

Testing Summary for the Co-57 Flood Source Shipping Package

1. Package Description

- 1.1 The Co-57 Flood Source Shipping Package consists of an ABS plastic case with aluminum reinforced corners and edges. The inside dimensions of the case are 32 inches X 24 inches X 6 inches. The outside dimensions of the case are 34-1/8 inches X 27-9/16 inches X 7-3/8 inches. The case is lined with foam to provide an interior cavity of 28 inches X 21 inches X 2 inches.
- 1.2 The package was tested with a "dummy" source placed inside a shield bag in the interior cavity.

2. Testing Summary

2.1 Water Spray Test

- 2.1.1 The water spray test was conducted by spraying four sides of the case consecutively, one at a time, for one hour on each side. The post-test inspection found no visual external damage to the case. The foam was soaked with water around the edge of the case. The case remained intact and all contents were held securely in place. No change or shifting in the shield bag was observed.

2.2 Free Drop Test

- 2.2.1 The Free Drop Test was conducted immediately after the Spray Test. The package was dropped from a height of 4 feet 6 inches onto a concrete surface, landing on a corner. The test was repeated from the same height, dropping the case onto a side. The post-test inspection found no visual external damage to the case. The case remained intact and all contents were held securely in place. No change or shifting in the shield bag was observed.

2.3 Penetration Test

- 2.3.1 The Penetration Test was performed immediately after the Free Drop Test. A 1.25 inch diameter, round, metal bar 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 one of the large sides of the case. The case sustained a dent where the bar struck the ABS shell. The Penetration test was then repeated on the other large side of the case. On the second drop, the metal bar penetrated the ABS shell of the case. The foam lining prevented the bar from striking the contents of the case. The post-test inspection found no indication of damage to the Flood Source. The case remained intact and all contents were held securely in place. No change or shifting in the shield bag was observed.

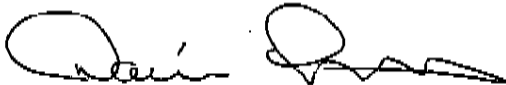
2.4 Stacking Test

2.4.1 The stacking test was initiated immediately after the penetration Test. The case was placed on a concrete surface and a plywood sheet was placed on the case. Concrete bricks weighing a total of 1848 lbs. were then stacked on the plywood and allowed to remain for 24 hours. The post-test inspection found no visual external damage to the case. The case remained intact and all contents were held securely in place. No change or shifting in the shield bag was observed.

3. Testing Conclusion

3.1 The case being considered for shipping the Co-57 Flood Sources provided adequate protection for the sources. It is considered qualified as a Spec 7A Type A package.

Testing performed and recorded by:



3/16/01

Darin Lords
International Isotopes Idaho Inc.

Flood Source Shipping Case Testing Data for 7A Type A Qualification

Water Spray Test *				
Package #	Start Time	Complete Time	Simulated Rainfall Rate	Performed By (signature) date
Side 1	0930	1030	2.6in/hr	<i>[Signature]</i> 3/15/01
Side 2	1030	1130	2.6in/hr	<i>[Signature]</i> 3/15/01
Side 3	1130	1230	2.6in/hr	<i>[Signature]</i> 3/15/01
Side 4	1230	1400	2.6in/hr	<i>[Signature]</i> 3/15/01

Free Drop Test				
Package #	Start Time	Complete Time	Measured Drop Height	Performed By (signature) date
1	1400	1405	4 Ft 6in	<i>[Signature]</i> 3/15/01

Penetration Test				
Package #	Start Time	Complete Time	Measured Drop Height	Performed By (signature) date
1	1410	1415	3 Ft 6in	<i>[Signature]</i> 3/15/01

Stacking Test				
Package #	Start Time/Date	Complete Time/Date	Actual Weight **	Performed By (signature) date
1	1430/3/15/01	1430/3/15/01	1848 lbs	<i>[Signature]</i> 3/15/01

*The time interval requirement for this testing is as follows:

The water spray testing will be done by spraying four sides of the box consecutively, one at a time, therefore, the remaining tests shall be performed immediately following the spray test.

**The required weight for the Flood Source shipping cases is calculated as follows:

Area of case top X 1.9 lbs/in² = 34.125 in. X 27.5625 in. X 1.9 lbs/in² = 1787.1 lbs
Therefore the total weight loaded onto the package must be AT LEAST 1787.1 lbs.