

# **PHMSA / Tobyhanna Test Report Database**

## **RIPA Summary and Analysis**

**October 18, 2012**

## Definitions to Aid in Analysis

**“Packaging”:** The subject of a complete test project at LOGSA.

e.g,     1A2/Y1.2/100/05/USA/M1234

or

1A2/Y1.2/100/06/USA/M4321

*Different “Packagings” can be of the same design-type; but different design-types cannot be the same packaging.*

**“Unit”:** An individual drum or IBC.

**“Series”:** Units in a specific performance test such as the drop test (6 units) or hydro test (3 units).

# **The DOT / PHMSA / LOGSA Database**

547 Packaging Test Projects Since 1996

*(Closed cases only; through 2011)*

<https://hip.phmsa.dot.gov/analyticsSOAP/saw.dll?Dashboard>

## Reconditioned Drums (“RL”)

37 Packagings Tested

37 Packagings Failed

36 Packagings Marked for Liquids

15 1A1's      21 1A2's      1 1H2

24 of the 37 rated @ 1.2

## New Drums

300+ **New** Drum Packagings Failed.

**45** New Drum Packagings Passed.

24 of the **45** passed are marked for solids.

1 was dual marked.

20 of **45**: Plastic Drum

9 of **45**: 1A1

15 of **45**: 1A2

1 of **45**: Fiber

## Closures

Closures on all drum packagings that passed (*only new packagings passed*) varied evenly among:

Rieke, TriSure, Drum Parts, and the “packaging’s manufacturer” (*THEIR* entry).

No discernible trend or advantage seen for affecting Pass/Fail rate .

## **Composite IBCs (31HA1)**

23 IBC Packagings Tested

16 New      14 Failed

7 “Recon” 6 Failed

## **IBCs (continued)**

Six IBC packagings were rated at 69 kPa, one was rated at 80 kPa, and one was rated at 41 kPa.

All others were rated at 100 kPa.

3 IBC packagings passed all tests. 2 were rated 100 kPa, one was rated 41 kPa.



## IBC PASS / FAIL Rate (individual units)

*Multiple units were tested for some packagings*

Drop Test	12 PASS	16 FAIL	
Stack Test	18 PASS	0 FAIL	4 “No Test”
Leak Test	10 PASS	13 FAIL	5 “No Test”
Hydro Test	6 PASS	29 FAIL	3 “No Test”
Vibration Test	9 PASS	22 FAIL	2 “No Test”

## Compliance Testing at LOGSA (Tobyhanna)

Follows DOT Design-Type Qualification Testing.

With some additional units tested for information purposes.

- 6 drop test
- 3 stack test
- 3 leakproofness *(if applicable)*
- 3 hydrostatic *(if applicable)*
- 3 vibration *(capability test)*
- 6 additional for information purposes

24 total units

## **IBC Sample Size Taken to LOGSA**

5 IBC units are selected for shipment.

2 units are required for principal testing.

These 2 are selected at random from the five received at the lab.

The 3<sup>rd</sup> unit is used for weights and measurements.

The 4<sup>th</sup> and 5<sup>th</sup> units are for additional, informative testing -- or other uses as needed.

## **Old and New Policy Re: Additional Testing**

Old policy was to try and re-test for each failure. That has been abandoned very recently.

Additionally, for past 3 years, no additional tests if: two or more units in a series fail.

Example: One hydro failure - then one more test. Two hydro failures? Then no additional testing.

## Reading the Table Entries

In the columns for specific test (series) results:

The first “top” number indicates the number of failed units in that test series –for instance the hydro test..

The second “bottom” number indicates all failures for the packaging across all series – i.e., the whole project.

Add all the top numbers for a packaging and it should equal the bottom number.

**Excerpted from the LOGSA Database on PHMSA's Website**

<b><u>Packaging</u></b>	<b><u>Drop</u></b>	<b><u>Stack</u></b>	<b><u>Leak</u></b>	<b><u>Hydro</u></b>	<b><u>Vibration</u></b>
1A1/X1.8/250/05/USA/Mxxxx	4/6 Failed	Passed	1/6 Failed	1/6 Failed	Passed
1A1/X1.8/300/05/USA/Mxxxx	1/3 Failed	Passed	Passed	2/3 Failed	Passed
1A2/Y1.5/150/06/USA/Mxxxx	1/4 Failed	Passed	Passed	3/4 Failed	Passed
1A2/Y1.2/100/USA/Mxxxx/06 RL	4/14 Failed	Passed	4/14 Failed	6/14 Failed	Passed
1A1/Y1.2/200/USA/Rxxxx/06 RL	Passed	2/3 Failed	1/3 Failed	Passed	Passed
1A1/X1.3/250/05/USA/Mxxxx	8/8 Failed	Passed	Passed	Passed	Passed

## Major Factors Affecting Pass / Fail

- Liquids vs. Solids?
- Open-Head vs. Tight-Head?
- Level of Performance Ratings?
- New vs. Reconditioned?
- Thickness? (*sparingly reported in the database*)

*Further analysis of the LOGSA database by RIPA is needed to quantify the relative weight of these factors. Approximately, though, they are presented here in descending rank of significance.*