Function-Specific HazMat Training

Handling, Packaging, and Shipping DOT-Regulated Materials

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🎯 Overview

Welcome to SpecChem's function-specific training on handling, packaging, and shipping DOT-regulated materials. This comprehensive training course covers the requirements and expectations for working with hazardous materials in compliance with federal regulations.

Why This Training Matters

Title 49 of the Code of Federal Regulations requires that any associate who packages, handles, or transports hazardous materials must undergo training every three years regarding:

1. **General Awareness** - Familiarization with various aspects of hazardous materials
2. **Function-Specific Training** - How hazardous materials are handled in your specific job
3. **Safety Training** - Safe handling procedures for hazardous materials
4. **Security Awareness** - Understanding HAZMAT security issues
5. **In-Depth Security** - Detailed training on maintaining security with hazardous materials

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📚 Training Requirements

This course provides training on the requirements and expectations of handling, packaging, and shipping DOT-regulated materials in your work at SpecChem. The training is mandated by federal regulation and must be completed every three years.

🎯 Learning Objectives

By the end of this training, you will understand:

1. ✅ **UN-Rated Packaging** - Basic understanding of what UN-rated packaging is
2. 📋 **Package Selection** - How to find information on proper packaging for specific materials
3. 🏷️ **Marking Requirements** - Basic understanding of how to mark hazardous materials for shipping
4. 📌 **Label Location** - How to locate proper labels for marking HAZ packaging
5. 🔒 **Closure Information** - Where to find required proper closure information for HAZ packaging
6. 🔧 **Proper Tools** - Awareness of proper tools for closing pails, drums, or totes containing DOT-regulated materials

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📦 UN-Rated Packaging

What is UN-Rated Packaging?

UN ratings for packaging were developed to make transporting hazardous materials both **safer** and **easier**. If a material is DOT-regulated, it must be kept in UN-rated packaging for both storage and transport.

Key Features

- **Multi-faceted Rating System** - Signified by letters and numbers permanently marked on containers
- **Rigorous Testing** - Containers undergo series of tests to demonstrate conformity to standards
- **DOT Enforcement** - U.S. Department of Transportation enforces these regulations

Testing Standards

UN-rated containers are tested to ensure they can withstand:

Test Type	Purpose
Pressure Changes	External pressure variations without failing
Internal Pressure	Conditions of internal pressure buildup
Weight Bearing	Extended weight loads at high temperatures
Vibration	Transport-related vibrations
Drop Testing	Freefall drops that may occur during transport

When UN-Rated Packaging is Required

UN-rated packaging is **mandatory** for materials classified as:

- 💥 Explosives
- 🫧 Non-flammable gas
- 🔥 Flammable gas
- 🔥 Flammable liquid
- 🦠 Infectious substance
- ⚠️ Corrosive material
- 🔥 Flammable solid
- 💨 Oxidizer
- 🧪 Organic peroxide
- ☠️ Toxic materials
- ☢️ Radioactive materials

SpecChem Common Materials

At SpecChem, the materials requiring UN-rated packaging are primarily:

- **Flammable liquids** (most common)
- **Corrosives**
- **Toxic materials**
- **Oxidizers** (occasional)

  ⚠️ **Critical Rule**: It is **never acceptable** to substitute non-UN-rated packaging when working with hazardous materials. **No exceptions.**

Responsibility and Compliance

DOT Responsibility: Ensuring compliance with handling and transport regulations **Shipper Responsibility**: Ensuring operations are compliant, including:

- ✅ Authorized packaging usage
- ✅ Proper manufacturing standards
- ✅ Proper assembly procedures
- ✅ Proper marking requirements

Failure to comply can be costly - both corporately and individually.

🔍 Identifying DOT-Regulated Materials

Three Primary Information Sources

1. Safety Data Sheet (SDS) - Section 14

- **Purpose**: Identifies if material is DOT-regulated
- **Contains**: Required marking/labeling elements
- **Limitation**: Shows regulation status but not specific packaging type

2. Production Order

- **Purpose**: Verification of packaging requirements
- **Contains**: Basic description and specific container type (e.g., "blue steel UN pail")
- **Access**: Request to view from supervisor
- **Limitation**: Not used as primary production floor document

3. Excel Files on Server

- **Location**: Desktop shortcuts link to packaging folders
- **Files**: Separate files for pails and drums
- **Contains**:
    - Package type for all products
    - UN-rating indicators
    - **Proper closing instructions**
- **Backup**: Source documents with manufacturer's closing instructions

Example: CureNSeal 25EX

SDS Section 14: Identifies as DOT-regulated per 49 CFR 172.01 **Excel File Results**:

- **Pails**: UN-rated blue steel pails + closing instructions
- **Drums**: UN-rated blue steel drums + proper drum wrench specifications

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🏷️ Package Marking Requirements

The I-SHIP System

Remember proper marking with the acronym **I-SHIP**:

Letter	Component	Description
I	**Identification Number**	UN number identifying specific material/category
S	**Proper Shipping Name**	Describes hazard properties and composition
H	**Hazard Class**	Nine subdivisions describing hazard type
I	**Packing Group**	Danger level indicator (lower number = higher danger)
P	**Package**	Container specifications

Example: CureNSeal 25EX Basic Description

- **Identification Number**: UN 1139
- **Proper Shipping Name**: Coating solution
- **Hazard Class**: 3
- **Packing Group**: 2

Required Stickers and Labels

DOT Hazard Stickers

- **Format**: Square stickers using GHS pictograms
- **Common Types at SpecChem**:
    - Class 3: Flammable liquid sticker
    - Class 8: Corrosive sticker
- **Source**: Pre-printed on continuous rolls
- **Inventory**: Notify supervisor when stock is low

UN Labels

- **Purpose**: Mark packaging with I-SHIP information
- **Location**: Corporate server in same folder as product labels
- **Size Requirements**:
    - **Pails**: UN ID minimum 6mm (0.24 inches)
    - **Drums/Totes**: UN ID minimum 12mm (0.47 inches)
- **Organization**: Separate folders for drums, pails, and totes
- **Printing**: 12 per sheet (most common), 10 per sheet, or 6 per sheet

Sticker Sheet Specifications

- **12 per sheet**: ULINE S5627 or Avery equivalent
- **10 per sheet**: ULINE S19321 or Avery equivalent
- **6 per sheet**: ULINE S19322 or Avery equivalent

Label Placement

Pails

- **Location**: To the right of product label
- **Hazard Sticker**: Positioned to not obscure SpecChem logo
- **UN Label**: Along bottom right angled side of hazard sticker

Drums

- **Placement**: Similar to pails, to the right of product label
- **Configuration**: Hazard label and UN sticker in same arrangement

Totes

- **Location**: Same configuration on side displaying product label

  ⚠️ **Important**: Unmarked DOT-regulated materials cannot be shipped under any circumstances.

🔒 Proper Closure Procedures

Proper closure is **vital** for preventing leaks and ensuring compliance. These procedures apply to all packaging containers, DOT-regulated or not.

🥁 Drum Closure

Types of Drums and Required Torque

Drum Type	Bung Size	Material	Required Torque
Steel drums	2-inch	Steel bung	**30 foot-pounds**
Steel drums	3/4-inch	Steel bung	**15 foot-pounds**
Steel drums	2-inch	Poly bung	**20 foot-pounds**

Drum Type	Bung Size	Material	Required Torque
Steel drums	3/4-inch	Poly bung	**9 foot-pounds**
Poly drums	2-inch	Poly bung	**20 foot-pounds**

Required Tools: Calibrated Torque Wrenches

Red Handle Drum Wrench (Steel Bungs)

- **Large 4-lug side**: 30 foot-pounds (2-inch steel bungs)
- **Single lug side**: 15 foot-pounds (3/4-inch steel bungs)

Yellow Handle Drum Wrench (Poly Bungs)

- **Large 4-lug side**: 20 foot-pounds (2-inch poly bungs)
- **Single lug side**: 9 foot-pounds (3/4-inch poly bungs)

Wrench Features

- **Handle labeling**: Shows calibrated torque values, owning plant/department, bung material
- **Function**: When proper torque is reached, bung tool stops rotating while handle bends
- **Exclusivity**: **Only these tools may be used** for HAZ material drums - no exceptions

🪣 Pail Closure

Three-Step Process

1. **Place Lid**: Position uncrimped lid on pail
   - If spouted lid: Orient spout opposite product label to prevent label damage
2. **Align Crimper**: Place crimper over lid
   - Align 16 lugs on crimper with 16 tabs on lid
3. **Crimp**: Press down on crimper handles
   - Apply firm, even pressure until handles reach end of motion
   - Proper alignment ensures secure crimping across entire tab length

   ⚠️ **Alignment Critical**: Lugs set over tab gaps result in incomplete crimping and potential leakage

🏺 Tote Closure

Torque Requirements

- **Most Common**: Mauser-manufactured totes require **70 foot-pounds**
- **Verification**: Check closing instructions folder via desktop shortcut
- **Path**: S: → Operations → Compliance → Closing Instructions → "IBC Closing Instructions totes.pdf"
- **Unknown Manufacturer**: Contact plant manager for purchasing guidance

Required Tools

1. **IBC/Tote Wrench**: Internally slotted circular ring with handles and square center hole
2. **Socket Torque Wrench**: Standard 1½ inch drive

Four-Step Process

1. **Position**: Place tote wrench over lid
2. **Set Torque**: Dial socket wrench to desired torque (usually 70 foot-pounds)
3. **Insert**: Place socket head into square hole of tote wrench frame
4. **Tighten**: Turn socket wrench until handle breaks/bends without turning head

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📝 Knowledge Check

Quiz Questions and Answers

Question 1

True or False: If packaging DOT-regulated material and lacking UN-rated containers, you can substitute non-UN-rated containers if they comprise less than 10% of total being packaged.

Answer: **FALSE** - It is never allowable under any circumstance to package hazardous material in non-UN rated packaging.

Question 2

Which statement is NOT true about UN-rated packaging? A. UN ratings are required for packaging used in shipment and storage of hazardous materials B. Enforcement of current UN regulations is the responsibility of the FBI C. A UN rating is a set of letters and numbers specifying what the container can hold D. The packaging should be permanently marked on bottom and either side or top

Answer: **B** - Enforcement is the responsibility of the Department of Transportation (DOT).

Question 3

Which are the three most common DOT-regulated materials in SpecChem products? A. Explosives B. Flammable gas C. Flammable liquid
D. Infectious substances E. Corrosives F. Toxic materials

Answer: **C, E, F** - Flammable liquid, Corrosives, Toxic materials

Question 4

Which two sources show the type of package to use? A. Section 14 of product SDS B. Production order C. Excel file on corporate server

Answer: **B and C** - Production order and Excel file (SDS shows regulation status but not package type)

Question 5

Which source lists proper closing instructions? A. Section 14 of product SDS B. Production order C. Excel file on corporate server

Answer: **C** - Only the Excel file contains proper closing instructions

Question 6

True or False: If you forget to mark pails with DOT hazard sticker and/or UN label, it's okay to ship with a note on shipping paperwork.

Answer: **FALSE** - All hazardous material packages must be properly marked or cannot be shipped. Improperly marked packages should be removed from staging immediately.

Question 7

True or False: All drums require the same torque regardless of material.

Answer: **FALSE** - Torque varies by bung size and material (steel vs. poly).

Question 8

True or False: When packaging DOT-regulated material in drums, only specific torque wrenches may be used (red for steel, yellow for poly).

Answer: **TRUE** - Properly calibrated torque wrenches are the only allowable tools.

📋 Quick Reference

Emergency Contact Protocol

If you discover improperly marked hazardous materials:

1. **Immediately notify**: Lead, supervisor, plant manager, or assistant plant manager
2. **Action required**: Remove pallets from staging/storage lanes
3. **Process**: Unband/unwrap to prevent truck loading
4. **Correction**: Fix markings before returning to staging

Key Reminders

- 🚫 **Never** substitute non-UN packaging for hazardous materials
- 🔧 **Always** use proper torque wrenches for drum closure
- 🏷️ **Always** verify proper marking before shipping
- 📞 **Always** maintain adequate sticker inventory
- 📋 **Always** follow closing instructions exactly

File Locations

- **UN Labels**: S-Drive → Product Labels → UN Numbers → [Drums/Pails/Totes]
- **Closing Instructions**: S: → Operations → Compliance → Closing Instructions
- **Excel Files**: Desktop shortcuts to packaging folders

Training completed. Please provide signed and dated quiz to your plant manager.

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