



Fully Online

An Introduction to Hazardous Materials (HAZMAT)

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About

Understanding the risks associated with hazardous materials at ports and on-board ships is crucial for ensuring the safety of personnel, the environment, and cargo.

Proper knowledge and handling reduce the likelihood of accidents, chemical spills, and fires, which can have severe consequences. Compliance with safety regulations and effective risk management are essential to maintaining secure and efficient maritime operations.

An Introduction to Hazardous Materials (HAZMAT) is a comprehensive foundational course aimed at individuals working in or around the maritime industry, particularly those involved in the handling, storage, or transport of hazardous materials.

The course provides a thorough overview of the nature and classification of hazardous substances, including the risks they pose to health, safety, the environment, and maritime operations.

It covers key areas such as international regulations, labelling and documentation, transport, storage and emergencies. By developing a clear understanding of these elements, participants will be better equipped to recognise and manage potential hazards, ensure compliance with legal requirements, and promote a culture of safety and responsibility at ports and on-board ships.

This course serves as an essential introduction for those new to the field, as well as a useful refresher for more experienced personnel.

Course Duration

The Introduction to Hazardous Materials (HAZMAT) Course has an expected duration of 1.5 hours.

Target Audience

This course is designed for individuals working in or entering the maritime and port industries who may encounter hazardous materials as part of their roles. It is particularly suited to:

- **Port workers and dockside personnel** involved in loading, unloading, or handling cargo
- **Ship crew members**, especially those responsible for cargo operations or safety management
- **Logistics and supply chain staff** working with maritime freight that includes hazardous goods
- **Maritime security and safety officers** requiring foundational HAZMAT awareness
- **New employees or trainees** seeking a basic understanding of hazardous materials in maritime contexts
- **Supervisors and operations managers** who oversee port or shipboard operations involving dangerous goods
- **Regulatory and compliance staff** needing awareness of HAZMAT handling procedures and standards

The course is suitable for those with little or no prior knowledge of hazardous materials, as well as personnel seeking a structured refresher on essential principles and safe practices.



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Correct documentation of hazardous materials is essential in ports and on-board ships to ensure the safe and lawful transport, handling, and storage of dangerous goods. Accurate records help identify the nature and risks of each substance, guide emergency response efforts, and ensure compliance with international regulations such as the IMDG Code. Incomplete or incorrect documentation can lead to delays, legal penalties, and serious safety incidents, making it a critical component of effective HAZMAT management in maritime operations.

Course Aims

The primary aim of An Introduction to Hazardous Materials (HAZMAT) is:

To provide learners with a foundational understanding of hazardous materials in maritime environments, enabling them to identify, handle, and respond to such substances safely and in compliance with relevant regulations.

This aim supports the broader goal of promoting safety, reducing risk, and ensuring legal and procedural compliance when dealing with dangerous goods at ports and on vessels.

Course Learning Objectives

This course aims to provide relevant information to the course candidate with regards to the following points:

- The Common Threats to Maritime Security.
- Recognition of Dangerous Goods & Products.
- The Port Facility Security Plan.
- Appropriate Security Measures.

Course Learning Outcomes

The course learning outcomes are as follows:

- For the learner to identify and understand the common Threats to Maritime Security.
- For the learner to recognise Dangerous Goods & Products.

- For the learner to understand the requirements within a Port Facility Security Plan.
- For the learner to identify and implement Appropriate Security Measures.

Regulations Addressed

This course aims to clarify the necessity of port security as described within:

- Regulation 725/2004 (Regulation (EC) No 725/2004 of the European Parliament and the Council of 31 March 2004 on enhancing ship and port facility security).
- Directive 2005/65 (Directive 2005/65/EC of the European Parliament and the Council of 26 October 2005 on Enhancing Port Security).
- The International Ship & Port Facility (ISPS) Code.

Course Certificate

On completion of this course, you will be able to download a Certificate for 'An Introduction to Hazardous Materials (HAZMAT) Course'.



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Proper safe storage of hazardous materials in ports and on-board ships is vital to prevent accidents, environmental damage, and harm to personnel. Storing substances according to their classification helps avoid dangerous reactions, such as fires, explosions, or toxic releases. Adhering to established guidelines and segregation rules ensures that incompatible materials are kept apart and that containers are secure, clearly labelled, and in good condition. Effective storage practices are a key part of maintaining safety, regulatory compliance, and operational efficiency in maritime environments.

Course Subjects

The course covers the following subject matter:

- Introduction to the Course
- HAZMAT – The Basics
- HAZMAT – Regulation
- HAZMAT – Classification System
- Classification 1: Explosives
- Classification 2: Gases
- Classification 3: Flammable Liquids
- Classification 4: Flammable Solids
- Classification 5: Oxidisers
- Classification 6: Poison & Infectious Substances
- Classification 7: Radioactive Substances
- Classification 8: Corrosive Substances
- Classification 9: Miscellaneous
- HAZMAT – ‘Life Cycle’
- Transport of HAZMAT
- Storage of HAZMAT
- Personal Protective Equipment (PPE)
- In Case of Emergency

Bulk Purchasing

At VIRSEC, we offer competitive bulk discount pricing for companies and organisations looking to purchase our STCW ISPS Proficiency as Ship Security Officer (SSO) courses for multiple employees.

Whether you’re equipping a small team, staff, workforce or even an entire crew, we provide scalable pricing options to suit your training needs.

Discounts are applied based on the number of participants, with greater savings available for larger groups.

To discuss your specific requirements and receive a personalised quote, please contact our training coordination team by email at: training@virsec.org, or call us on +44 (0)161 763 4427 and one of our team will happily assist you.



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Sample Course Slides

An Introduction to Hazardous Materials (HAZMAT)
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Lesson 1.1 What is HAZMAT?

Dangerous goods or hazardous goods are solids, liquids, or gases that can harm people, other living organisms, property, or the environment. They are often subject to chemical regulations. In the United States, United Kingdom and sometimes in Canada, dangerous goods are more commonly known as hazardous materials (abbreviated as HAZMAT or hazmat).

HAZMAT will be commonly encountered in industrial, transport, and maritime environments.

It will be encountered anywhere in its lifecycle, either through the production, use, storage, transportation, or disposal – or other types of handling.

HAZMAT can be extremely hazardous to life and property – and therefore it is vital that everyone has at the least a basic understanding of what HAZMAT is, the different classifications, and what to do in an emergency.



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HAZMAT: Visual Warning System

HAZMAT is classified into physical type (solid, liquid, gas) and also by the kind of danger that the HAZMAT poses (e.g., flammable, explosive, corrosive, poisonous etc.).


There is a visual warning system (please see the examples shown on the right) which helps HAZMAT to be easily and quickly classified.

This is so that users can operate with and around HAZMAT and take the necessary precautions depending on the particular dangers of the dangerous materials encountered.

NOTE: HAZMAT warning signs like the ones shown are the primary way to inform all persons as to the nature of the HAZMAT.

This course will equip you to be able to quickly recognise the dangers present, so you are able to keep yourself and everyone around you safe.

We will learn more about this visual warning system later in the course.



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1.5: Blasting Agent

Similar in effect to those in Class 1.1, there is a high danger of mass explosion hazard and the corresponding high danger to life and property.

However, Class 1.5 explosives are extremely insensitive and very difficult to initiate – even through burning or shock.

Class 1.5 includes Plastic Explosive (C4) or similar.

- Highly dangerous (similar to Class 1.1) but can only be initiated with a blasting cap (detonator).
- For this reason, they are considered relatively safe as the risk of accidental initiation is very small – therefore there is a minor level of risk to life and property if improperly handled.

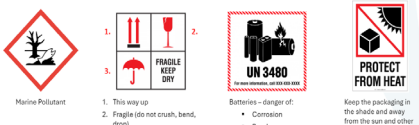


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Other Placards you may see

You may see other placards and labels related to the packaging, storage and transport of HAZMAT. Make it your business to ask questions and to find out more about these labels. Here are just some examples:



Marine Pollutant

- This way up
- Fragile (do not crush, bend, drop)
- Keep dry

Batteries – danger of:

- Corrosion
- Spills
- Fire
- Explosion

Keep the packaging in the shade and away from the sun and other sources of heat.

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Lesson 3.2 Transport of HAZMAT


Hazardous materials in transportation must be clearly placarded, so that it can be seen what type of materials are present, and what kind of dangers there are.

Truck trailers should be clearly marked with a four-digit number, along with standard tags of HAZMAT information which can be referenced by emergency responders in case of emergency (firefighters, police officers etc.).

Each 4-digit number corresponds to the EXACT material that is being transported, so emergency crews know how to deal with any incidents.

Four-digit UN or NA Numbers provide information as to the precise nature of the Hazardous Material being transported.

NOTE: Click the mouse pointer over each of the placards on the truck to reveal the specific HAZMAT substance.




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Levels of Personal Protective Equipment

Personal protective equipment is divided into FOUR categories based on the degree of protection afforded.

Please study the following slides to find out more.



HAZMAT PPE: Level D (lowest)

HAZMAT PPE: Level C

HAZMAT PPE: Level B

HAZMAT PPE: Level A (highest)

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