Protective Coatings Specialist (PCS)

Exam Preparation Guide

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Introduction

The protective coatings specialist (PCS) certification exam is designed to identify individuals who have the knowledge, skills, and abilities (KSAs) to implement measures to design coating projects that protect the assets, environment, and public from adverse effects of corrosion, and coating failure over their projected service life. The exam consists of 105 multiple-choice questions. Table 1 provides a more detailed exam name, code, and exam time.

Table 1

Exam Name	Protective Coatings Specialist
Exam Code	PCS
Exam Time	3 hours
Number of Questions	105 questions
Format	Computer Based Testing (CBT)

A pass/fail grade is provided at the end of the exam. Exam time includes 4 minutes for the non-disclosure agreement and 6 minutes for the system tutorial.

Target Audience

The PCS certification is designed for the protective coatings specialist who will bridge the training and knowledge differences between contractors, engineers, owners, design specifiers, and other stakeholders by considering technical aspects of coatings, failure analysis, design, project management, specification review & modification, application, and inspection throughout the lifecycle of the coating project.

The certified individual will contribute to maximizing the coating performance and its functional and cost effectiveness through proper project oversight and management processes.

Certification Requirements

The requirements for the new AMPP Protective Coatings Specialist (PCS) certification are given below. Candidates can take one of the following two paths depending on their work experience and educational background.

Requirement Path 1

Course Requirements:	
	Successful completion of the AMPP C2 course (eCourse)
Application Requirements:	
	Seven (7) years of verifiable industrial coatings experience
	Bachelor's degree in science or engineering
	Two Professional References
Other Requirements:	
	Active Certified Coatings Inspector (CIP2) Certification or higher
	Ethics for the Corrosion Professional or an equivalent training
	Successful completion of the AMPP PCS Certification Exam

Requirement Path 2

Course Requirements:	
	Successful completion of the AMPP C2 course (eCourse)
Application Requirements:	
	Ten (10) years of verifiable industrial coatings experience
Other Requirements:	
	Active Certified Coatings Inspector (CIP2) Certification or higher
	Ethics for the Corrosion Professional or an equivalent training
	Successful completion of the AMPP PCS Certification Exam

Submit Certification Application:

Once candidates meet the Application Requirements described in either Eligibility Requirements Path 1 or Eligibility Requirements Path 2, they can apply for the AMPP PCS Certification by submitting an online application that is subject to approval.

The candidate will be awarded the AMPP PCS Certification upon successfully completing the AMPP PCS Certification Exam and meeting all the other requirements. Completion of C2 course does not entitle the candidate to the AMPP PCS Certification.

Recertification Requirements

- 3-year renewal period
- 1.5 years (18 months) work experience since last renewal
- 20 PDH hrs./year or 60 PDH's total since last renewal
- Ethics (if not completed previously)

Exam Blueprint

The PCS certification exam is designed to assess your knowledge, skills, and abilities in the following ten domains related to protective coatings projects. The domain weights are also provided in the parenthesis.

Domain 1: Coating Condition Assessment (16%)

Advanced understanding of how to assess a coating system's current condition, and sometimes future condition, as it matures throughout the service life. Understanding of what is considered defective, what coating systems can be repaired, and what procedures can be used to repair the systems. High-level technical writing ability used to prepare concise and logical findings and recommendations.

Domain 2: Cost and Life Cycle of Coating Projects (10%)

Advanced understanding of how coatings mature in different service environments, and how to project future maintenance and replacement coats. Knowledge of how corrosion rates are affected by the estimated coating life.

Domain 3: Project Management (6%)

Advanced understanding of how architectural and industrial coatings projects are procured, bid, selected, managed, and reported.

Domain 4: Coating Selection (8%)

An advanced understanding of how the coating selection process is conducted. What environmental and service factors can impact the

selection and how to choose proper protection for assets based on several situational criteria, which change on every project.

Domain 5: Corrosion (10%)

An expert level of understanding of electrochemical corrosion processes for various substrates and contributing factors to corrosion. Basic understanding of cathodic protection.

Domain 6: Surface Preparation/Application (13%)

Advanced understanding of surface preparation methods including waterjetting, and centrifugal blast cleaning. Knowledge of equipment used for various materials and substrates, including concrete. Methods of verification of surface cleanness and profile according to industry standards.

Domain 7: Health, Safety, and Environment (6%)

An in-depth recognition of specialized process-specific and material safety. Elevated awareness of situational personal safety on a job site according to applicable industry regulations.

Domain 8: Inspection (10%)

An expert understating of an inspector's role in the coating process and throughout the project life cycle. Demonstrated knowledge of inspection planning, coating surveys, and the management of coatings inspectors.

Domain 9: Specification (14%)

Advanced knowledge of the different aspects of a specification and how each part interacts with each other. High-level technical writing ability used to develop a clear, detailed, and executable specification for a coatings project.

Domain 10: Failure Analysis (7%)

Ability to combine a mastery of coating failure mechanisms and the scientific method to determine the root cause of a coating failure. Demonstrated knowledge of proper evidence collection and relevant laboratory techniques used to determine the root cause of a failure. High-level technical writing ability used to prepare concise and logical reports that defend the given opinions.

Types of Questions

Description of Questions

This closed-book exam consists of multiple-choice questions that may have multiple answers and require a selection of more than one answer choice. Items with more than one correct answer will include phrases such as *SELECT ALL THAT APPLY*. The questions are based on the knowledge and skills required for a Protective Coatings Specialist.

Sample Questions

The following two sample questions are included here to illustrate the formats and types of questions that will be on the exam. Your performance on the sample questions should not be viewed as a predictor of your performance on the actual exam.

1. A concrete clarifier is being refurbished, and all existing coatings are being removed and a new liner is installed. After surface preparation, which of the following should a contractor consider before coating concrete?

   SELECT ALL THAT APPLY

   A. Cleanliness of prepared surface
   B. Moisture content of concrete
   C. Structural integrity
   D. Chloride testing

2. Which of the following is the most widely used type of coating to protect steel in a high-pH environment?
   A. Urethanes
   B. Acrylics
   C. Epoxies
   D. Zinc-rich primer

Recommended Study Materials

The following is a partial list of study materials all candidates should study to be well-prepared for the certification exam.

Courses

- AMPP Fundamentals of Protective Coatings (C1) course manual (eCourse or Instructor Led)
- AMPP Planning and Specifying Industrial Coatings Projects (C2) course manual (eCourse)

Manuals

- AMPP CIP Level 1 and Level 2 course manuals

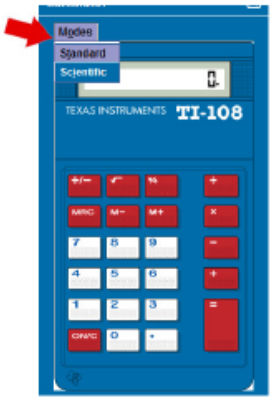
Standards

- AMPP. (2022). *SSPC-Guide 18-2022 Specifier's Guide for Determining Containment Class and Environmental Monitoring Strategies for Lead Paint Removal Projects.*
- AMPP. (2023). *SSPC-Guide 12-2023 Guide for Illumination of Industrial Coating Projects.*

Calculators

During the computer-based exam, students will have online access to both Tl-108 and Tl-30XS calculators. Tl-108 is a standard mode calculator and Tl-30XS is a scientific mode calculator, that can be switched back and forth by clicking on the Mode as indicated by the red arrow shown below.

Standard Calculator



Standard Mode Functions

Add	+	
Subtract	-	
Multiply	X	
Divide	÷	
Negative	(-)	
Percentage	%	
Square Root	√	Example: 4 √
Reciprocal (Inverse)	x	Example: 1 ÷ 2 =
Store value to variable	M+	Example: 3 * 5 = M+
Access variable	MRC	Example: 7 + MRC =
Clear variable	M- MRC	

Scientific Calculator

Scientific Mode Functions

Add	+	
Subtract	-	
Multiply	X	
Divide	÷	
Negative	(-)	
Percentage	2nd [%]	
Square Root	√	Example: 2nd √ 4 enter
Reciprocal (Inverse)	X^{-1}	Example: 2 X^{-1} enter
Store value to variable	sto▶ X^{yzt}	Example: 3 * 5 enter sto▶ X^{yzt} enter
Access variable	X^{yzt} or 2nd [recall]	Example: 7 + 2nd [recall] enter enter

Numeric Notation

Standard (Floating Decimal) Notation (digits to the left and right of decimal	mode menu options **NORM** SCI ENG e.g. 123456.78 FLOAT 0 1 2 3 **4** 5 … e.g. 123456.7800
Scientific Notation (1 digit to the left of decimal and appropriate power of 10)	mode menu options NORM **SCI** ENG e.g. 1.2345678*105
Engineering Notation (numer from 1 to 999 times 10 to an integer power that is a multiple of 3)	mode menu options NORM **SCI** ENG e.g. 123.45678*103

Fractions

Simple fractions	[n/d]
Mixed numbers	[2nd] [Un/d]
Conversion b/w simple fraction and mixed number	[2nd] [n/d ◀▶ Un/d]
Conversion b/w fraction and decimal	[2nd] [f ◀▶ d]

Powers, roots, and inverses

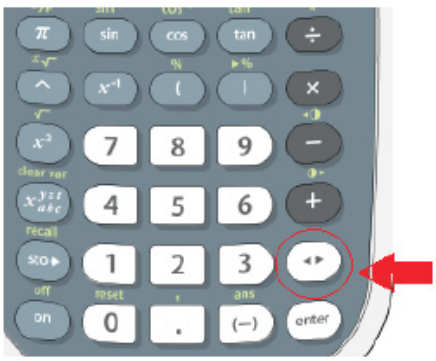
Square a value	[x^2]	
Cube a value	[^]	
Raise value to specified power	[^]	Example (2^4) 2 [^] 4
Square root	[2nd] [√]	Example (√16): [2nd] [√] 16
Reciprocal	[x^{-1}]	Example (n^{th} root): 5^{th} root of 8: 5 [2nd] [$\sqrt[x]{}$] 8

Pi

PI (π)	[π]

Toggle

The scientific calculator might show the results of certain calculations as a fraction – possibly involving pi or a square root. To convert this kind of result to a single number with a decimal point, you will need to use the “toggle answer” button circled in the picture below. Pressing this button will change the display from a fractional to a decimal format.



Answer Toggle

Press the ◀▶ key to toggle the display result between fraction and decimal answers, exact square root and decimal, and exact pi and decimal.

Example

Answer toggle	[2nd] [√‾] 8 enter	$\sqrt{8}$ $2\sqrt{2}$
	◀▶	$\sqrt{8}$ $2\sqrt{2}$ $2\sqrt{2}$ 2.828427125

Note: If you find this onscreen calculator difficult to use, raise your hand and ask the Test Administrator to provide you with a hand-held calculator. **If available**, you will be provided with a scientific or non-scientific calculator. Candidates are not permitted to bring their own calculator into the testing room.