

API 653 – ABOVEGROUND STORAGE TANK INSPECTOR CERTIFICATION PRACTICE TEST (SAMPLE)

STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

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Introduction

Preparing for a certification exam can feel overwhelming, but with the right tools, it becomes an opportunity to build confidence, sharpen your skills, and move one step closer to your goals. At Examzify, we believe that effective exam preparation isn't just about memorization, it's about understanding the material, identifying knowledge gaps, and building the test-taking strategies that lead to success.

This guide was designed to help you do exactly that.

Whether you're preparing for a licensing exam, professional certification, or entry-level qualification, this book offers structured practice to reinforce key concepts. You'll find a wide range of multiple-choice questions, each followed by clear explanations to help you understand not just the right answer, but why it's correct.

The content in this guide is based on real-world exam objectives and aligned with the types of questions and topics commonly found on official tests. It's ideal for learners who want to:

- Practice answering questions under realistic conditions,
- Improve accuracy and speed,
- Review explanations to strengthen weak areas, and
- Approach the exam with greater confidence.

We recommend using this book not as a stand-alone study tool, but alongside other resources like flashcards, textbooks, or hands-on training. For best results, we recommend working through each question, reflecting on the explanation provided, and revisiting the topics that challenge you most.

Remember: successful test preparation isn't about getting every question right the first time, it's about learning from your mistakes and improving over time. Stay focused, trust the process, and know that every page you turn brings you closer to success.

Let's begin.

How to Use This Guide

This guide is designed to help you study more effectively and approach your exam with confidence. Whether you're reviewing for the first time or doing a final refresh, here's how to get the most out of your Examzify study guide:

1. Start with a Diagnostic Review

Skim through the questions to get a sense of what you know and what you need to focus on. Your goal is to identify knowledge gaps early.

2. Study in Short, Focused Sessions

Break your study time into manageable blocks (e.g. 30 – 45 minutes). Review a handful of questions, reflect on the explanations.

3. Learn from the Explanations

After answering a question, always read the explanation, even if you got it right. It reinforces key points, corrects misunderstandings, and teaches subtle distinctions between similar answers.

4. Track Your Progress

Use bookmarks or notes (if reading digitally) to mark difficult questions. Revisit these regularly and track improvements over time.

5. Simulate the Real Exam

Once you're comfortable, try taking a full set of questions without pausing. Set a timer and simulate test-day conditions to build confidence and time management skills.

6. Repeat and Review

Don't just study once, repetition builds retention. Re-attempt questions after a few days and revisit explanations to reinforce learning. Pair this guide with other Examzify tools like flashcards, and digital practice tests to strengthen your preparation across formats.

There's no single right way to study, but consistent, thoughtful effort always wins. Use this guide flexibly, adapt the tips above to fit your pace and learning style. You've got this!

Questions

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- 1. What is the maximum size of fillet weld permitted between the lowest course shell plate and the bottom plate according to API 650?**
 - A. 3/8"
 - B. 1/2"
 - C. 5/16"
 - D. 1/4"
- 2. What is the primary purpose of a tank inspection under API 653?**
 - A. To evaluate the structural integrity of the tank
 - B. To assess the efficiency of the tank operation
 - C. To determine the environmental impact of the tank
 - D. To ensure compliance with insurance requirements
- 3. What shape of reinforcing plate is permitted to maintain weld spacing according to API 653?**
 - A. Oval
 - B. Diamond
 - C. Tombstone
 - D. Circular is the only permitted shape
- 4. What must be documented before the operation of a reconstructed tank?**
 - A. The temperature of the liquid inside
 - B. The corrosion allowance
 - C. The results of a foundation assessment
 - D. A nameplate with updated specifications
- 5. What is the minimum radius required on a shell insert patch?**
 - A. 1"
 - B. 2"
 - C. 4"
 - D. 6"

- 6. What is defined as "the property of a ferrous alloy that determines the depth and distribution of hardness induced by quenching"?**
- A. Hardness
 - B. Tempering
 - C. Upper transformation limit
 - D. Hardening or hardenability
- 7. What is the maximum surface temperature permitted for Magnetic Particle examination using dry particles?**
- A. As determined by the particles manufacturer
 - B. 600°F
 - C. 125°F
 - D. 135°F
- 8. Who becomes the owner of the radiographs after an aboveground storage tank is completed?**
- A. The insurance company
 - B. The manufacturer
 - C. The purchaser
 - D. The API
- 9. Controlled Deposition welding methods are limited to which materials?**
- A. P-1 materials
 - B. P-1 and P-3 materials only
 - C. P-1, P3, and P4 materials only
 - D. P-5A materials
- 10. Packaged galvanic anodes should be back-filled with which material?**
- A. Compacted special backfill material such as coke breeze
 - B. Compacted sand
 - C. Compacted limestone or clam shell backfill material
 - D. Compacted native soil

Answers

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1. B
2. A
3. D
4. D
5. D
6. D
7. A
8. C
9. C
10. D

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Explanations

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1. What is the maximum size of fillet weld permitted between the lowest course shell plate and the bottom plate according to API 650?

- A. 3/8"
- B. 1/2"**
- C. 5/16"
- D. 1/4"

According to API 650, the maximum size of the fillet weld permitted between the lowest course shell plate and the bottom plate is indeed 1/2 inch. This specification is important because it ensures that the structural integrity of the joint between the shell and the bottom plate is maintained. A properly sized fillet weld helps in providing adequate strength and resistance to the loads and stresses that the tank may experience during its operation. Additionally, adherence to these standards ensures compliance with industry regulations and promotes safety in the storage tank design. A 1/2-inch fillet weld strikes a balance between providing sufficient strength while allowing for practical considerations in welding and fabrication processes. This is crucial in minimizing defects and ensuring reliable performance of storage tanks in service.

2. What is the primary purpose of a tank inspection under API 653?

- A. To evaluate the structural integrity of the tank**
- B. To assess the efficiency of the tank operation
- C. To determine the environmental impact of the tank
- D. To ensure compliance with insurance requirements

The primary purpose of a tank inspection under API 653 is to evaluate the structural integrity of the tank. This standard establishes the requirements for inspection, repair, and alteration of aboveground storage tanks to ensure they are safe for use and can withstand operational stresses. A thorough assessment of the tank's physical condition helps identify any deterioration, such as corrosion, cracking, or deformation, which is essential to prevent leaks or catastrophic failures. By focusing on structural integrity, the inspection process aims to uphold safety standards, extend the lifespan of the tank, and maintain the integrity of the stored substances. This proactive approach to monitoring tank health ultimately safeguards against potential environmental hazards and economic losses.

3. What shape of reinforcing plate is permitted to maintain weld spacing according to API 653?

- A. Oval
- B. Diamond
- C. Tombstone
- D. Circular is the only permitted shape**

The correct answer regarding the permitted shape of reinforcing plate to maintain weld spacing according to API 653 is that only circular shapes are allowed. This specification is primarily due to the structural and stress distribution advantages that circular shapes provide in the design and support of aboveground storage tanks. A circular reinforcing plate ensures an even distribution of stresses around the weld areas, reducing the likelihood of stress concentration that can lead to cracking or failure. Additionally, the geometry of circular plates simplifies fabrication and installation, which can be critical in maintaining proper alignment and securing the integrity of the tank structure. In contrast, shapes like oval, diamond, or tombstone introduce angular areas or edges that may not distribute stress as effectively, potentially jeopardizing the integrity of the welds and the overall strength of the tank. Therefore, API 653 emphasizes the use of circular reinforcing plates as a standard to ensure safety and structural reliability in aboveground storage tank installations.

4. What must be documented before the operation of a reconstructed tank?

- A. The temperature of the liquid inside
- B. The corrosion allowance
- C. The results of a foundation assessment
- D. A nameplate with updated specifications**

Before the operation of a reconstructed tank, it is crucial to document a nameplate with updated specifications. This documentation serves as a formal record of the tank's design, materials, dimensions, and operational parameters after reconstruction, ensuring that all stakeholders are aware of the latest safety and performance standards associated with the tank. The nameplate typically includes information such as the tank's capacity, the materials of construction, and any specific operational limits, which are essential for safe and compliant operation. Having an updated nameplate is especially important as it allows for proper identification of the tank and ensures that it complies with regulatory requirements and industry standards. This helps to mitigate risks associated with the operation of the tank, providing necessary information for maintenance, inspections, and emergency response procedures. While factors like the temperature of the liquid inside, corrosion allowance, and foundation assessment are important considerations in the overall safety and operation of the tank, they do not fulfil the specific requirement of having an updated nameplate, which serves as the definitive guide to the tank's specifications post-reconstruction.

5. What is the minimum radius required on a shell insert patch?

- A. 1"
- B. 2"
- C. 4"
- D. 6"**

The minimum radius required on a shell insert patch is 6 inches. This requirement is based on industry standards that aim to ensure structural integrity and facilitate proper stress distribution around the repair area. When the radius is larger, it helps to reduce the concentration of stress and enhances the overall strength of the patch. A larger radius also aids in the effective blending of the patch into the surrounding tank shell, minimizing the risk of future leaks or failures in the repair area. In contrast, options with smaller radii do not provide the same level of structural support or stress distribution, which could lead to potential weaknesses in the repair. Insufficient radii could result in a higher likelihood of failure under operational loads, such as internal pressure changes or external forces affecting the tank. Therefore, adhering to the minimum radius requirement of 6 inches is crucial for effective repairs on aboveground storage tanks, ensuring long-term safety and reliability.

6. What is defined as "the property of a ferrous alloy that determines the depth and distribution of hardness induced by quenching"?

- A. Hardness
- B. Tempering
- C. Upper transformation limit
- D. Hardening or hardenability**

The correct answer is "hardening or hardenability." This term refers to the ability of a ferrous alloy, typically steel, to harden during heat treatment, specifically through quenching. Hardenability is a fundamental property that influences how deep and uniformly hardness can be developed in a material when it undergoes rapid cooling from high temperatures. This property is influenced by the composition of the alloy, including the types and amounts of various elements, as well as the initial microstructure of the steel before treatment. When a ferrous alloy is quenched, it transforms from a high-temperature phase into a harder phase called martensite. However, not all materials will achieve the same hardness to the same depth due to varying hardenability. High hardenability allows a material to achieve significant hardness deeper into its cross-section while lower hardenability results in hardness that is only superficial. In contrast, other terms relate to the broader context of heat treatment and materials science. Hardness is a measure of a material's resistance to deformation but does not convey information about the distribution of that hardness. Tempering is a subsequent heat treatment process used to decrease brittleness and adjust hardness levels after hardening, and the upper transformation limit refers to the highest temperature at which

7. What is the maximum surface temperature permitted for Magnetic Particle examination using dry particles?

- A. As determined by the particles manufacturer**
- B. 600°F
- C. 125°F
- D. 135°F

The maximum surface temperature permitted for Magnetic Particle examination using dry particles is determined by the manufacturer's specifications for the magnetic particles being used. Different types of magnetic particle materials may have varying thresholds for effective performance, and manufacturers provide guidelines to ensure optimal inspection quality and avoid any adverse effects that could result from elevated temperatures. Using the manufacturer's recommendations is crucial because exceeding the specified temperature could lead to a decrease in magnetic flux density, which would compromise the ability to detect flaws effectively. Each manufacturer may have conducted tests to define the maximum limits for their products, ensuring that inspectors can rely on consistent performance under various conditions. As such, understanding and adhering to manufacturer guidelines is a key aspect of maintaining the integrity and reliability of the magnetic particle testing process.

8. Who becomes the owner of the radiographs after an aboveground storage tank is completed?

- A. The insurance company
- B. The manufacturer
- C. The purchaser**
- D. The API

The correct answer indicates that the purchaser becomes the owner of the radiographs after the completion of the aboveground storage tank. In the context of API 653 and standard industry practices, radiographs, which are X-ray images used to assess the quality of welds and materials, are typically considered part of the documentation that confirms compliance with specified criteria and standards. Once the manufacturing process and inspections are complete, it is the purchaser who has the vested interest in ensuring that the tank has been constructed according to the required specifications and regulations. Owning the radiographs allows the purchaser to maintain records for future reference, inspections, or regulatory compliance. This documentation is important for the long-term integrity and safety of the storage tank, as it provides evidence of the engineering standards upheld during construction. The other options, while they may have roles in the process, do not typically retain ownership of the radiographs after completion. The insurance company may consider these documents for risk assessment but does not hold ownership. The manufacturer may have access to the radiographs for quality control purposes, but ownership transfers to the purchaser. The API is an organization that sets the standards but is not involved in ownership of documentation related to individual projects. Thus, the alignment of ownership with the purchaser reflects

9. Controlled Deposition welding methods are limited to which materials?

- A. P-1 materials
- B. P-1 and P-3 materials only
- C. P-1, P3, and P4 materials only**
- D. P-5A materials

Controlled Deposition welding methods are specifically designed for the repair and enhancement of materials that fall under certain categories based on their properties. In this case, the correct answer refers to P-1, P-3, and P-4 materials. P-1 materials typically include carbon steels, which are commonly used in construction and storage applications due to their strength and weldability. P-3 materials, which encompass low-alloy steels, are also suitable for controlled deposition welding due to their good mechanical properties and resistance to various forms of degradation. P-4 materials usually denote stainless steels that benefit from these welding methods, which help in maintaining corrosion resistance while providing necessary structural integrity. Controlled Deposition welding methods are particularly advantageous for these materials since they enable precise control over the weld heat input and allow for the deposition of materials that enhance the base material's properties. This is especially useful for repairing or modifying components in aboveground storage tanks where integrity and durability are crucial. The other material categories mentioned—P-5A and others—do not share these same welding compatibility traits under controlled deposition, highlighting the specialized nature of the welding processes and their application to specific materials to achieve desired performance characteristics.

10. Packaged galvanic anodes should be back-filled with which material?

- A. Compacted special backfill material such as coke breeze
- B. Compacted sand
- C. Compacted limestone or clam shell backfill material
- D. Compacted native soil**

The correct answer emphasizes the use of compacted native soil as the backfill material for packaged galvanic anodes. The primary purpose of back-filling is to ensure proper conductivity and support for the anodes, essential for their effective functioning in cathodic protection systems. Compacted native soil is typically preferable because it can provide a suitable environment for the anodes to perform effectively. It ensures good electrical contact with the anodes and the surrounding environment which is crucial for corrosion prevention. Native soil can also offer adequate drainage and allow for settling over time without significant loss of conductivity. While other materials may offer certain advantages in specific contexts — such as specialized backfills designed for enhanced electrical conductivity — the simplicity and effectiveness of using compacted native soil in most installations make it a favorable choice. This practice aligns well with standard protocols for cathodic protection systems and supports long-term reliability.

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Next Steps

Congratulations on reaching the final section of this guide. You've taken a meaningful step toward passing your certification exam and advancing your career.

As you continue preparing, remember that consistent practice, review, and self-reflection are key to success. Make time to revisit difficult topics, simulate exam conditions, and track your progress along the way.

If you need help, have suggestions, or want to share feedback, we'd love to hear from you. Reach out to our team at hello@examzify.com.

Or visit your dedicated course page for more study tools and resources:

<https://api653.examzify.com>

We wish you the very best on your exam journey. You've got this!

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