

FDNY CoF - Torch Use of Flammable Gases in Laboratories (C-14) 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. 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. True or False: Transferring compressed gas from one commercial container to another is permitted in a laboratory setting.**
 - A. True**
 - B. False**
 - C. Only with supervision**
 - D. Only if the gas is inert**
- 2. Which oxidizing gas is NOT commonly associated with chemical reactions?**
 - A. Chlorine**
 - B. Fluorine**
 - C. Arynic**
 - D. Bromine**
- 3. What is the maximum volume of flammable liquid allowed in an open container?**
 - A. 0.05 pt**
 - B. 0.1 pt**
 - C. 1 pt**
 - D. 2 pt**
- 4. Which of the following best describes the intended use of an explosion proof laboratory refrigerator?**
 - A. To maintain the temperature of non-flammable substances**
 - B. To store potentially explosive chemicals safely**
 - C. To prevent any cooling failures**
 - D. To allow unregulated access to all users**
- 5. What is generally considered a physical hazard in the context of hazardous materials?**
 - A. A chemical that is toxic**
 - B. A material that can cause fires or explosions**
 - C. A substance that is harmful to the environment**
 - D. A chemical with low evaporation rates**

6. How should the bottom of a flammable/combustible liquid cabinet be designed?

- A. Perforated for airflow**
- B. Liquid tight to a height of at least 2 inches**
- C. Open to allow drainage**
- D. Removable for cleaning**

7. What system is required for hoods using perchloric acid to wash down the hood and exhaust system?

- A. An air circulation system**
- B. A water spray system**
- C. A chemical scrubber**
- D. A filtration unit**

8. What must be done if hazardous materials are used in a laboratory?

- A. Only use materials in small quantities**
- B. Always have appropriate signage displayed**
- C. Keep the laboratory doors open**
- D. Allow unrestricted access**

9. What characteristics define a flammable solid?

- A. A solid that can ignite due to electrical sparks or friction**
- B. A solid that burns vigorously and has an ignition temperature below 212F**
- C. A solid that can explode upon impact**
- D. A solid that can melt and cause fires**

10. What is the face velocity range for new lab hood requirements?

- A. 75-100 ft per min**
- B. 80-120 ft per min**
- C. 100-150 ft per min**
- D. 120-150 ft per min**

Answers

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

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Explanations

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1. True or False: Transferring compressed gas from one commercial container to another is permitted in a laboratory setting.

- A. True**
- B. False**
- C. Only with supervision**
- D. Only if the gas is inert**

Transferring compressed gas from one commercial container to another is prohibited in a laboratory setting due to the potential risks and hazards involved. This practice poses significant safety concerns, such as the risk of leaks, explosions, or the release of toxic gases. Commercial containers are specifically designed to hold gases under pressure safely and transferring gases between them can lead to improper handling and accidents. Additionally, commercial containers already meet stringent regulations concerning the storage and handling of flammable gases, ensuring that they are appropriately designed for their contents. By not allowing transfers, the protocol helps to maintain safety standards and prevent uncontrolled situations that could arise from incorrect handling. While supervision and specific circumstances may apply to other safety considerations in a laboratory, the direct transfer of gas from one container to another is generally not allowed, emphasizing the importance of using equipment as intended to mitigate risks associated with flammable materials.

2. Which oxidizing gas is NOT commonly associated with chemical reactions?

- A. Chlorine**
- B. Fluorine**
- C. Arynic**
- D. Bromine**

Arynic is not a commonly recognized oxidizing gas in chemical reactions. Chlorine, fluorine, and bromine are all halogens known for their strong oxidizing properties and are frequently involved in various chemical reactions. Chlorine is widely used in bleaching and disinfecting, fluorine is known for its reactivity and used in various applications, including the production of fluorinated compounds, and bromine is used in flame retardants and as an antiseptic. On the other hand, "arynic" does not refer to a recognized oxidizing agent or gas in the same context, making it the correct answer as it is less associated with oxidative reactions compared to the other choices.

3. What is the maximum volume of flammable liquid allowed in an open container?

- A. 0.05 pt
- B. 0.1 pt**
- C. 1 pt
- D. 2 pt

The correct answer is based on safety regulations concerning the handling of flammable liquids, particularly in laboratory settings. The guideline that limits the volume of flammable liquids in open containers is rooted in minimizing the risk of accidents such as spills or fires. In this context, allowing a maximum of 0.1 pint in an open container is a precautionary measure. It ensures that if the liquid were to ignite or spill, the volume is small enough to manage effectively and reduces the potential for a hazardous situation. In laboratory environments, strict adherence to these limits is crucial, as flammable liquids can easily form vapors that may ignite. Therefore, the regulations have established the maximum volume to effectively control the risks associated with flammable materials, making it critical for lab safety protocols. The other choices present larger volumes that do not align with the safety standards designed to limit hazards associated with flammable substances.

4. Which of the following best describes the intended use of an explosion proof laboratory refrigerator?

- A. To maintain the temperature of non-flammable substances
- B. To store potentially explosive chemicals safely**
- C. To prevent any cooling failures
- D. To allow unregulated access to all users

The intended use of an explosion-proof laboratory refrigerator is specifically designed to store potentially explosive chemicals safely. These refrigerators are constructed to contain any explosion that might occur within the unit, preventing the release of flammable vapors to the surrounding environment, which could lead to a larger explosion. This is particularly important when dealing with volatile substances that can produce flammable fumes, as standard refrigeration units may not have the necessary safety features to mitigate such risks. By ensuring that any explosive reaction remains contained, these specialized refrigerators provide a critical safety measure in laboratory settings where hazardous materials are handled. This highlights the importance of selecting appropriate storage equipment based on the specific hazards presented by the substances being used in the lab.

5. What is generally considered a physical hazard in the context of hazardous materials?

- A. A chemical that is toxic**
- B. A material that can cause fires or explosions**
- C. A substance that is harmful to the environment**
- D. A chemical with low evaporation rates**

In the context of hazardous materials, a physical hazard refers specifically to materials or situations that pose risks due to their inherent physical properties. The option relating to materials that can cause fires or explosions directly aligns with this concept. Flammable gases, for instance, are physically hazardous because they can ignite easily under certain conditions, leading to fires or explosions that can endanger personnel and property. This definition encompasses the potential danger that such materials present in laboratory settings, particularly where open flames or other sources of ignition might be present. Understanding this classification is critical for implementing appropriate safety measures when working with these materials. The other options address different aspects of hazards. For instance, a toxic chemical pertains to health hazards, as it can adversely affect living organisms upon exposure. A substance harmful to the environment relates to ecological hazards rather than immediate physical dangers. Lastly, a chemical with low evaporation rates may suggest stability and less immediate risk in terms of fire or explosion but does not inherently categorize it as a physical hazard.

6. How should the bottom of a flammable/combustible liquid cabinet be designed?

- A. Perforated for airflow**
- B. Liquid tight to a height of at least 2 inches**
- C. Open to allow drainage**
- D. Removable for cleaning**

The design of the bottom of a flammable/combustible liquid cabinet is crucial for safety and containment. It is important that the bottom be liquid tight to a height of at least 2 inches. This design feature serves as a secondary containment measure to prevent spills from escaping the cabinet in the event of an accident or leakage. By being liquid tight, it ensures that any spilled flammable liquids can be safely contained within the cabinet, reducing the risk of fire hazards and further environmental contamination. This containment helps to facilitate the safe handling and storage of flammable substances, providing an added layer of protection for both laboratory personnel and the surrounding environment. Other designs, such as perforated bottoms or open drainage systems, would not provide the necessary containment and could potentially create additional safety hazards. Therefore, a liquid-tight bottom is essential for compliant and safe storage practices in labs dealing with flammable and combustible materials.

7. What system is required for hoods using perchloric acid to wash down the hood and exhaust system?

- A. An air circulation system**
- B. A water spray system**
- C. A chemical scrubber**
- D. A filtration unit**

The requirement for a water spray system in hoods that use perchloric acid is primarily due to safety concerns associated with the handling and use of this hazardous chemical. Perchloric acid is highly reactive and can form explosive compounds when it comes into contact with organic materials and certain metal salts. The water spray system serves a critical function by effectively neutralizing any residual perchloric acid and flushing it away, thereby reducing the risk of accidental explosions and ensuring that any vapors are safely removed from the workspace. This system is designed to enhance the overall safety and ventilation in the laboratory environment by diluting chemical residues and preventing the buildup of harmful substances. Other options, although they serve important functions in various contexts, do not provide the specific safety mechanism required for the safe handling of perchloric acid. An air circulation system may improve ventilation but does not neutralize or wash away hazardous materials. A chemical scrubber is typically used for air purification and to remove specific toxins from exhaust gases, whereas a filtration unit serves to clean particles from the air but may not neutralize the reactive chemical properties associated with perchloric acid. Thus, the comprehensive safety measures specifically associated with perchloric acid handling necessitate the use of a dedicated water spray system.

8. What must be done if hazardous materials are used in a laboratory?

- A. Only use materials in small quantities**
- B. Always have appropriate signage displayed**
- C. Keep the laboratory doors open**
- D. Allow unrestricted access**

If hazardous materials are used in a laboratory, it is vital to always have appropriate signage displayed. This signage serves multiple important functions: it alerts personnel and visitors to the presence of hazardous materials, identifies the specific dangers associated with those materials, and communicates necessary precautions that should be observed while in the area. The presence of clear, standardized signage is a critical part of ensuring safety, as it helps to prevent accidents and ensures that everyone in or near the laboratory understands the risks involved. Displaying appropriate signage promotes awareness and responsibility among all lab users and visitors. This is essential in maintaining compliance with safety regulations and protocols that are designed to protect individuals and the environment from potential hazards. Other choices may not adequately address lab safety protocols, such as using small quantities potentially increasing risks if improper handling occurs, keeping doors open that could lead to unauthorized access or exposure, and allowing unrestricted access which contradicts basic safety standards in laboratory settings.

9. What characteristics define a flammable solid?

- A. A solid that can ignite due to electrical sparks or friction
- B. A solid that burns vigorously and has an ignition temperature below 212F**
- C. A solid that can explode upon impact
- D. A solid that can melt and cause fires

A flammable solid is characterized by its ability to burn vigorously when ignited and having an ignition temperature below 212°F, which makes it particularly hazardous in various environments, including laboratories. This definition highlights both the flammability aspect and the specific temperature threshold that indicates a higher risk of combustion. When a solid can ignite and burn vigorously, it poses significant safety risks as it can lead to fires that spread quickly, particularly in the presence of other flammable materials or sources of ignition. The other options, while they might describe certain hazardous qualities, do not fully encompass the defined characteristics of a flammable solid: - A solid that can ignite due to electrical sparks or friction may describe ignition sources rather than the solid's burning characteristics. - A solid that can explode upon impact indicates a different type of hazard, typically related to reactive solids or explosives, rather than the flammability. - A solid that can melt and cause fires refers more to the physical property of melting rather than the inherent flammability characteristics tied to ignition temperature and burning behavior. Therefore, option B accurately encapsulates the critical aspects that define a flammable solid in terms of its combustion characteristics.

10. What is the face velocity range for new lab hood requirements?

- A. 75-100 ft per min
- B. 80-120 ft per min**
- C. 100-150 ft per min
- D. 120-150 ft per min

The face velocity range for new lab hood requirements being 80-120 feet per minute ensures effective capture of hazardous vapors, gases, and fumes while maintaining a balance that does not strain the ventilation system. This range is established to optimize safety and efficiency, allowing sufficient air movement to protect personnel from exposure to harmful substances without excessive airflow that could cause discomfort or waste energy. Setting the face velocity within this range helps to ensure that the air is moving rapidly enough to entrain and withdraw hazardous materials from the workspace effectively. Additionally, maintaining this velocity allows the laboratory to achieve proper performance while facilitating adequate containment. When face velocities deviate significantly from this recommended range, both safety and energy efficiency can be compromised, resulting in increased risk during laboratory operations.

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://fdnyc14.examzify.com>

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

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