
Course Syllabus:



HMT-0401

Multimodal Transportation of Lithium Batteries

Overview

This course is intended for those persons and facilities that receive handle or offer into transport, all or in part by surface, air or vessel, hazardous materials (or dangerous goods) lithium ion and lithium metal batteries.

Goals

This web-based training course was developed by ShipMate, Inc. and is intended for those persons and facilities that receive, handle, or ship certain hazardous materials by surface transportation. This course fulfills the U.S. Department of Transportation's hazardous materials transportation training requirements for: (1) general awareness and familiarization; (2) general safety; (3) hazardous materials security awareness; and (4) function-specific training for the following transportation and pre-transportation functions:

- Determining the hazard class and basic description of certain lithium ion and lithium batteries
- Selecting a dangerous goods packaging for certain lithium ion and lithium metal batteries
- Marking a package to indicate that it contains a lithium ion or lithium ion batteries, or batteries packed with or container in equipment
- Labeling a package to indicate that it contains lithium metal or lithium ion batteries, or batteries packed with or contained in equipment
- Preparing a shipping paper for lithium metal or lithium ion batteries, or batteries packed with or contained in equipment, if applicable
- Providing and maintaining emergency response information, when required
- Reviewing a shipping paper to verify compliance with the HMR, IMDG Code & ICAO Technical Instructions
- Certifying that shipments of lithium ion or lithium metal batteries, or batteries contained in or packed with equipment are in proper condition for transportation in conformance with the requirements of the HMR, IMDG Code, and ICAO TI, if applicable.

Lesson Topics

Module 1	Introduction
Lesson 1	Welcome & Course Objectives
Lesson 2	Responsibilities
Lesson 3	Navigation
Lesson 4	Program Features
Lesson 5	Assessments & Certification
Lesson 6	Additional Information

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Materials

Computer (PC, laptop)
Internet Connection: High Speed

Requirements

You should print and maintain a copy of this course syllabus and overview on file at your facility. It is recommended that you provide a copy of this document in the event of a regulatory agency (e.g., OSHA) inspection.

Evaluation

Upon completion of the course of instruction, a comprehensive examination will be offered. In order to earn a Certificate of Completion, you must receive at least 80% on the exam. The exam is comprised of at least 10 questions, randomly selected from a database of questions and address each of the lesson topics covered in the course.

Lesson Topics – cont'd

Module 2 Overview

- Objectives
- Lesson 1 Overview & Regulatory Requirements
- Lesson 2 Accident History
- Lesson 3 Physical & Chemical Properties
- Lesson 4 International Classification Schema
- Lesson 5 Regulatory Requirements
- Lesson 6 49 CFR subchapter C
- Lesson 7 IMDG Code
- Lesson 8 ICAO Technical Instructions
- Lesson 9 IATA Dangerous Goods Regulations
- Summary
- Learning Assessment

Module 3 Regulatory Requirements

- Objectives
- Lesson 1 Battery Classification
 - Primary
 - Secondary
- Lesson 2 Other Battery Types
- Lesson 3 Lithium Batteries
 - Lithium Metal Batteries
 - Lithium Ion Batteries
- Lesson 4 UN38.3 Testing
 - T1 – T8 Tests
 - Recordkeeping
- Lesson 5 Fully Regulated Lithium Batteries
 - Lithium Metal
 - Lithium Ion
 - Surface
 - Ocean
 - Air
- Summary
- Learning Assessment

Module 4 Packing & Packaging

- Objectives
- Lesson 1 Forces Encountered in Transportation
- Lesson 2 Approved Packagings
 - Quality & Handling
 - Absorbent
- Lesson 3 UN POP Marking
 - Manufacturer Marks
 - Performance Level
- Lesson 4 UN POP Testing
 - Drop & Stacking
 - Leakproofness
 - Hydraulic
- Lesson 5 Limited Quantity Packaging
- Lesson 6 Non-Specification Packaging ('Strong' Outer Packaging)
- Lesson 7 Manufacturers Symbol (Box Maker's Certificate – BMC)
 - Burst Strength
 - Edge Crush Test

Lesson Topics – cont'd

- Lesson 8 Packing
- Lesson 9 Damaged Packaging
Packaging Evaluation
Repackaging
- Lesson 10 Packing Instructions & Special Provisions
Surface
Ocean
Air
- Summary
- Learning Assessment

Module 5 Hazard Communication

- Objectives
- Lesson 1 Marking
Proper Shipping Name(s)
Technical & Chemical Name(s)
Identification Number
UN or DOT Specification
Packaging Marking
- Lesson 2 Labeling & Marking
Hazard Warning Labels
Labeling Requirements
Cargo Handling Labels
Primary Lithium & Other Lithium Battery Handling Labels
Special Marks
Overpack Mark
- Lesson 3 Package Marking & Labeling
TULIP
- Lesson 4 Overpacks, Unit Loads & Cages
Overpack
PILOT
Unit Loads
- Lesson 5 Damaged or Defective Batteries
- Summary
- Learning Assessment

Module 6 Documentation

- Objectives
- Lesson 1 Basic Description
Alternative Description Formats
- Lesson 2 Required Information
- Lesson 3 Additional Descriptive Information
- Lesson 4 Emergency Response Information
Emergency Response Telephone Number
Emergency Response Information
ERT Service Providers
- Lesson 5 Reporting
- Lesson 6 Shipping Certification
Other Required Documentation
- Lesson 7 Carrier Specific Information

Lesson Topics – cont'd

Lesson 8 Recordkeeping Requirements
Summary
Learning Assessment

Module 7 Emergency Response

Objectives
Lesson 1 Initial Response Actions
Lesson 2 Safety Precautions
Hot Cells
Lesson 2 Personal Protective Equipment
Lesson 3 Reports & Notifications
Lesson 4 Spill Response Equipment
Lesson 5 Fire Extinguishers & Extinguishing Methods
Dry Chem
Class D (Copper)
Lesson 6 Disposal
Lesson 7 Recycling
Summary
Learning Assessment

Module 8 HM Security

Objectives
Lesson 1 Security Requirements
Lesson 2 Security Plan Requirements
Personnel Security
Site Security
En Route Security
Lesson 3 High Consequence Shipments
Lesson 4 Security Training
Summary
Learning Assessment
Course Summary
Certification Exam Code
Certification Exam