

# SAChE Toxicological Hazards (ELA961) Practice Test (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

- 1. What is the Environmental Protection Agency (EPA) responsible for regarding toxic substances?**
  - A. Developing new toxic substances**
  - B. Regulating and overseeing the assessment and control of hazardous substances**
  - C. Creating toxicity standards for educational institutions**
  - D. Reducing the cost of chemical production**
- 2. In a storage room of 20 m<sup>3</sup> at 20°C, what is the maximum concentration of a chemical that evaporates from 2 grams of it?**
  - A. 21.7 ppmv**
  - B. 24.1 ppmv**
  - C. 25.3 mg/m<sup>3</sup>**
  - D. 26.7 ppmv**
- 3. What is the primary focus of toxicology?**
  - A. The study of chemical reactions**
  - B. The study of positive effects of herbs**
  - C. The study of the adverse effects of chemicals on living organisms**
  - D. The study of environmental impact assessments**
- 4. What does toxicodynamics examine?**
  - A. Interaction of toxic substances with biological systems**
  - B. Methods of chemical analysis in laboratories**
  - C. Safeguards against chemical spills**
  - D. Long-term storage of hazardous materials**
- 5. What is a "sensitizer" in the context of toxicology?**
  - A. A substance that causes immediate skin irritation**
  - B. A chemical that can lead to allergic reactions after exposure**
  - C. A compound that enhances nervous system function**
  - D. A hazardous waste material with high toxicity**

- 6. TRUE or FALSE: The only way to prevent toxicant inhalation exposure is by requiring workers to wear respirators at all times.**
- A. True**
  - B. False**
- 7. What does "material compatibility" refer to regarding toxic substances?**
- A. The assessment of how different materials can react with each other**
  - B. The process of recycling hazardous materials**
  - C. The creation of new, safer chemical materials**
  - D. The legal requirement for chemical storage**
- 8. Which factor is a key determinant of individual susceptibility to toxic substances?**
- A. Age and gender**
  - B. Genetic predisposition**
  - C. Geographical location**
  - D. Occupational exposure**
- 9. What is the primary focus of toxicology in the context of industrial hazards?**
- A. The study of the adverse effects of chemical substances on living organisms and the environment**
  - B. The assessment of manufacturing processes for safety**
  - C. The regulation of toxic substances in commercial products**
  - D. The development of new chemical compounds**
- 10. Which of the following best describes STEL in toxicological terms?**
- A. Short Term Exposure Limit**
  - B. Standard Tolerance for Environmental Levels**
  - C. Safe Threshold for Exposure Levels**
  - D. Short Time Emergency Limit**



## **Answers**

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

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## **Explanations**

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**1. What is the Environmental Protection Agency (EPA) responsible for regarding toxic substances?**

**A. Developing new toxic substances**

**B. Regulating and overseeing the assessment and control of hazardous substances**

**C. Creating toxicity standards for educational institutions**

**D. Reducing the cost of chemical production**

The Environmental Protection Agency (EPA) plays a crucial role in regulating and overseeing the assessment and control of hazardous substances. This responsibility includes evaluating the potential risks associated with toxic substances, ensuring compliance with safety regulations, and implementing measures to protect human health and the environment. The EPA establishes guidelines and requires testing to better understand the effects of various chemicals and to mitigate potential hazards. The agency's involvement also extends to enforcing laws such as the Toxic Substances Control Act (TSCA), which empowers it to evaluate new and existing chemicals before they enter the marketplace. By conducting risk assessments and controlling the use of hazardous substances, the EPA aims to minimize exposure and promote safer alternatives, ensuring a balance between industrial development and public safety. In contrast to the other options, the EPA does not create new toxic substances or focus on reducing production costs. The development of toxic substances usually occurs in industrial or research settings without governmental input. Similarly, while the EPA may provide guidelines that educational institutions can follow, it does not specifically create toxicity standards for educational settings. Lastly, the EPA's mission isn't centered around reducing chemical production costs, but rather on protecting public health and the environment from the adverse effects of toxic substances.

**2. In a storage room of 20 m<sup>3</sup> at 20°C, what is the maximum concentration of a chemical that evaporates from 2 grams of it?**

**A. 21.7 ppmv**

**B. 24.1 ppmv**

**C. 25.3 mg/m<sup>3</sup>**

**D. 26.7 ppmv**

To determine the maximum concentration of a chemical that evaporates from 2 grams in a storage room of 20 m<sup>3</sup> at 20°C, it is crucial to understand the relationship between mass, volume, and concentration. First, we need to convert the mass of the chemical (2 grams) into a concentration in terms of parts per million by volume (ppmv). Concentration in ppmv can be calculated using the formula:  $\text{Concentration (ppmv)} = (\text{mass of substance in grams} / \text{molecular weight of substance}) / (\text{volume of air in liters}) \times 10^6$ . However, if we simplify the approach by considering the volume of the room: 1. We convert the room volume from cubic meters to liters: 20 m<sup>3</sup> = 20,000 liters (since 1 m<sup>3</sup> = 1,000 liters). 2. Next, we convert grams to milligrams since one gram is equal to 1,000 milligrams: 2 grams = 2,000 mg. 3. We can then calculate the concentration by taking the amount of the evaporated chemical (2,000 mg) and dividing it by the volume of air (20,000 liters):  $\text{Concentration (mg/m}^3\text{)}$

### 3. What is the primary focus of toxicology?

- A. The study of chemical reactions
- B. The study of positive effects of herbs
- C. The study of the adverse effects of chemicals on living organisms**
- D. The study of environmental impact assessments

The primary focus of toxicology is the study of the adverse effects of chemicals on living organisms. This field emphasizes understanding how various substances can cause harm, their mechanisms of action, dosage-response relationships, and the biological effects they produce. Toxicologists evaluate the toxicity of chemicals, including pharmaceuticals, pollutants, and industrial chemicals, to ensure safety and mitigate risks to human health and the environment. In the context of the other options, the study of chemical reactions generally pertains to broader chemistry fields rather than specifically focusing on toxic effects. Similarly, while the positive effects of herbs might be a part of ethnobotany or pharmacognosy, toxicology is concerned with harmful effects rather than beneficial ones alone. Finally, environmental impact assessments are related to evaluating the potential effects of projects or actions on the environment but do not specifically focus on toxicological outcomes. Thus, the correct answer aligns with the core objectives of toxicology as a field dedicated to understanding harmful interactions between chemicals and biological systems.

### 4. What does toxicodynamics examine?

- A. Interaction of toxic substances with biological systems**
- B. Methods of chemical analysis in laboratories
- C. Safeguards against chemical spills
- D. Long-term storage of hazardous materials

Toxicodynamics specifically focuses on the interaction between toxic substances and biological systems. This field studies the effects of toxins on living organisms, looking at mechanisms of toxicity, the biochemical and physiological responses to chemical exposure, and how these substances can lead to adverse biological effects. Understanding toxicodynamics is essential for determining the risk associated with specific exposures, how toxins exert their effects at the cellular and systemic levels, and how they can lead to symptoms or injuries in an organism. The other options pertain to different aspects of chemical safety and analysis rather than the interactions between toxins and biological systems. While methods of chemical analysis, safeguards against spills, and long-term storage are important considerations in handling toxic substances, they do not focus on the biological effects of toxins, which is the central concern of toxicodynamics.

**5. What is a "sensitizer" in the context of toxicology?**

- A. A substance that causes immediate skin irritation**
- B. A chemical that can lead to allergic reactions after exposure**
- C. A compound that enhances nervous system function**
- D. A hazardous waste material with high toxicity**

A "sensitizer" in toxicology refers specifically to a chemical that has the ability to cause allergic reactions in an individual after repeated exposure. This means that upon initial exposure, an individual may not show any adverse reactions, but subsequent exposures can trigger an immune response due to the body's sensitization to the substance. This immune response can manifest as symptoms such as rashes, itching, or more severe allergic reactions. The other options describe different concepts: immediate skin irritation is an effect of irritants, enhancing nervous system function is related to neuroactive substances, and hazardous waste with high toxicity pertains to environmental safety and regulations. None of these relate to the specific mechanism of sensitization that is key to defining a sensitizer in toxicological terms.

**6. TRUE or FALSE: The only way to prevent toxicant inhalation exposure is by requiring workers to wear respirators at all times.**

- A. True**
- B. False**

The statement is false because there are several strategies to prevent toxicant inhalation exposure beyond just the use of respirators. Employing respirators is certainly one of the protective measures in a comprehensive safety program, but relying solely on them is not effective or practical in all situations. Other preventive measures include implementing engineering controls such as proper ventilation systems, which can remove or dilute toxic substances in the air before workers are exposed. Administrative controls, such as modifying work practices, limiting exposure time, and ensuring adequate training and awareness among workers, also contribute significantly to reducing the risk of inhalation exposure. In summary, while respirators play a critical role in personal protective equipment, a multifaceted approach that includes engineering and administrative controls is essential for effectively managing and preventing toxicant inhalation exposures in the workplace.

**7. What does "material compatibility" refer to regarding toxic substances?**

**A. The assessment of how different materials can react with each other**

**B. The process of recycling hazardous materials**

**C. The creation of new, safer chemical materials**

**D. The legal requirement for chemical storage**

Material compatibility refers to the assessment of how different materials can react with each other, especially in the context of toxic substances. This concept is crucial in safely handling and storing chemicals to prevent any adverse reactions that could lead to hazardous situations, such as leaks, spills, or releases of toxic gases. Understanding material compatibility helps ensure that incompatible substances are not stored together, thereby minimizing the risks associated with chemical interactions, which can pose dangers to health and the environment. The other options touch on different aspects of chemical management or safety. Recycling hazardous materials is a separate process that focuses on the recovery and reuse of materials rather than compatibility. The creation of new, safer chemical materials is related to innovation in chemistry, but it does not address the compatibility of existing substances. Legal requirements for chemical storage pertain to regulatory compliance but do not specifically focus on the interactions between materials themselves. Therefore, the emphasis on the reactivity and interaction of materials underscores why the correct interpretation of material compatibility is vital in toxicological contexts.

**8. Which factor is a key determinant of individual susceptibility to toxic substances?**

**A. Age and gender**

**B. Genetic predisposition**

**C. Geographical location**

**D. Occupational exposure**

Genetic predisposition is a fundamental factor that determines individual susceptibility to toxic substances. This aspect refers to the inherited characteristics that affect how a person's body metabolizes and responds to chemicals. Variations in genes can influence various biological processes, such as the efficacy of detoxification enzymes, the integrity of cellular membranes, and the repair mechanisms for damaged DNA. For example, some individuals may have genetic variations that make them more efficient at breaking down toxins, while others may carry mutations that impair their ability to do so. This genetic variability can result in diverse responses to the same toxic exposure—some individuals may experience severe effects, while others might be relatively unaffected. Understanding the role of genetic predisposition is essential in toxicology, as it highlights why certain populations may be more at risk for adverse effects from specific substances. The other factors listed, while they may influence exposure and risk levels, do not have the same direct impact on individual biological responses as genetic predisposition does.

**9. What is the primary focus of toxicology in the context of industrial hazards?**

- A. The study of the adverse effects of chemical substances on living organisms and the environment**
- B. The assessment of manufacturing processes for safety**
- C. The regulation of toxic substances in commercial products**
- D. The development of new chemical compounds**

The primary focus of toxicology, particularly in the context of industrial hazards, is the study of the adverse effects of chemical substances on living organisms and the environment. This field encompasses understanding how various chemicals can cause harm, including their mechanisms of toxicity, the doses that lead to harmful effects, and the potential for long-term impacts on health and ecosystems. Toxicology is crucial in safeguarding public health and the environment by providing the scientific basis needed to assess risks associated with exposure to hazardous substances. Understanding these adverse effects enables industries to implement safety measures, limit exposure, and develop safer alternatives. While assessing manufacturing processes and regulating toxic substances are essential aspects of overall safety in industrial settings, they stem from the foundational knowledge provided by toxicology. The focus on developing new chemical compounds is also important, but it typically connects back to ensuring that these new substances do not pose new risks to health or the environment.

**10. Which of the following best describes STEL in toxicological terms?**

- A. Short Term Exposure Limit**
- B. Standard Tolerance for Environmental Levels**
- C. Safe Threshold for Exposure Levels**
- D. Short Time Emergency Limit**

The term STEL stands for Short Term Exposure Limit, which is a key concept in toxicological assessments. This designation refers to the maximum concentration of a substance in air that a worker can be exposed to for a short duration, typically defined as 15 minutes, without experiencing any adverse effects. STEL values are crucial for ensuring the safety and health of individuals who may be exposed to hazardous substances in their work environment. Establishing a STEL provides guidance on exposure limits that are significantly short-term but still vital in the context of occupational health. It helps to protect workers from potential acute effects that can occur with brief, high-level exposures, balancing the need for productivity against the necessity of maintaining a safe working environment. The other options do not accurately represent what STEL stands for or its intended use. For instance, "Standard Tolerance for Environmental Levels" does not specifically point to workplace exposure criteria or acute short-term limits. Similarly, "Safe Threshold for Exposure Levels" and "Short Time Emergency Limit" are not recognized terms in toxicology that correspond to STEL as defined in health and safety regulations.



## 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](mailto:hello@examzify.com).**

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

**<https://sacheela961.examzify.com>**

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