D.O.T. SPECIFICATION 7A, TYPE A
PACKAGING TEST RECORD

DATE: **MAY 26, 2006**
PACKAGE IDENTIFICATION: **SINGLE OR MULTIPLE DOSE SHIPPING SYSTEM, MODEL #001-724**

PACKAGE	DESCRIPTION	SIGNED OFF BY
Outer Case:		CS
manufacturer of case	Zero Plastic	
construction material	rotation molded polyethylene	
wall strength, lb test	N/A	
dimensions, inches	11.75x11.75x12.5 (h)	
closure	hinged lid, 2 clasps	
internal cushioning	high density polyethylene foam	
Lead Insert Shielding Package:		
material	▪ cast lead in a contoured shape to supply appropriate shielding to inner pig - open top and bottom on lead ▪ 2 lead sheets in bottom of case under contoured lead ▪ contoured lead varies from 0.232" to 0.699", bottom lead is 0.75"	
insert support	▪ metal plate to hold and position lead	
Vial Pig (Model #001-706):		
material	Pig bottom section: lead encased in .065" steel outer shell top section: aluminum shell filled with lead Lead: body 1" top 1.75" bottom 1"	
closure	plastic threads on bottom section aluminum threads on top section	
cushioning	N/A	
dimensions, "	6.72" tall x 4.13" diameter	
Lead Shielding Combined: outer shield 0.232" to 0.699"	bottom: 1" + 0.75" = 1.75" top: 1.75" + 0" = 1.75" sides: varies depending on location from 1.232" to 1.65 "	
Weight:		
outer shield and case	28.4 lbs	
vial pig	21.3 lbs	
Total Weight	49.7 lbs	
Primary Container Unit Dose Pig:		
vial/bottle	glass vial 30ml	
nominal volume ml in vial	approximately 20ml	
closure	crimp seal septum	
content simulation	colored water	
absorbent materials	absorbent sheet (001-771)	
Examination of test sample before tests:		
Describe:		
defects	none	
distortions	none	
deterioration	none	
printing imperfections	none	

TESTS	NOTES	SIGNED OFF BY
TEST RECORD:	Perform tests in order and attach a photographic record	
WATER SPRAY TEST: 49 CFR 173.465 (b) (must be performed before remaining tests) Spray Package: from 1 or 4 sides rate approx. 2 inches / hour time at least 1 hour Describe Results:	 spray from 4 simultaneously greater than 2 inches / hour sprayed for 1 hour The water spray did not affect the plastic shipping container. There was some water inside the case. NOTE: If the package was sprayed from 4 sides simultaneously, the other tests may begin up to 2 hrs. after the water is turned off. If the spray is from 1 direction on each side sequentially, the compression test must begin within 1 hour.	 CS CS CS CS CS

TESTS	NOTES	SIGNED OFF BY
FREE DROP TESTS: onto flat concrete surface		
Drop Test four feet for maximum damage: 49 CFR 173.465 (c) (1)	zip tie case closed drop onto latches for maximum damage	CS
Describe Results:	a) scratched case, but held together and stayed closed b) when opened, the vial pig is OK the pig lifts straight out no damage to pig the vial is undamaged	CS
Drop Test one foot onto 8 corners: 49 CFR 173.465 (c) (2)	dropped on all 8 corners	CS
Describe Results:	small scratches on corners of case where dropped – no other damage opened case vial pig is undamaged vial is undamaged	
Drop Test 30 feet: 49 CFR 173.466 (a) (1)	zip tie case closed case taken to top of building and dropped 30 feet onto concrete	CS
Describe Results:	case hit on right side . one rivet on the handle popped . the DOT metal label bracket bent . there was a small hole in the side of the case caused by the metal plate inside shifting from the impact putting a dent line in the side of the case and the corner of the bracket coming thru the case . the vial pig is stuck in the contoured shaped outer piece of lead . we were able to unscrew the top of the vial and the vial is OK . there is no damage to the vial and it did not leak	CS
	PASSES TESTS	CS

PENETRATION TEST: 49 CFR 173.466 (a) (2) and IATA 10.6.3.5.2 using 1.25 in. diameter bar with hemispherical end weighing 13.2 lbs.		
Drop from 67 inches: strike point clock time	top of case between ribs N/A	CS CS
Describe Results:	▪ the bar bounced off - caused slight indentation and a small crack in top ▪ case stayed together ▪ the rod hit the handle of the vial pig and bent the handle ▪ the vial pig had no other damage ▪ it lifted out of the case ▪ the pig top unscrewed without a problem ▪ the vial is undamaged and did not leak **PASSES TEST**	CS CS

TESTS	NOTES	SIGNED OFF BY
COMPRESSION TEST: 49 CFR 173.465 (d) performed December 1999 24 hours compression: weight in lbs. clock time - start clock time - finish	 greater than 400 lbs N/A timer, 24 hours NOTE: Compression test was performed by placing a sheet of plywood with lead bricks onto the top of the plastic case. The case weighs 50 lbs The weight calculation is either (2 lb./in^2 x vertical projected area of package, which would be 277 lbs) or (5x's the weight of the package, which is 250 lbs.) We used over 400 lbs of lead bricks on top of the shipping system. There was no damage or effect to the plastic case. The vial shield was not damaged during this test. **PASSES TEST**	 CS CS CS CS CS
ACCEPTANCE CRITERIA:	1. Damage to the packaging may not cause loss or dispersal of simulated contents. 2. Damage to the packaging may not cause an increase in calculated surface radiation exposure. 3. The test record must be complete and accurate, and the photographic record attached.	

Tests performed by:

Initials CS

Initials KP

Date: 6-21-06