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Subj: Multimodal Transportation of Automotive Hazardous Materials (HMT-0412)

This web-based training course was developed by ShipMate, Inc., in cooperation with the North American Automotive Hazmat Action Committee (NAAHAC).

This course is intended for those persons and facilities that receive handle or ship automotive hazardous materials by air and/or ocean transportation modes. 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 of a hazardous material;
- selecting a hazardous materials packaging;
- filling a hazardous materials packaging;
- securing a closure on a filled or partially filled hazardous materials package;
- marking a package to indicate that it contains a hazardous material;
- labeling a package to indicate that it contains a hazardous material;
- preparing a shipping paper;
- providing and maintaining emergency response information;
- reviewing a shipping paper to verify compliance with the HMR;
- certifying that an automotive hazardous material (dangerous good) is in proper condition for transportation in conformance with the requirements of the HMR, the International Civil Aviation Organization (ICAO) Technical Instructions for the Transport of Dangerous Goods by Air, and the International Maritime Dangerous Goods (IMDG) Code;
- loading, blocking, and bracing a hazardous materials package in a transport vehicle, unit load device or intermodal freight container;
- providing or offering placards to a surface or ocean carrier to indicate that it contains a hazardous material; and
- the carriage of automotive hazardous materials by private or contract carriers in quantities for which a placard is not required.

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., DOT) inspection.

If this course does not address all of the hazardous materials transportation or pre-transportation functions that you perform, or if you have any questions regarding this or other hazardous materials training programs, or need any assistance, please call the course authors, ShipMate, Inc. at +1 (310) 370-3600.

Respectfully,

Steven Charles Hunt
ShipMate, Inc.

Web-Based Training (WBT)
Multimodal Transportation of Automotive Hazardous Materials

(Prerequisite Course Material)

Module 1	Introduction
Lesson 1	Hazardous Materials Overview
Lesson 2	Responsibilities
Lesson 3	Training
Lesson 4	Regulatory Authorities DOT Transport Canada Mexico SCT
Lesson 5	Regulatory Requirements Overview 49 CFR subchapter C IMDG Code ICAO Technical Instructions IATA Dangerous Goods Regulations Canada TDG Regulations Mexico SCT Normas Oficiales Mexicanas (NOMs)
Lesson 6	HM Table
Module 2	Classification
Lesson 1	Accident History Texas City, TX – 1947 Bhopal, India – 1984 ValuJet 592 – 1996 FedEx 1406 – 1996
Lesson 2	Physical & Chemical Properties Explosive Corrosive Flammable Combustible Reactive Radioactive Toxic Elevated Temperature Elevated Pressure
Lesson 3	International Classification Class 1 – Explosives Class 2 – Gases Class 3 – Flammable Liquids Class 4 – Solids

Class 5 – Oxidizers & Organic Peroxides
Class 6 – Toxic Materials
Class 7 – Radioactive Materials
Class 8 – Corrosive Materials
Class 9 – Miscellaneous Dangerous Goods

Module 3

Automotive Hazardous Materials

Lesson 1	Electrical System Battery Speakers Cable Cutters (Battery Disconnects)
Lesson 2	Fuel System Fuel Pumps, Injectors & Rails Fuel Lines Fuel Pressure Regulators Charcoal Canisters Gas Tanks, Filler Necks & Gas Caps
Lesson 3	Power Train Engines
Lesson 4	Passenger Safety Air Bag Modules Driver-Side Airbags Passenger-Side Airbags Side Impact (Thorax) Air Bags Knee Bags Air Curtains Seat-Belt Pretensioners
Lesson 5	Steering & Suspension Accumulators Brake Boosters
Lesson 6	Paint & Body Lift Gate Supports Windshield Washer Fluid (concentrate) Paint & Paint Related Materials Adhesives & Coating Solutions
Lesson 7	Accessories Flares Fire Extinguishers Tire Inflators Cleaning Compounds After-Market Auto-Care Products

Module 4 Hazard Communication

- 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
 - Primary Risk Subsidiary Risk(s)
 - Labeling Requirements
 - Cargo Handling
 - Orientation Arrows
 - Cargo Aircraft Only
 - Special Marks
 - Excepted Quantities Mark
 - Overpack Mark
- Lesson 3 Package Marking & Labeling
 - TULIP
- Lesson 4 Overpacks, Unit Loads & Cages
 - Overpack
 - PILOT
 - Unit Loads
 - Cages
- Lesson 5 Placarding
 - Placarding Requirements
 - Placarding Exceptions
- Lesson 6 Limited Quantities
 - Hollow Diamond (ground, ocean)
 - Limited Quantity Mark (air)
 - Quantité Limitée (Quebec)
 - Cantidad Limitada (Mexico)
- Lesson 7 Consumer Commodity
 - ORM-D (ground)
 - Consumer Commodity (Canada)

Module 5 Lithium Batteries and Hybrid & Electric Vehicles

- Lesson 1 Lithium Metal vs. Lithium Ion
- Lesson 2 Cells vs Batteries
 - Single Unit Device
 - “Primary” Cells
- Lesson 3 Contained-In vs. Packed-With Equipment

Lesson 4	Vehicles vs. Equipment
Lesson 5	Hybrid vs. Electric Vehicles
	Engine, Internal Combustion, Flammable Gas Powered
	Engine, Internal Combustion, Flammable Liquid Powered
	Vehicle Flammable Gas Powered
	Vehicle, Flammable Liquid Powered
Lesson 6	UN38.3 Testing
Lesson 7	Lithium Battery Marking Requirements
	Lithium Metal Batteries- Fully Regulated
	Lithium Ion Batteries- Fully Regulated
	Lithium Batteries- General Packing Requirements
	Large Lithium Cell & Battery Packaging
	Damaged or Defective Batteries

Module 6 Packaging

Lesson 1	Forces Encountered in Transportation
Lesson 2	UN POP Marking
	Manufacturer Marks
	Reconditioner Marks
Lesson 3	DOT Marking
	Cylinders
Lesson 4	Non-Specification Packaging ('Strong' Outer Packaging)
Lesson 5	Manufacturers Symbol (Box Maker's Certificate – BMC)
	Burst Strength
	Edge Crush Test
Lesson 6	Packing
Lesson 7	Damaged Packaging
	Packaging Evaluation
	Repackaging

Module 7 Documentation

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	Modal Specific Requirements

- IATA DGR - Air
- IMDG Code - Ocean
- Lesson 6 Small Package Dispatch Services
- UPS
- FedEx
- Lesson 7 Recordkeeping Requirements

Module 8 Storage, Handling & Transportation

- Lesson 1 Material Safety Data Sheets
- OSHA
- WHMIS
- ANSI/GHS
- Lesson 2 MSDS Requirements
- Responsibility
- Availability
- Lesson 3 General Storage Provisions
- Storage
- Lesson 4 Safe Handling Practices
- Lesson 5 Load Securement

Module 9 Emergency Response

- Lesson 1 Initial Response Actions
- Lesson 2 Reporting & Notifications
- Lesson 3 Facility Response Plans

Module 10 HM Security

- Lesson 1 HM Security Awareness
- Lesson 2 HM Security Plan Requirements
- Personnel Security
- Site Security
- En Route Security

(Multimodal Course Materials)

Module 11 Air Transportation Requirements

- Lesson 1 A.I.R. Shipper™
- Lesson 2 Dangerous Goods List
- Lesson 3 General Packaging Requirements
- Lesson 4 Limited Quantities
- Consumer Commodities
- Excepted Quantities
- Lesson 5 Air Documentation
- Dangerous Goods Declarations
- Air Waybill

- Lesson 6 Other Required Documentation
- Lesson 6 Carrier Specific Requirements
- Lesson 6 Shipper & Carrier Responsibilities
- Lesson 7 Dangerous Goods in Checked Baggage
- Lesson 8 Forbidden Dangerous Goods

Module 12 Ocean Transportation Requirements

- Lesson 1 International Maritime Dangerous Goods (IMDG) Code
- Lesson 2 Dangerous Goods List
- Lesson 3 Hazard Communication
- Lesson 3 Required Package Markings
- Lesson 3 Overpack Marking & Labeling
- Lesson 3 Placarding
- Lesson 4 Limited Quantities
- Lesson 4 Consumer Commodities
- Lesson 4 Excepted Quantities
- Lesson 5 Ocean Documentation
- Lesson 5 IMO Dangerous Goods Declarations
- Lesson 5 Additional Descriptive Information
- Lesson 6 Segregation of Dangerous Goods