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IOPP Transport Packaging Committee

Transportation, Handling, and Testing Standards Update

08/18/14

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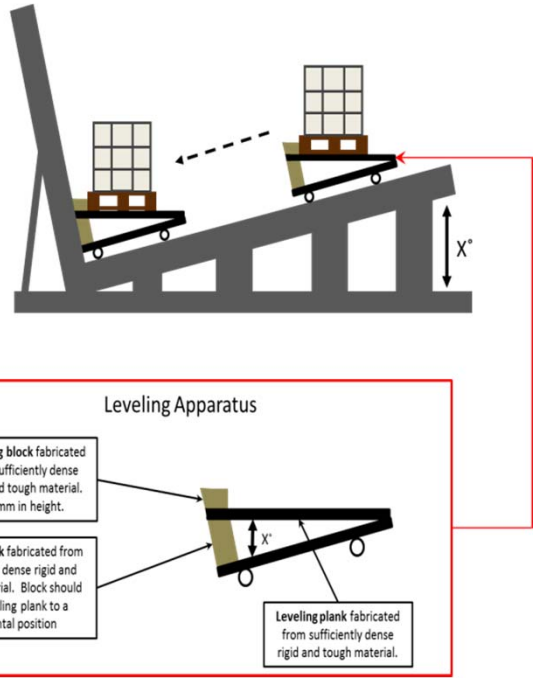
ISTA Standards Update

- Addition of ISTA Series 1 Mandatory Pre-Conditioning Approved
  - Preconditioning Identical to Series 3 Pre-Conditioning
- ISTA Series 3 Edits:
  - Compression Note in "Before You Begin" section of ISTA 3E and 3H tests removed, Several commenters stated that Note caused confusion
  - Reference to Air Spectrum in ISTA 3A (Step 5 in Optional Vibration) removed.
- Standard 20 Revision 2 is up for Final Review and Approval:
  - Total length decreased to ~25 pages from 45 pages
  - A more stringently defined method to amount and placement of thermocouples within the shipper
  - Data Package Examples is now contained within a 17 page book (formerly was 1000 pages)
  - Procedure is now aligned with FDA Process Validation Guidance

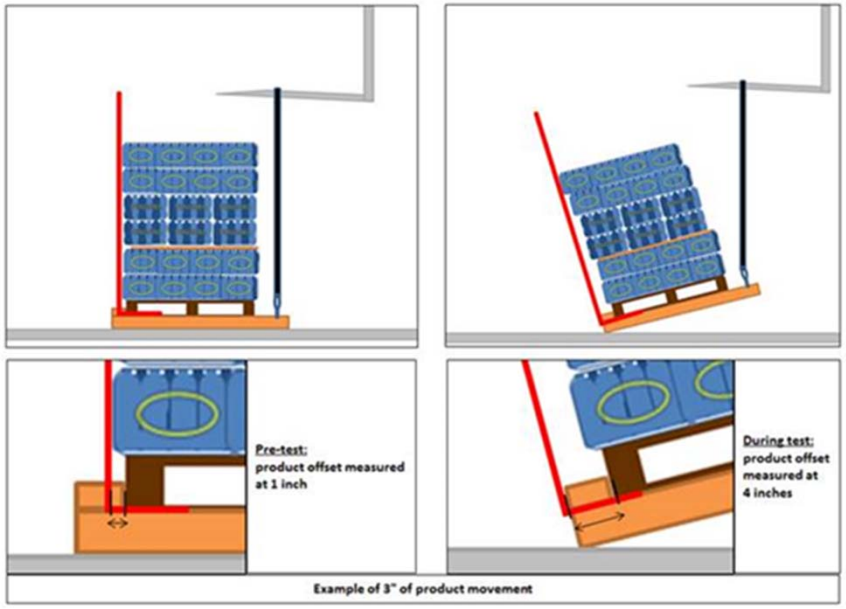
Unit Load Stability Testing

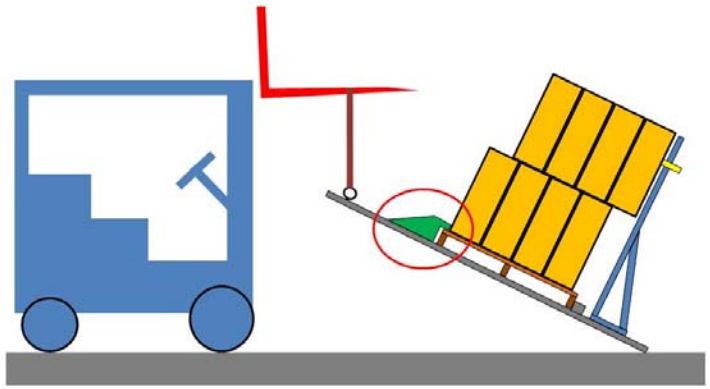
- The task group formed in 2013 to evaluate unit load testing in Series 3 tests has created new test standards to evaluate unit load stability
  - **Modified Inclined Impact Testing** using short duration, low level shocks.
  - Using a modified incline plane, the tester simulates horizontal impact while also keeping the pallet away from the impact surface during testing



Unit Load Stability Testing

- 2nd Method of Unit Load testing being evaluated: **Tilt Testing**
  - Can it provide feedback on how well a unit load will stay contained when experiencing the gravitational forced created by truck acceleration, braking, and turning?
  - This does not replicate the dynamic elements of transportation and handling.





ASTM Standards Update

ASTM D4169

- **2014 Revision coming soon…**
- **Schedule G update**
  - AAR reference, 3 → 4 impacts
- **Schedule A (Handling) still under review**
- **Schedule B & C (Stacking) in ballot process**
  - Small parcel average shipping density factor (10 →12)
  - Considering addition of optional test element
- **Schedule D & E (Vibration) in review process**
  - Proposed revision to truck profiles
    - ✓ New shape, multiple test levels (low, medium, high)
  - Air and Rail profiles to be discussed at next D10 meeting

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ASTM Standards Update

ASTM INTERNATIONAL Standards Worldwide

ASTM D4169 - Random Vibration Task Group

- Started with Truck Profile (most common)
- Random Vibration Profiles are based on data from General Technical Report FPL 22 (Forest Products Laboratory)
- Current shape of ASTM truck profile is different when compared to other industry standards and recently collected field data
- Task group has committed to updating the vibration profiles:
  - "White Paper" of concept created by task group – February 2014
  - Concept document with proposed changes balloted and approved by D10.21 subcommittee – March 2014
  - Need industry assistance to run additional comparison tests - 2014
- Finalize truck profile changes and ballot at ASTM D10 main committee – Spring 2015

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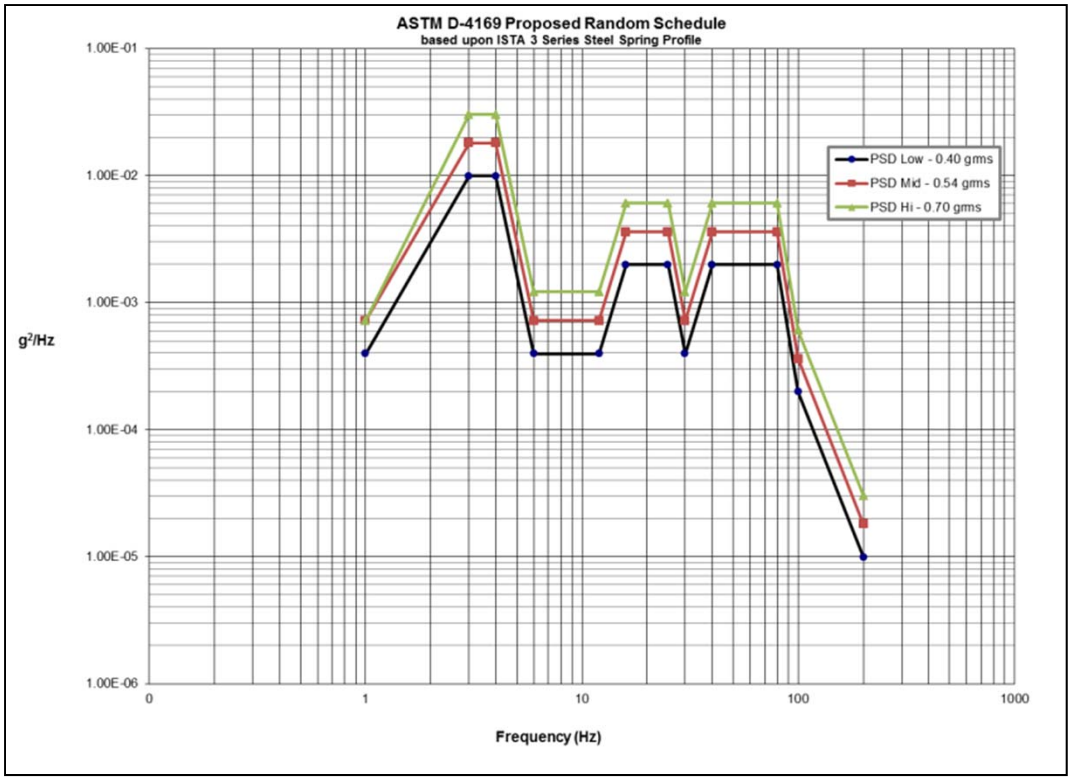
ASTM Standards Update

ASTM INTERNATIONAL Standards Worldwide

ASTM D4169 - Random Vibration Task Group

	Test Sequence	Proposed Grms	Proposed Test Time
Loop	A (Low)	0.402	40 minutes
	B (Medium)	0.542	15 minutes
	C (High)	0.701	5 minutes
	Total Loop Time:		**60 minutes**
Loop repeated three times			



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Standard Spotlight

- **ASTM D6537**: Standard Practice for Instrumented Packaging Shock Testing For Determination of Package Performance
  - Standard was Reapproved in 2014
  - Covers technical concepts associated with instrumented testing such as Peak to Peak Acceleration, Pulse Duration, Fairing, and Accelerometer specification
  - Contains information on how to begin, conduct and evaluate results for proper instrumented testing of a packaged product including placement and mounting of recording devices (accelerometers)

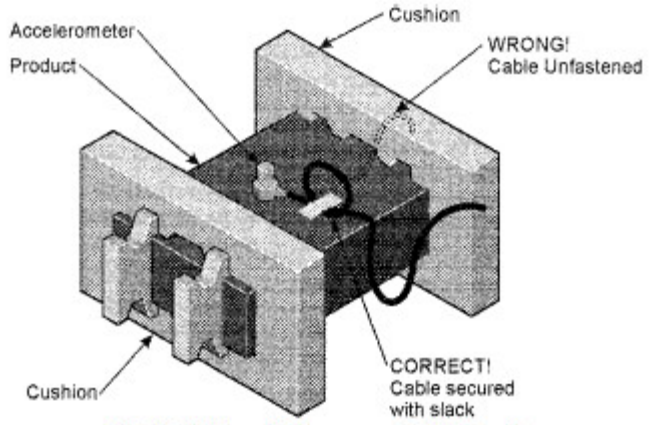

FIG. 1 Right and Wrong on Cable Routing

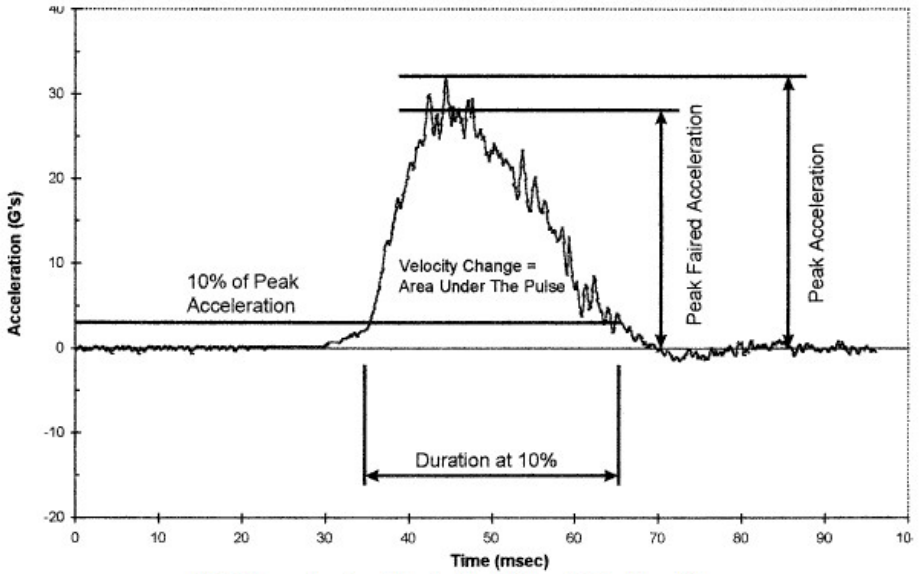

FIG. 2 Parameters for a Classic Shock Pulse of a Cushioned Item

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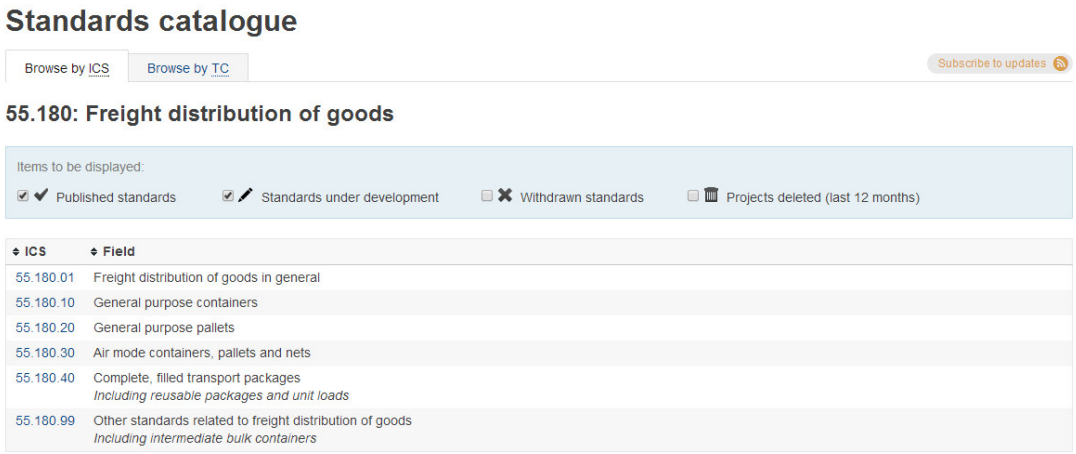
ISO Transport Packaging

- **ISO ICS:** The International Classification for Standards
  - A way to collect various ISO procedures into a catalogue type guide so that Various ISO specification can be presented as a collection of standards pertaining to a particular area of interest
  - **ICS 55**: Packaging And Distribution of Goods; Most standards within this category deal with types of packages, containers and their various uses.
  - ICS 55.180 – Freight Distribution of Goods: This category within ICS 55 collects ISO standards on conditioning and testing for various containers and pallet configurations
- Although ISTA and ASTM standards cover most of the material presented within these ISO standards it is good to know that these standards do exist as resources for testing.



Standards catalogue

Browse by ICS | Browse by TC | Subscribe to updates

55.180: Freight distribution of goods

Items to be displayed:

Published standards | Standards under development | Withdrawn standards | Projects deleted (last 12 months)

ICS	Field
55.180.01	Freight distribution of goods in general
55.180.10	General purpose containers
55.180.20	General purpose pallets
55.180.30	Air mode containers, pallets and nets
55.180.40	Complete, filled transport packages *Including reusable packages and unit loads*
55.180.99	Other standards related to freight distribution of goods *Including intermediate bulk containers*