

Testing Summary for the Combination Flood Source and E-Vial Shipping Container

1. **Package Description**
 - 1.1. The flood source shipping package consists of a double wall cardboard box with Styrofoam inserts to position and protect the Radshield bag containing the flood source and the E-Vials. The box was sealed with standard packing tape. The exterior dimensions of the package are 35 inches X 29 inches X 8 inches.
 - 1.2. The package was tested with a "dummy" rectangular source in a 0.9 mm lead equivalent Radshield and 4 E-Vial dummies placed inside the package.
2. **Testing Summary**
 - 2.1. **Water Spray Test**
 - 2.1.1. The water spray test was conducted by spraying four sides of the package consecutively, one at a time, for one hour each. The post test inspection found that the water had soaked the outer layer of the cardboard but had not compromised the integrity of the tape or cardboard. The package remained intact and all internal contents were held securely in place.
 - 2.2. **Free Drop Test**
 - 2.2.1. The Free Drop Test was conducted immediately after the Water Spray Test. The package was dropped from a height of 4 feet 6 inches onto a smooth concrete surface, landing on a corner. The test was repeated from the same height, with the package landing on one of the large sides. Post-test inspection found slight deformation on the corner impacted. The package remained intact and all internal contents were held securely in place.
 - 2.3. **Penetration Test**
 - 2.3.1. The Penetration Test was performed immediately after the Free Drop Test. A steel bar 1.25 inches in diameter, with a hemispherical end and a weight of 13.2 lbs was dropped from a height of 3 feet 6 inches onto the center of the package. The metal bar penetrated the cardboard box and partially penetrated the foam insert. The foam insert appeared to prevent the bar from striking the dummy flood source. The post-test inspection found no indication of damage to the flood source. The package remained intact and all internal contents were held securely in place.
 - 2.4. **Stacking Test**


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2.4.1. The Stacking Test was initiated immediately after the Penetration Test. The package was placed on a concrete surface and a plywood sheet was placed on the package. Concrete bricks weighing a total of 1944 lbs. were then stacked on the plywood and allowed to remain for 24 hours. The post-test inspection found no indication of damage to the flood source although some deformation of the cardboard box was noted. The package remained intact and all internal contents were held securely in place.

3. Testing Conclusion

3.1. The cardboard package with foam inserts provided adequate protection for the flood source. It is considered qualified as a Spcc 7A Type A Package.

Testing performed and recorded by:


 Darin Lords
 International Isotopes Idaho Inc.

8/27/03
 Date

Data Sheet for Type A 7A Testing on Combination Flood Source and E-vial Shipping Container

Date Performed 8/26/03

TEST	START TIME	STOP TIME	PERFORMED BY	RESULT/COMMENTS
Water Spray Test *	0805	1205	<i>[Signature]</i>	
Side 1	0805	0905	<i>[Signature]</i>	No indication of package damage
Side 2	0905	1005	<i>[Signature]</i>	No indication of Package damage
Side 3	1005	1105	<i>[Signature]</i>	No indication of Package damage
Side 4	1105	1205	<i>[Signature]</i>	No indication of Package damage
Free Drop Test	1210	1220	<i>[Signature]</i>	Slight deformation of one corner
Stacking Test **	1245 (5/4)	1245 (4/2)	<i>[Signature]</i>	Slight deformation of Cardboard No damage to source or Radshield Cardboard fractured - No damage to Radshield or source
Penetration Test	1225	1230	<i>[Signature]</i>	

Results Reviewed by *[Signature]* Date 8/27/03

* The Water Spray Test will be done by spraying four sides of the box consecutively, one at a time. The remaining tests will be performed immediately following the spray test.

** Stacking Test Requirements are 1.9 lbs/in² - Package size is 35in X 29in, 35 X 29 X 1.9 = 1929 lbs Required for Testing.