

API 936 - Refractory Personnel Certification Practice Exam (Sample)

Study Guide



Everything you need from our exam experts!

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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. Don't worry about getting everything right, 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, and take breaks to retain information better.

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.

7. Use Other Tools

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!

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Questions

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- 1. What must happen if there is a disagreement over the quality of installed refractory?**
 - A. Replacement of all installed materials is required**
 - B. Core samples may be taken and retested**
 - C. A financial compensation must be negotiated**
 - D. The installation must be completely redone**

- 2. After how many hours can mock-up panels be stripped for visual inspection?**
 - A. 6 hours**
 - B. 12 hours**
 - C. 18 hours**
 - D. 24 hours**

- 3. When is the workability index for plastic refractories to be measured?**
 - A. Immediately after mixing**
 - B. Seven days after manufacture**
 - C. At the time of installation**
 - D. Three days after installation**

- 4. How many test specimens are normally taken for testing?**
 - A. The average of one specimen**
 - B. The average of two or more specimens made from the same sample**
 - C. The total number of all available materials**
 - D. Five specimens to ensure accuracy**

- 5. Which of the following is a reference recommended within API 936?**
 - A. API Std 780 - Guidelines for Material Testing**
 - B. ACI 547R - Refractory Concrete: Stage-of-the-Art Report**
 - C. ISO 9001 - Quality Management Systems**
 - D. ASTM C95 - Standard Guide for Refractories**

- 6. When is "flashing" not permitted on a project?**
- A. After cooling has begun**
 - B. After initial set, if the surface has been exposed for more than 20 minutes**
 - C. After the initial application of the first coat**
 - D. After the temperature reaches a certain threshold**
- 7. What is the minimum curing time for hydraulic bonded castable refractories?**
- A. 12 hours**
 - B. 24 hours**
 - C. 36 hours**
 - D. 48 hours**
- 8. How is density measured in the context of casting installation?**
- A. In pounds per cubic foot**
 - B. In grams per cubic meter**
 - C. In kilograms per square meter**
 - D. In ounces per gallon**
- 9. When may the inspector's participation be waived or reduced?**
- A. When the project is behind schedule**
 - B. Where an independent laboratory is utilized**
 - C. When a cheaper contractor is hired**
 - D. If the contractor has a very experienced team**
- 10. What is a requirement for the acceptance of lining thickness tolerances?**
- A. Must be approved by the contractor**
 - B. Shall be agreed upon by the owner**
 - C. Should match the latest manufacturer recommendations**
 - D. Must be aligned with industry standards**

Answers

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

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Explanations

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1. What must happen if there is a disagreement over the quality of installed refractory?

- A. Replacement of all installed materials is required**
- B. Core samples may be taken and retested**
- C. A financial compensation must be negotiated**
- D. The installation must be completely redone**

In situations where there is a disagreement over the quality of installed refractory, taking core samples and retesting is a standard procedure used to objectively assess the quality of the material. This process involves extracting portions of the installed refractory for analysis, which allows for an evaluation of its properties and adherence to specifications. Gathering core samples provides a direct and practical means of determining whether the installed refractory meets the necessary standards and performance expectations. Retesting these samples can reveal any issues with the installation or material quality, and the results can serve as evidence in resolving the disagreement. This approach is both efficient and less disruptive compared to completely replacing materials or reinstalling the entire system. The other options involve more drastic measures or negotiations that may not directly investigate the original concern about quality, making core sampling and retesting a more focused and effective method in addressing disagreements over installed refractory quality.

2. After how many hours can mock-up panels be stripped for visual inspection?

- A. 6 hours**
- B. 12 hours**
- C. 18 hours**
- D. 24 hours**

The correct time frame for stripping mock-up panels for visual inspection is 12 hours. This duration is crucial because it ensures that the refractory material has had sufficient time to cure and develop the necessary properties for accurate evaluation. Stripping too early could lead to issues such as deformation or damage to the panel, which might compromise the assessment of the installation's quality and the effectiveness of the refractory lining. This timeframe falls within standard industry practices, allowing for a balance between timely inspections and adequate curing times. The purpose of these inspections is to verify that the installation meets specifications and design requirements before moving forward with larger applications, so adhering to the recommended wait time is essential for ensuring the integrity of the assessment process.

3. When is the workability index for plastic refractories to be measured?

- A. Immediately after mixing**
- B. Seven days after manufacture**
- C. At the time of installation**
- D. Three days after installation**

The workability index for plastic refractories is best measured immediately after mixing. This timing is crucial because the workability of the material is directly related to its fresh state and the immediate properties following the mixing phase. Measuring workability at this point allows for an accurate assessment of the consistency and ease of installation of the refractory material, which is critical for ensuring proper application and performance. While some options mention timeframes after the mixing process, such as seven days after manufacture or during installation, these are not appropriate for measuring the workability index. The properties of the refractories may change significantly when they have been left for an extended period or once they begin to set, which can adversely affect the workability assessment. Thus, measuring workability at the right moment—immediately after mixing—ensures that the material’s manipulative characteristics are accurately evaluated, providing essential information for its practical application.

4. How many test specimens are normally taken for testing?

- A. The average of one specimen**
- B. The average of two or more specimens made from the same sample**
- C. The total number of all available materials**
- D. Five specimens to ensure accuracy**

The correct answer is based on the standard practice for testing materials, particularly in the context of refractory materials. When conducting tests, samples are often aggregated into groups to ensure reliable results. This method minimizes the effect of variations that may exist within a single sample, thereby enhancing the accuracy and representativeness of the test results. By taking two or more specimens from the same sample, testers can average the results to obtain a more accurate representation of the material's properties. This approach helps account for inconsistencies that may arise in individual specimens, which could lead to misleading conclusions if only one specimen is tested. In many testing protocols, relying on averages from multiple specimens is a crucial aspect of quality control, particularly for materials that will be used in critical applications. It ensures that the data reflects a broader range of conditions, making the findings more robust. This practice is fundamental in ensuring the integrity and reliability of the test outcomes in refractory material evaluations.

5. Which of the following is a reference recommended within API 936?

A. API Std 780 - Guidelines for Material Testing

B. ACI 547R - Refractory Concrete: Stage-of-the-Art Report

C. ISO 9001 - Quality Management Systems

D. ASTM C95 - Standard Guide for Refractories

The reference recommended within API 936 is ACI 547R - Refractory Concrete: Stage-of-the-Art Report. This document is acknowledged for its comprehensive overview of the advancements and practices in refractory concrete, which makes it particularly relevant for professionals working with refractory materials. It covers key aspects, including composition, properties, testing methodologies, and applications in various industrial environments. In the context of API 936, which primarily focuses on the certification and guidelines for refractory personnel, having a reference that addresses the specifics of refractory concrete is crucial for understanding best practices and current trends in the industry. This directly supports the training and certification process by ensuring that personnel are informed of high-quality standards in refractory applications. Resources like API Std 780, ISO 9001, and ASTM C95, while valuable in their own right, do not specifically focus on the nuances of refractory materials and their application, which is why they are not recommended as references within API 936 for this particular context.

6. When is "flashing" not permitted on a project?

A. After cooling has begun

B. After initial set, if the surface has been exposed for more than 20 minutes

C. After the initial application of the first coat

D. After the temperature reaches a certain threshold

Flashing is a critical aspect in the realm of refractory installation, particularly when ensuring optimal bond and performance of the materials involved. The reason "flashing" is not permitted after initial set if the surface has been exposed for more than 20 minutes is fundamentally related to the integrity and performance of the refractory layer. Once the initial set occurs, the surface begins to develop a firm bond and any delay in applying subsequent layers can compromise this bond. If the surface has been exposed for more than the specified time, it can lead to a condition where the surface is no longer suitable for bonding effectively with new materials. This can result in gaps, poor adhesion, and ultimately, reduced performance of the refractory application. Understanding this helps in recognizing the critical timing required in refractory work to ensure all layers adhere properly and maintain functionality. Thus, respecting the guidelines surrounding the timing of flashing is vital for success in refractory projects.

7. What is the minimum curing time for hydraulic bonded castable refractories?

- A. 12 hours
- B. 24 hours**
- C. 36 hours
- D. 48 hours

The minimum curing time for hydraulic bonded castable refractories is indeed 24 hours. During this time, the chemical reactions that contribute to the bonding and strength development of the refractory material occur. Proper curing is crucial as it allows the hydration process to take place effectively, ensuring that the material achieves its designed properties and durability under high-temperature conditions. Hydraulic bonded castables rely on water to activate the bonding agents, which leads to the formation of strength as the material sets. If the curing time is insufficient, it can result in incomplete hydration and bonding, compromising the performance and integrity of the refractory lining. Allowing a full 24 hours acts as a safeguard against premature use, which could lead to defects or failures in the refractoriness once subjected to operational conditions. Understanding this aspect is vital for anyone working with refractories, as it underscores the importance of adhering to the specified curing times to ensure optimal performance of the material in high-temperature applications.

8. How is density measured in the context of casting installation?

- A. In pounds per cubic foot**
- B. In grams per cubic meter
- C. In kilograms per square meter
- D. In ounces per gallon

Density is a crucial property in the context of casting installation, as it directly impacts the performance and behavior of the refractory material. Measuring density in pounds per cubic foot is a standard approach in the United States, particularly in industries that often handle materials by weight and volume, such as refractory applications. This unit provides a clear and easily interpretable value for engineers and technicians to understand how much mass is contained in a specific volume of the material. Understanding density in this way helps with calculating material needs for installation, estimating the material's thermal properties, and assessing structural integrity. It also aligns with common practices in the construction and engineering sectors where materials are often quoted and specified in imperial units. Other measurement units provided, such as grams per cubic meter, kilograms per square meter, or ounces per gallon, while relevant in different contexts, do not align as closely with the industry standards for refractory installations in the U.S. and might complicate calculations for professionals accustomed to working with pound-per-cubic-foot measurements. Hence, using pounds per cubic foot not only adheres to industry norms but also facilitates effective communication among personnel involved in refractory applications.

9. When may the inspector's participation be waived or reduced?

- A. When the project is behind schedule**
- B. Where an independent laboratory is utilized**
- C. When a cheaper contractor is hired**
- D. If the contractor has a very experienced team**

The participation of the inspector may be waived or reduced when an independent laboratory is utilized because independent laboratories are typically recognized for their impartiality and expertise in testing and evaluation. Their use assures that materials and processes are being reviewed according to established standards without potential bias from the contractor or onsite personnel. This level of assurance can justify a decrease in the inspector's involvement, as the independent lab provides credibility and reliable results, allowing for a more streamlined oversight process. In other scenarios, such as when the project is behind schedule, reducing the inspector's participation may compromise quality assurance standards and safety protocols. Similarly, hiring a cheaper contractor does not inherently guarantee the quality of work and could necessitate even greater scrutiny from inspectors to ensure compliance with specifications and codes. The experience of the contractor's team could also be a relevant factor, but it does not alone ensure that all processes will meet regulatory requirements, making the independent laboratory option more compelling for justifying reduced inspector participation.

10. What is a requirement for the acceptance of lining thickness tolerances?

- A. Must be approved by the contractor**
- B. Shall be agreed upon by the owner**
- C. Should match the latest manufacturer recommendations**
- D. Must be aligned with industry standards**

For the acceptance of lining thickness tolerances, it is essential that these tolerances are agreed upon by the owner. This requirement emphasizes the importance of clear communication and mutual understanding between the owner and the contractor regarding the specifications of the refractory lining. By having the owner involved in the agreement process, it ensures that the final installation meets their expectations and operational requirements while adhering to the overall project specifications. The involvement of the owner in establishing these tolerances is crucial because they are ultimately responsible for the operational performance of the lining. Establishing agreed-upon tolerances helps prevent disputes during or after installation, ensuring that the refractory performs as intended in its specific operational context. Therefore, this agreement is foundational in ensuring quality and compliance with the project's goals.

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://api936.examzify.com>

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