

# EXPLOSIVES SHIPPING CLASSIFICATION DOT EX-NUMBER TRAINING & WORKSHOP

Please join Safety Management Services, Inc. (SMS®), one of the U.S. DOT's premier examining agencies, for an exciting and insightful look into the hazards classification process for Class 1 materials. During this four-day training course, participants will:

- Identify the hazards presented by Class 1 materials in transport
- Select the tests required to properly classify the hazards of Class 1 materials for transport
- Discover the purpose of each test, along with key parameters/objectives and indicators for assessing test results
- Learn about the various Approvals (EX numbers, Special Permits, and Competent Authority letters) and the hazardous materials' shipment process.
- **Gain invaluable classroom and hands-on experience with each test's setup and representative pass/fail results at SMS's Test Site (Tooele Army Depot)**

A course outline is provided below. Please contact Troy Gardner, Testing & Classifications Manager, for technical questions. We look forward to your participation! Online registration is available at [www.tci-training.com](http://www.tci-training.com).

**May 04-08, 2020 (4.5 Days)**  
**\$2100**

**Course Prerequisite:** Please complete PHMSA's new online HAZMAT employee training modules and tests (<http://dothazmat.vividlms.com/>) prior to attending this course.

## DAYS 1 & 3: Hazards Classification Procedures

1. General Philosophy of Hazards Classification
2. Hazards Class 1: When is Hazards Classification Required?
3. Introduction to the Explosives Testing Users' Group (ETUG)
4. ETUG's Test Methods Matrix - Defining the test purpose, key parameters/objectives, and indicators for assessing results, with photographs and videos of representative test setups and pass/fail results for each of the following tests:
  - i. UN Test Series 1 and 2
    - (a) UN Gap
    - (b) Koenen
    - (c) (i) Time/pressure
    - (c) (ii) Internal Ignition
  - ii. UN Test Series 3
    - (a) Impact sensitivity
    - (b) Friction sensitivity
    - (c) Thermal stability at 75 °C (uninstrumented/ instrumented)
    - (d) Small-scale burning
  - iii. UN Test Series 4
    - (a) Thermal stability for unpackaged/ packaged articles
    - (b) (ii) Twelve meter drop
  - iv. UN Test Series 5
    - (a) Cap sensitivity
    - (b) (ii) USA DDT
    - (c) External fire for Division 1.5
  - v. UN Test Series 6
    - (a) Single package
    - (b) Stack
    - (c) External fire (bonfire)
    - (d) Unconfined package
    - (e) Alternate tests: DOD's Super Large Scale Gap Test (SLSGT)
  - vi. UN Test Series 8
    - (a) Thermal stability for ANE
    - (b) ANE Gap
    - (c) Koenen
    - (d) Vented pipe
5. Planning for a classification (required information; optimizing a request to bound a proposed family)
6. Selecting the test location: Who can perform the tests?
7. Sending samples for laboratory examination
8. Applying for a U.S. DOT Approval (EX number, Special Permit, or Competent Authority letter)

## DAY 2: Hazards Classification Testing Workshop at SMS's Test Site (Tooele Army Depot)

1. LIVE DEMONSTRATIONS of sensitivity tests (BOE Impact, Modified Type 12 Impact, ABL Friction, BAM Friction, ABL ESD)
2. Hands-on examination of full-scale reactivity test configurations (using inert materials) for UN Test Series 1 - 6 and 8 with examples of pass/fail test results
3. LIVE DEMONSTRATIONS of reactivity tests and reaction severity types using energetic materials remotely monitored from the control bunker:
  - a. Detonation of a booster in a UN Test 1 (a) Gap test
  - b. Mass explosion and deflagration of confined substances in UN Test 6 (a) Single package tests
  - c. UN Test 6 (c) External fire (bonfire) test
  - d. UN Test 1 (b) Koenen test and UN Test 1 (c) (i) Time/pressure test (with pressure acquisition)

## DAY 4-5: Using Your Approval in a Hazardous Materials Shipment Workshops\*

1. Hazardous materials table
2. Required training
3. Packaging and the UN's Performance Oriented Packaging (POP) certification
4. Marking
5. Labeling and placarding
6. Preparation of shipping papers
7. Safety and security plans
8. Transportation

\*Builds on PHMSA's new online HAZMAT employee training modules and tests