IHMM ASSOCIATE HAZARDOUS MATERIALS MANAGER [AHMM] EXAMINATION STUDY GUIDE

IHMM AHMM
Study Guide

The questions that appear on the AHMM examination are created by subject matter experts, and every question is supported by a published reference. The following is a list of references that were used, in some cases, during the development of the AHMM examination. This is not intended as a comprehensive list of all materials available to AHMM candidates and should not be intended as a guaranteed means of passing the exam. Candidates are also strongly advised to familiarize themselves with industry regulations, standards, and practices in preparation for the AHMM certification examination.Below you will find each of the AHMM's five [5] domains and their subdomains from the AHMM certification blueprint. Each subdomain is matched with resource material that may assist the AHMM exam taker with preparing for the AHMM examination. Following the recitation of each domain, subdomain, and resource, you will find two [2] sample multiple-choice questions with four [4] possible answers, the correct answer, and then the rationale for the correct answer being correct. These are only sample questions designed to acquaint you with the actual examination's questions.

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Following the sample questions, you will find a case study of what a prospective AHMM may confront in the work environment and its relationship to the subject of the domain in which it is located.

Some of this material was generated by artificial intelligence and then subsequently reviewed and validated by the subject matter experts from the IHMM AHMM Scheme Committee.

Preparing for the AHMM Examination

The Associate Hazardous Materials Manager [AHMM] examination contains 100 questions and must be completed in 3 [three] hours.

The material below is designed to acquaint the exam taker with the domains and subdomains of the AHMM blueprint as well as the resources behind the subdomains. Therefore, studying the resources associated with each subdomain is a key to navigating the exam successfully.

After each domain/subdomain/resources section comes two sample questions per domain. These are only sample questions and are not on the actual exam. These sample questions are only presented to orient the exam taker on how the questions on the exam are presented.

Good luck, and prepare well for the AHMM examination.

DOMAIN 1: Hazardous Material Identification/Classification (26%)

Subdomain	Resource
1.1 Identify basic che micals (acids, bases, oxidizers, organics, metals, halogens, etc.)	1) Chemistry & Reactivity, 3rd Edition Harry E Pence State University of New York Saunders College Publishing, 1996 Chapter 8: Atomic Electron Configurations and Chemical Periodicity Chapter 17: The Chemistry of Acids and Bases. 2) 49 CFR 173.127 3) Introductory Chemistry David W. Ball, Cleveland State University Savior Foundation, 2011 ISBN 13:9781453311073
1.2 Identify the Periodic Table of Elements.	1) www.livescience.com/25300-periodic-table.html 2) https://chemistrytalk.org/alkali-metals-periodic-table/
1.3 Differentiate between chemical elements (organics and inorganics, acids and bases).	1) Khan Academy: Introduction to Acids and Bases; Khanacademy.org 2) Periodic Table Guide
1.4 Understand chemical compatibilities such as	1) ehs.princeton.edu

Subdomain	Resource
acids/bases, oxidizers/organics, etc.	2) OSHA, Appendix A to § 1910.1200 - Health Hazard Criteria (Mandatory) 3) www.chemscape.com 4) RCRA Subpart C 261.21 (4) 5) www.sciencedirect.com
1.5 Understand the differences, changes, and results between states of matter and the mechanisms driving them.	1) OSHA Compressed Gas. 2) Classifying Matter According to Its State: Solid, Liquid, and Gas - Chemistry LibreTexts 3) Classifying Matter According to Its State: Solid, Liquid, and Gas - Chemistry LibreTexts
1.6 Know how and where to obtain chemical information (SDS, CHEMTREC, UN GHS, and Labeling of Chemicals, UN GHS, NIOSH).	1) https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.1200 (OSHA 2) Hazard Communication Standard) 2) Hazard Communication - Globally Harmonized System | Occupational Safety and Health Administration 3) https://www.osha.gov/hazcom/global
1.7 Identify the difference between hazardous materials and hazardous waste.	1) RCRA 261 Subpart C - Characteristics of Hazardous Waste Appendix VIII - Hazardous Constituents 2) 40 CFR, part 260, Appendix I - Overview of Subtitle C regulations 3)RCRA 261.30 Subpart D: What is the difference between hazardous waste and hazardous materials? Subpart D lists of Hazardous Wastes

Sample Exam Questions for Domain One

Subdomain 1.1: Identify Basic Chemicals

Q1. Which of the following chemicals is classified as an oxidizer?
A. Hydrochloric acid
B. Sodium chloride
C. Potassium permanganate
D. Acetic acid

Correct Answer: C
Rationale: Potassium permanganate is a strong oxidizer, commonly used in redox reactions.

Q2. Which is a halogen?
A. Calcium
B. Bromine
C. Aluminum
D. Magnesium

Correct Answer: B
Rationale: Bromine is a halogen, found in Group 17 of the Periodic Table.

DOMAIN 2: Safety and Personal Protection (23%)

Subdomain	Resource
2.1 Identify the four exposure pathways of hazardous materials: inhalation (respirator), ingestion, contact (eyes, skin), and injection (needlestick, etc.).	1) https://ehs.cornell.edu/research-safety/chemical-safety/laboratory-safety-manual/chapter-7-safe-chemical-use/74-routes-0 2) https://www.safetytalkideas.com/safetytalks/hazardous-chemicals/ 3) https://www.buffalo.edu/administrative-services/managing-facilities/environment-and-safety/right-to-know-training/how-chemicals-enter-the-body.html 4) **ANSI Z129.1:** This standard addresses precautionary labeling of hazardous industrial chemicals. 5) **ANSI/ISEA Z87.1:** This standard covers eye and face protection, ensuring appropriate PPE is used when working with hazardous chemicals. 6) **ANSI/ISEA 107:** This standard focuses on high-visibility safety apparel, which can be important in environments where hazardous materials are present. **7) ANSI Z88.2:** This standard covers respiratory protection, which is crucial when dealing with airborne hazards.
2.2 Identify exposure and be able to identify the potential pathway. A clear understanding of hazardous chemicals and how they might create exposure	1) https://www.cdc.gov/emergency/index.html 2) 29 CFR 1910.1200, Appendix A. Section 2 (Health Hazards Identification) Sulfuric Acid SDS

Subdomain	Resource
	3) USBR Optimization of Chemical Cleaning (August 2009)3-Sigma deviation
2.3 Identify symptoms and be able to determine the likely exposure pathway, and understand the basic relationship between exposure and symptoms. For example, understands the signs of respiratory exposure, which could include wheezing, wet cough, heavy breathing, shallow breathing, etc.	1) https://ehs.cornell.edu/research-safety/chemical-safety/laboratory-safety-manual/chapter-7-safe-chemical-use/74-routes-1 2) https://ehs.cornell.edu/research-safety/chemical-safety/laboratory-safety-manual/chapter-7-safe-chemical-use/74-routes-3 3) https://ehs.cornell.edu/research-safety/chemical-safety/laboratory-safety-manual/chapter-7-safe-chemical-use/74-routes-3
2.4 Know the definition of each level for elimination, substitution, engineering controls, administrative controls, and PPE.	1) OSHA.gov - Chemical Hazards and Toxic Substances Table 2) NIOSH Hierarchy of Controls
2.5 Identify the levels of PPE and a basic understanding of when they are needed based on the situation.	1) 29 CFR 1910.120, Subpart H, Appendix B. 2) 29 CFR 1910.120, Subpart H, Appendix B. A.II.
2.6 Given a scenario, identify and choose the proper PPE for an industrial/construction situation. s	1) 29CFR1926.100 2) **ANSI Z129.1:** This standard addresses precautionary labeling of hazardous industrial chemicals. 3) **ANSI/ISEA Z87.1:** This standard covers eye and face protection, ensuring appropriate PPE is used when working with hazardous chemicals. 4) **ANSI/ISEA 107:** This standard focuses on high-visibility safety apparel, which can be important in environments where hazardous materials are present. **5) ANSI Z88.2:** This standard covers respiratory protection, which is crucial when dealing with airborne hazards.

Sample Exam Questions for Domain Two

Subdomain 2.1: Identify the Four Exposure Pathways

Q3. What are the four exposure pathways for hazardous materials?
A. Inhalation, ingestion, injection, and contact.
B. Injection, inhalation, ingestion, and evaporation.
C. Evaporation, ingestion, injection, and contact
D. Ingestion, evaporation, injection, and contact.

Correct Answer: A
Rationale: Evaporation is a physical process, not a biological exposure pathway. The four exposure routes are inhalation, ingestion, injection, and contact.

Q4. Which exposure pathway is most associated with needlestick injuries?
A. Inhalation
B. Contact
C. Injection
D. Ingestion

Correct Answer: C
Rationale: Needlestick injuries involve puncture of the skin and introduce substances directly into the bloodstream, classified as 'injection.'

DOMAIN 3: Facility Operations Involving Materials with Hazards (19%)

Subdomain	Resource
3.1 Evaluate and recommend chemical compatibility and materials segregation principles for safe storage.	https://ors.od.nih.gov/sr/dohs/Documents/chemical-segregation-table.pdf
3.2 Recognize and communicate signage (National Fire Protection Association [NFPA], Hazardous Materials Identification System [HMIS], Globally Harmonized System of Classification and Labeling of Chemicals [GHS],	https://www.nfpa.org/news-blogs-and-articles/blogs/2021/11/05/hazardous-materials-identification

Subdomain	Resource
Department of Transportation [DOT]) for Facility Operations.	
3.3 Recognize basic fire safety principles and elements included in the Life Safety Code.	1) 29 CFR 1910.39(c)(1) 2) International Fire Service Training Association, 2008 3) Work Safe website: https://www.worksafe.qld.gov.au/safety-and-prevention/hazards/hazardous-chemicals/managing-hazchem-risks/managing-incompatible-good/segregation-techniques
3.4 Identify fire suppression systems and communicate alarm notifications.	OSHA 1910.160(b)(6) OSHA 1910.165(b)(2)
3.5 Recommend facility and materials security	NFPA 730 Premises Security
3.6 Review and use facility, product, or mechanical drawings and diagrams.	1) 40 CFR Part 262, 40 CFR Part 112, IFC Chapter 50 (5004.2.2) 2) https://calepa.ca.gov/hazardous-materials-business-plan-program/hazardous-materials-business-plan-resources/ 3) https://www.epa.gov/oil-spills-prevention-and-preparedness-regulations/facility-response-plan-frp-overview#:~:text=The%20Facility%20Response%20Plan%20(FRP,FRP%20applicability
3.7 Evaluate mobile equipment and recognize the use and limitations of Powered Industrial Trucks (PIT).	1) OSHA: Powered Industrial Trucks (PITs) 2) 29 CFR Part 1910.38
3.8 Recognize or evaluate wastewater treatment and wastewater management principles	1) EPA Wastewater Basics 2) 40 CFR, Part 401.16
3.9 Recognize and evaluate stormwater management practices t	EPA Stormwater Management State Water Resources Control Board, National Pollutant Discharge Elimination System, Industrial General Permit Order 2014-0057-DWQ. California Stormwater Quality Association BMP Handbook.
3.10 Recommend or evaluate preventative maintenance and mechanical integrity practices.	1) Section 6 of the Toxic Substances Control Act (TSCA), as amended by the Frank R. Lautenberg Chemical Safety for the 21st Century Act

Subdomain	Resource
	2) 29 CRR 1910.119: Process Safety Management of Highly Hazardous Chemicals Standard 3) https://www.osha.gov/safety-management/hazard-prevention 4) Section 6_title (epa.gov)
3.11 Recognize and recommend waste management, recycling, and reuse practices.	1) https://www.epa.gov/smm 2) USEPA Hazardous Waste Recycling Hazardous Waste Recycling | Waste | US EPA; and Safe Hazardous Waste Recycling Fact Sheet 3) October 2000 Safe Hazardous Waste Recycling, October 2000 (epa.gov)

Domain Three Case Study

As an AHMM at a chemical distribution center, you are asked to review a new layout for the flammable storage room. The current arrangement places acids next to bases, and oxidizers near organics. After consulting OSHA chemical storage guidance, you recognize the risks and must develop a revised chemical segregation strategy. Using NFPA labels and GHS pictograms, you reclassify the chemicals, recommend storage adjustments, and provide a short training session for warehouse staff on chemical compatibility.

Sample Exam Questions for Domain Three

Subdomain 3.1: Evaluate and recommend chemical compatibility and materials segregation principles for safe storage.

Q5. Which pair of substances should be stored separately due to incompatibility?
A. Hydrogen peroxide and water
B. Sodium and mineral oil
C. Nitric acid and acetic acid
D. Ammonia and bleach

Correct Answer: D
Rationale: Ammonia and bleach react to form toxic chloramine vapors and must be stored separately to prevent hazardous releases.

Q6. Which principle is most critical for safely arranging chemicals in a storage cabinet?
A. Alphabetical order
B. Color-coded containers

C. Chemical compatibility
D. Supplier guidelines

Correct Answer: C
Rationale: Chemical compatibility is the most critical factor to avoid dangerous reactions between stored substances.

DOMAIN 4: Emergencies, Response, and Recovery (18%)

Subdomain	Resource
4.1 Know appropriate response requirements and notifications if a chemical release involves a TPQ being exceeded.	1) https://www.epa.gov/epcra/emergency-release-notifications 2) Consolidated List of Lists | US EPA 3) Definition of Immediate for EPCRA and CERCLA Release Notification | US EPA 4) https://www.ecfr.gov/current/title-49/subtitle-B/chapter-I/subchapter-C/part-172/subpart-C#p-172.203(c)(2)
4.2 Know the key elements such as incident command, basic command structure, emergency action plan, and contingency plan. Know how to coordinate with local agencies and emergency responders. I	1) CFR 1910.120 Subpart H - Hazardous waste operations and emergency response. 2) 40 CFR 262.17 -- Conditions for exemption for a large quantity generator that accumulates hazardous waste. 3) FEMA Publication-524 /July 2009: Acronyms, abbreviations, and terms 4) OSHA CFR 1910.38(b) Written and Oral Emergency Action Plans 5) The US DOT Federal Highway Administration: Simplified Guide to the Incident Command System for Transportation Professionals (February 2006) 6) EPA publication: Tier II Forms and Instructions required under Section 312 of the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA)
4.3 Know the key elements of a debriefing and lessons learned document. Know how to set up a decon line for different levels of isolation based on hazards like hot zone, warm zone, and cold zone.	1) https://www.osha.gov/hazardous-waste/decontamination 2) https://www.epa.gov/emergency-response/safety-zones 3) https://www.crisisprevention.com/Blog/debriefing-techniques 4) https://portal.educoas.org/sites/default/files/nw/docs/OAS-KM-Group_Methodology_Lessons-Learned.pdf

Sample Exam Questions for Domain Four

Subdomain 4.1: Know appropriate response requirements and notifications if a chemical release involves a TPQ being exceeded.

Q7. Under the Emergency Planning and Community Right-to-Know Act (EPCRA), what must occur if the chemical is stored above the TPQ?

A. Notify OSHA within 48 hours
B. Evacuate employees
C. Notify the State Emergency Response Commission (SERC)
D. File an annual waste summary report

Correct Answer: C
Rationale: If a chemical is stored above the TPQ, the facility must notify the SERC and Local Emergency Planning Committee (LEPC), per EPCRA requirements.

Q8. Which of the following is considered a key requirement under EPCRA when managing hazardous material emergencies?
A. Regular air quality testing
B. Chemical-specific training every month
C. Notification of local emergency planners
D. Posting NFPA placards at all exits

Correct Answer: C
Rationale: EPCRA requires that facilities notify local emergency planners, like the LEPC, in the event of hazardous material storage over TPQs.

DOMAIN 5: Standards, Rules, and Regulations (14%)

Subdomain	Resource
5.1 Develop a safety plan and ID regulation. What is the overarching regulation (OSHA, CERCLA, and DOT)?	1) https://www.epa.gov/laws-regulations/summary-resource-conservation-and-recovery-act 2) https://www.epa.gov/laws-regulations/summary-comprehensive-environmental-response-compensation-and-liability-act 3) 49 CFR 173.303

Subdomain	Resource
	4) The federal regulation/standard is OSHA's Hazard Communication Standard. https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.1200
5.2 Use statutes and regulations to make a hazard determination on a substance, product, etc. (e.g., RCRA).	1) https://www.epa.gov/rcra/state-authorization-under-resource-conservation-and-recovery-act-rcra#about 2) https://www.epa.gov/hw/defining-hazardous-waste-listed-characteristic-and-mixed-radiological-wastes 3) 40 CFR Part 265, RCRA Requirements for On-Site storage of waste 4) 40 CFR 260.23 5) EPA: RCRA Basics State Authorizations Defining hazardous waste, Containers Used Oil 6)RCRA 40 CFR 260.10
5.3 Able to review and communicate international agreements (e.g., United Nations Conference on Environment and Development Agenda 21, Basel Convention).	1) https://www.icao.int/about-icao/Pages/default.aspx 2)http://www.basel.int/TheConvention/Overview/tabid/1271/Default.aspx 3) https://www.un.org/en/conferences/environment/rio1992
5.4 Recognize international environmental standards, rules, and regulations (e.g., Globally Harmonized System of Classification and Labeling of Chemicals, ISO 14001 Environmental Management Systems, etc.).	The Code of Federal Regulations 1910.1200 OSHA 3491 Quick Card Pictogram

Domain Five Case Study

A new waste stream has been generated at your facility following a change in the production process. As an AHMM, you are assigned to determine whether this stream qualifies as a hazardous waste. Using RCRA definitions and EPA guidance, you analyze the chemical characteristics and review applicable statutes. You then update the facility's written safety plan, citing both OSHA requirements for worker protection and CERCLA obligations in the event of a release, and ensure training records and signage comply with federal regulations.

Sample Exam Questions for Domain Five

Subdomain 5.1: Develop a safety plan and identify the appropriate regulations. What is the overarching regulation (OSHA, CERCLA, and DOT)?

Q9. When developing a hazardous materials safety plan, which of the following federal agencies is primarily responsible for enforcing workplace safety standards?
A. EPA
B. OSHA
C. DOT
D. NIOSH

Correct Answer: B
Rationale: OSHA is responsible for enforcing workplace safety standards, including those related to hazardous materials handling and exposure.

Q10. Which regulation primarily governs the response to and cleanup of hazardous substance releases in the environment?
A. TSCA
B. RCRA
C. CERCLA
D. FIFRA

Correct Answer: C
Rationale: CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act) governs the cleanup of hazardous substance releases.
