



CSWIP CERTIFICATION SCHEME FOR PERSONNEL

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Requirements for the Certification of Blasting & Painting Operator, Blasting & Painting Senior Operator, and Blasting & Painting Supervisor

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Issued under the authority of the Governing Board for Certification
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TWI Certification Ltd administers CSWIP
The use of the UKAS Accreditation Mark indicates accreditation in respect of those activities covered by Accreditation Certificate No 25

FOREWORD

The Certification Scheme for Personnel (CSWIP) is a comprehensive scheme that provides for the examination and certification of individuals seeking to demonstrate their knowledge and competence in their field of operation. The scope of CSWIP includes Welding Inspectors, Welding Supervisors, Welding Instructors, Welding Quality Control Coordinators, Cathodic Inspection Personnel, Plant Inspectors, Underwater Inspection personnel, NDT personnel, Plastics Welders, Plastic Welding Inspectors, Heat Treatment operatives, Blasting and Painting Operators/ Supervision and Protective Coating Inspection.

CSWIP is managed by the Certification Management Board, which acts as the Governing Board for Certification, in keeping with the requirements of the industries served by the scheme. The Certification Management Board, in turn, appoints specialist Management Committees to oversee specific parts of the scheme. All CSWIP Boards and Committees comprise member representatives of relevant industrial and other interests. UKAS accredits TWI Certification Ltd to BS EN ISO/IEC 17024 for certification of personnel.

TWI Certification Ltd understands the importance of impartiality in carrying out its certification activities, managing conflict of interest, and ensuring the objectivity of all its certification activities, in accordance with BS EN ISO/IEC 17024.

This document covers the Certification of Blasting and Painting Operators, Senior Operators and Blasting and Painting Supervisors.

ACCESS TO CERTIFICATION

Access to certification is not improperly restricted. The sole criteria for certification are given in the document (and any subsequent amendments), and no other criteria will be applied. Certification is not conditional on the candidate applying for additional services or membership from TWI Certification Ltd, its parent, or any other groups or associations.

1 GENERAL

1.1 Scope

This document prescribes procedures by which personnel may be examined, and, if successful, certificated as a: Blasting and Painting Operator, Blasting and Painting Senior Operator, Blasting and Painting Supervisor. This document does not purport to cover personnel who do not have the responsibilities listed in Clause 1.2.

The examination procedure is designed to test the candidate's knowledge of the methods and techniques relevant to the discipline in which they are being examined, and their understanding of the operations they perform. The examination procedure involves both theoretical and practical elements.

1.2 Responsibilities of personnel

Typical areas of work activity of personnel for whom CSWIP Blasting and Painting certifications are given below:

1.2.1 Blasting and Painting Operator

- a) Risk Assessments, Health, safety and environmental requirements – Implementation of guidance and obligations to protect self, others and the environment from the processes and materials or equipment being used.

- b) Equipment checks -
Carry out pre-checks on all equipment including compressors, air supplies, blast pots, hose connections, whiplash restraints, nozzles, air-breathing filters, dead man's handles, spray guns, spray pumps etc.
- c) Materials/Consumables
Carry out checks on abrasives for signs of contamination, expiry dates of paints etc.
- d) Personal Protective Equipment
Carrying out pre-use checks and routine care and maintenance of all PPE (blasting helmets, blasting overalls, dust and chemical respirators, eye/ear protection, safety boots, microporous coveralls) and ensuring correct use.
- e) Set-Up of Equipment
Ensuring correct set up of dry abrasive blasting and spray painting equipment.
- f) Techniques
 - Preparing surfaces to the required standard in accordance with the relevant specification prior to blasting.
 - Preparing surfaces to the required standard in accordance with the relevant specifications prior to the application of paints and related products.
 - Painting and coating surfaces with brushes or spray application in accordance with the manufacturers' recommendations and relevant specification requirements.
 - Considering potential impacts on the environment and other personnel when handling, using and disposing of materials associated with blasting and painting operations.

1.2.2 Blasting and Painting Senior Operator

Those given in a) to f) above, but not limited to, plus:

- g) Surface preparation – Assess surface conditions and select the preparation technique appropriate to the degree of corrosion and surface cleanliness to achieve the specified result.
- h) Coating sequence – Select appropriate coating stages (primer, mid and finish-coat), mixing constituents as required to achieve the specified result.
- i) Coating quality – Carry out inspection/ assessments of coating layers to identify faults and report them for consideration of remedial action.

1.2.3 Blasting and Painting Supervisor

Those given in a) to i) above, but not limited to, plus:

- j) Supervision of Blasting and Painting Operators in the preparation and application of painting/coating systems.
- k) Calculations for consumable requirements and estimation for project cost and time.
- l) Quality Assurance - Ensuring work is carried out in accordance with relevant procedures, specifications, standards, etc.
- m) Environmental conditions – to ensure that the conditions do not adversely affect the coating process or quality, frequent monitoring shall be required.

- n) Ensuring work activities and disposal of any materials are in accordance with the EPA Act or HSE legislation or any National legislation to protect Operators, Senior Operators and any other personnel within the work area, as well as the environment.
- o) Assigning responsibilities and tasks to the Blasting and painting Operators/ Senior Operators, evaluating work progress and time to completion.
- p) Checking the quality of the finished work, including selection and implementation of remedial or corrective actions, if required.

1.3 Requirements prior to taking a certification test

Job responsibilities and experience criteria for examination eligibility as given below are strictly adhered to and enforced.

1.3.1 Blasting and Painting Operator

Although there is no specific experience required, it is recommended that candidates possess a minimum of six months of industrial experience and have an understanding of basic safety requirements involved in blasting and painting operations.

1.3.2 Blasting and Painting Senior Operator

Certified Blasting and Painting Operator for a minimum of six months with the job responsibilities listed in clause 1.2.1, 1.2.2 above.

Or

A minimum of one-year industrial experience as a blasting and painting operator, the duties and responsibilities shall relate to clause 1.2.1, 1.2.2 listed above, under qualified supervision and independently verified.

Or

Candidates who hold a recognised Blasting and Painting certification [e.g. SSPC-CAS-level 1, IMM-PCT-T-level 1, OPITO-Blaster/ Painter-level 1, NACE-NII-CCA or equivalent] with at least three (3) months, recent continuous industrial experience with the responsibilities as indicated in clause 1.2.1, 1.2.2 under qualified supervision and independently verified.

1.3.3 Blasting and Painting Supervisor

Certified Blasting and Painting Senior Operator for a minimum of six months with the job responsibilities listed in 1.2.1, 1.2.2, 1.2.3 above.

or

A minimum of one-year industrial experience as a Blasting and Painting supervisor, the duties and responsibilities shall relate to clause 1.2.1, 1.2.2, 1.2.3 listed above, under qualified supervision and independently verified.

1.4 Training

All candidates must attend a CSWIP approved training course prior to examination.

1.5 Health/Vision Requirements

Candidates need to be in a satisfactory physical condition, and the person completing the application form will be required to signify that the candidate's health is adequate to enable them

to carry out their duties. The candidate shall provide documented evidence of satisfactory vision in accordance with the following requirements:

- a) Unaided or corrected near visual acuity in at least one eye shall be such that the candidate is capable of reading a minimum of Jaeger number 1 or Times Roman N4.5 or equivalent letters (having a minimum height of 1.6mm) type at a distance of not less than 30cm with one or both eyes on a standard reading test chart.
- b) Colour vision shall be sufficient that the candidate can distinguish and differentiate the contrast between the colours used. All candidates will be required to have a colour perception assessed by the Ishihara 24 plate test, in the event of colour perception deficiency indicated by misreading any of the first 17 plates, the candidate must notify their employer and a further trade test shall be carried out by the employer to ascertain whether the detected colour perception deficiency affects the individual's ability to perform in the method for which they are to be certificated.

The evidence must be in the form of a certificate issued by a medically recognised person or a trained appointed representative of the medically recognised person within the previous 12 months, covering all the above points.

With all the above eligibility requirements, the onus is on the candidate to provide the necessary evidence prior to examination. An examination appointment will not be confirmed until the evidence has been received. Subsequent to certification, tests of visual acuity shall be carried out annually.

1.6 Mature Candidate Route

A mature candidate route offering exemption from formal training is available for the following: In order to proceed down this route, special approval shall be required and supporting documentation/ evidence or declaration, stating qualification or certification held as well as the number of years of industrial experience, independently verified.

1.6.1 Blasting and Painting Operator

Candidates who are able to demonstrate at least five years' recent continuous experience in Blasting and Painting operations with the duties indicated in Clause 1.2.1 under qualified supervision, independently verified.

1.6.2 Blasting and Painting Senior Operator

Candidates who are able to demonstrate at least seven years' recent continuous experience in Blasting and Painting Operations and/ or hold a recognised Blasting and Painting certification [e.g. SSPC-CAS-level 2, IMM-PCT-level 2, BGAS-ATC84-level 5A & 5B or equivalent], with the duties indicated in Clauses 1.2.1 and 1.2.2 under qualified supervision, independently verified.

1.6.3 Blasting and Painting Supervisor

Candidates who are able to demonstrate at least ten years' recent continuous experience in Blasting and Painting Supervision and/ or hold a recognised Blasting and Painting certification [e.g. BGAS-ATC-87-level 4], with the duties indicated in Clauses 1.2.1, 1.2.2 and 1.2.3, independently verified.

2 Examination Procedure

2.1 Blasting and Painting Operator

Paper 1: General theory for Blasting paper consisting of 10 multiple choice questions, the time allowed 20 minutes.

Paper 2: General theory for Painting paper consisting of 10 multiple choice questions, the time allowed 20 minutes.

Passmark: 70%

Practical a: Candidates will be required to demonstrate their ability to prepare surfaces using dry abrasive blasting to achieve a specified degree of cleanliness. The time allowed 1 hour.

Practical b: Candidates will be required to demonstrate their ability to apply paint films using specified methods and achieve specified wet film thicknesses. The time allowed 1 hour.

Passmark: 70%

2.2 Blasting and Painting Senior Operator

Paper 1: General theory for Blasting paper consisting of 20 multiple choice questions, the time allowed 40 minutes.

Paper 2: General theory for Painting paper consisting of 20 multiple choice questions, the time allowed 40 minutes.

Passmark 70%

Practical a: Candidates will be required to demonstrate their ability to prepare surfaces using dry abrasive blasting to achieve a specified degree of cleanliness. The time allowed 1 hour.

Practical b: Candidates will be required to demonstrate their ability to apply paint films using specified methods and achieve specified wet film thicknesses. The time allowed 1 hour.

Passmark: 70%

2.3 Blasting and Painting Supervisor

Paper 1: General theory for Blasting paper consisting of 25 multiple choice questions, the time allowed 50 minutes.

Paper 2: General theory for Painting paper consisting of 25 multiple choice questions, the time allowed 50 minutes.

Practical Paper: Candidates will be required to demonstrate their ability to use practical inspection equipment, consisting of 10 multiple-choice questions. The time allowed 30 minutes.

Passmark: 70%

2.4 Practical examination

2.4.1 Blasting & Painting Operator/ Senior Operator

The candidate will be assessed on safe set up, techniques, pressure setting as per specification, stand-off distances, mixing two pack paints, application of paint systems, dismantling of associated equipment, degree of cleanliness, wet film thickness range as per TDS and good housekeeping. The candidate will be assigned to one (1) exam sample, and various accessories will be attached providing circumferential, horizontal, internal, external and all positional blasting followed by paint application.

2.4.2 Blasting & Painting Supervisor

As well as answering multiple-choice questions above, the candidate will be expected to demonstrate the correct use of a range of inspection equipment as part of their examination.

2.4 Application for Examination and Fees

Candidates will be required to submit an application form. All the information requested must be on these forms. No applications can be considered confirmed until receipt of correctly completed documents. Application forms ask for specific details of experience and training and must be signed to the effect that these details are correct.

In the event of a false statement being discovered on forms, any examination undertaken will be declared null and void. A certificate is automatically invalidated if there are any outstanding examination fees in respect of that certificate.

Candidates proved to have cheated or found to have attempted to remove or found to have removed examination material in a CSWIP examination will not be accepted as a candidate for any CSWIP examination for a minimum period of five years from the date of the examination where cheating, attempt to remove or removal of examination material, was established to have taken place.

Examinations may be taken at any one of a number of test centres in the UK and overseas. Lists are available on request.

3 CATEGORIES OF CERTIFICATION

Candidates may apply for one of the following certification categories:

- Blasting and Painting Operator
- Blasting and Painting Senior Operator
- Blasting and Painting Supervisor

4 Certification

4.1 Result notices

All candidates will be sent a result notice. This notice will also be sent to the organisation paying the examination fee, if not paid by the candidate.

4.2 Successful candidates

Two copies of a certificate of proficiency will be issued to the candidate or sponsoring organisation. Duplicate certificates to replace those lost or destroyed will be issued only after extensive enquiries.

4.3 Unsuccessful candidates

Candidates who fail to obtain a certificate may attempt one retest on those parts of the examination in which success was not achieved. The retest must be completed within twelve months of the initial examination; Candidates that fail at the retest point shall be required to attend a minimum number of hours of refresher training, prior to undergoing the full initial examination. Candidates that have been approved through the mature candidate route (offering exemption from formal training) that fails at the retest point shall be required to attend the full course.

4.4 Period of validity

The certificate is valid for five years from the date of completion of the initial test and may be renewed for a further five years on application, provided evidence is produced in accordance with Clause 4.5.1. Certificates are only valid provided:

- a) they are within date.
- b) they are on standard cream CSWIP paper bearing the CSWIP logo in black on gold signed by an officer of CSWIP and embossed with the CSWIP stamp.
- c) they have been signed by the individual to whom the certificate is awarded.
- d) they are accompanied by a valid official CSWIP identity card.
- e) the holder is still employed by the sponsoring organisation.

Photocopies are unauthorised by CSWIP and should only be used for internal administrative purposes.

4.5 Renewal

4.5.1 Five-year renewal

In order for the certificate to be renewed after five years, the holder has to demonstrate that he/she has maintained his/her competence by supplying evidence of reasonably continuous work activity in the relevant method during the period of validity of the certificate¹, providing evidence of continuing professional development and a current satisfactory vision certificate (see Clause 1.4).

The certificate will not be renewed without further test if a substantiated complaint is notified by the Governing Board during the period of its validity. Additional instruction and retest may then be required.

Renewal must take place not later than 21 days after the date of expiry. It is the certificate holder's responsibility to ensure that renewal takes place at the appropriate time. Only under extreme circumstances will certificates be renewed up to a maximum of six calendar months from the date of expiry shown on the certificate and late renewal will be subject to a special fee.

4.5.2 Ten-year recertification

Certificates are renewed beyond ten years from the initial examination (or from a previous ten-year renewal) by the holder successfully completing a recertification examination prior to the expiry of the certificate in addition to the renewal procedure given in Clause 4.5.1. Requests for the appropriate documentation should be sent to TWI Certification Ltd.

The ten-year examination will consist of:

4.5.2.1 Blasting and Painting Operator

Paper 1: General theory for Blasting paper consisting of 5 multiple choice questions, the time allowed 10 minutes.

Paper 2: General theory for Painting paper consisting of 5 multiple choice questions, the time allowed 10 minutes.

Passmark 70%

Practical a: Candidates will be required to demonstrate their ability to prepare surfaces using dry abrasive blasting to achieve a specified degree of cleanliness. The time allowed 1 hour.

¹ As a guide, 'reasonable continuity' in any given five year period means that absences from work for which the certificate was granted should not exceed one year in one or several periods.

Practical b: Candidates will be required to demonstrate their ability to apply paint films using specified methods and achieve specified wet film thicknesses. The time allowed 1 hour.

Passmark 70%

4.5.2.2 Blasting and Painting Senior Operator

Paper 1: General theory for Blasting paper consisting of 10 multiple choice questions, the time allowed 20 minutes.

Paper 2: General theory for Painting paper consisting of 10 multiple choice questions, the time allowed 20 minutes.

Passmark 70%

Practical a: Candidates will be required to demonstrate their ability to prepare surfaces using dry abrasive blasting to achieve a specified degree of cleanliness. The time allowed 1 hour.

Practical b: Candidates will be required to demonstrate their ability to apply paint films using specified methods and achieve specified wet film thicknesses. The time allowed 1 hour.

Passmark 70%

4.5.2.3 Blasting and Painting Supervisor

Paper 1: General theory for Blasting paper consisting of 15 multiple choice questions, the time allowed 30 minutes.

Paper 2: General theory for Painting paper consisting of 15 multiple choice questions, the time allowed 30 minutes.

Practical Paper: Candidates will be required to demonstrate their ability to use practical inspection equipment, consisting of 5 multiple-choice questions. The time allowed 15 minutes.

Passmark 70%

4.6 Complaints and appeals

An aggrieved party in a dispute which considers itself to have reasonable grounds for questioning the competency of a CSWIP qualified person may petition the Governing Board for non-renewal of the certificate. Such a petition must be accompanied by all relevant facts, and if in the opinion of the Board an adequate case has been presented, a full investigation of the circumstances under dispute will be initiated. If the petition is substantiated to the satisfaction of the Board, the certificate will not be renewed without a further test.

Appeals against failure to certify or against non-renewal of the certificate may be made by the inspector or the employer upon application in writing to the Governing Board.

5 RECORDS

TWI Certification Ltd maintains records of successful and unsuccessful candidates. These records are accessible to the Governing Board or its nominees at all reasonable times.

6 ADDRESSES

For further general information contact:

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Granta Park
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Email: twicertification@twi.co.uk

Fax: +44 (0) 1223 894219
Website: www.cswip.com

For specific information on examinations and tests and arranging for them to be carried out, contact the approved Examining Body:

TWI Training and Examinations
Granta Park
Great Abington
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Phone: +44 (0) 1223 899000
Email: trainexam@twi.co.uk

Fax: +44 (0) 1223 891630
Website: www.twitraining.com

Appendix A – Examination Syllabus

A1. Blasting and Painting Operator

a) Risk Assessment

Evaluate any potential risks involved and complete a Job Hazard Analysis

b) Checks to Equipment

Conduct pre-checks on all equipment (compressor, air supplies, blast pot, hose connections, whiplash restraints, nozzles, air-breathing filters, dead man's handle, spray guns, spray pumps etc)

c) Check of Materials/Consumables

Check the abrasives for any signs of contamination, check the paints and the expiry dates.

d) Personal Protective Equipment (PPE)

Check whether PPE is adequate for the task to be performed (blasting helmets, blasting overalls, dust and chemical respirators, eye protection, ear protection, safety boots, microporous coveralls)

e) Set up Equipment

Set up all the dry abrasive blasting and spray painting equipment in a safe, controlled and correct manner (blasting/painting hose lines to be flushed out to remove any contamination)

f) Techniques

Employ safe and efficient techniques, ensuring that the surfaces are free from any defects

g) Specification Compliance

Achieve a specified degree of cleanliness and surface profile when dry abrasive blasting, spray paint within a specified Wet Film Thickness (WFT) range, cross-checked with a comb gauge. Use pressures stated on the technical datasheet, and induction period, ensure pot life is acceptable

h) Mixing and Ratio

Mix the paint and abrasives in the correct ratio, ensuring the mixture is thoroughly mixed

i) Cleaning and Flush Out

Hose lines, spray guns, pressure pots etc, cleaning and flushed using specified methods.

j) Dismantling Equipment

Dismantle the equipment in a safe and secure manner, and then store away

k) Conventional and Airless Spray

Different application methods of spray painting

A2 Blasting and Painting Senior Operator

Candidates will need to demonstrate knowledge of the Blasting and Painting Operator, plus:

l) Corrosion

Basic fundamental principles of corrosion

m) Surface Preparation

Different surface preparation methods in accordance to ISO 8501-1

n) Rust and Blast Grades

Different types of rust grades, blast grades, identifying their visual appearance and definition in accordance with ISO 8501-1

o) Abrasives

Use and identification of abrasives

p) Profile Measurements And Assessments

Basic methods of measuring and assessing a surface profile

q) Contaminations

Why contaminations must be detected and removed prior to painting

r) Paint Constituents

Basic fundamentals of paint constituents (solvents, pigments, binders etc)

s) Functions of Primer, Mid Coat and Finish Coat

Reasons and functions of primer, mid-coat and finish coat

t) Coating Faults

Identify coating faults and their cause

u) Pinhole Holiday Detection Test

The rationale for carrying out the test

A3 Blasting and Painting Supervisor

Candidates will need to demonstrate knowledge of the Blasting and Painting Operator and Senior Operator levels in greater detail, plus:

v) Calculations

Perform calculation including WFT, DFT, VS %, area.

w) Weather Conditions

Establish dew point, relative humidity and steel temperature

x) Pinhole Holiday Detection Test

Perform the test and understand the rationale for carrying it out

y) Mixing Ratio

Calculate the mixing ratio of two-pack paints.

z) Supervision of Blasting and Painting Operators and Senior Operators

Assigning tasks, evaluating work progress, monitoring activities, preparing progress and performance reports, recommending corrective action, ensuring health and safety requirements are adhered to.

aa) Checking

Checking the WFT during application and the DFT after application

bb) Client Specifications

Ensuring client specifications are adhered to.

cc) Mixing and Matching

Comprehensive knowledge of mixing and matching different paints and solvents.