card.

RESOURCE PERSON

Lim Wai Bin earned his Bachelor of Science in Chemistry in 1976 and is a fellow member with the Institute of Materials Malaysia. He has worked in many companies including MNCs such as Jotun (M) Sdn Bhd, Jotun Ocean Paint, China, Elementis Specialist Inc . to name a few. Over the years, Wai Bin has done a vast amount of projects which includes participating in Sarawak Shell Pioneer test program using Glassflake Polyester, single coat protection for maintenance of all steel structures of TUKAU-A off-shore platform and test program for Caltex Sumatra, Indonesia; using 2-coat surface tolerant epoxy/PU system in 1997. He has conducted training in Paint Seminar for China Shipping, Corrosion Protection and Intumescent Fire Rated Coatings for SSP Consulting Engineers and many more.

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