



# **Pira Consulting Report**

*Logistics, Distribution & Operations Group*

## **Demonstration of compliance to UN Packing Instruction 650 for packaging for diagnostic specimens**

**05K19J0856**

**Prepared for Julia Smallbone of Versapak**

**By Justin Scott, *Consultant***

**June 2005**

***Private and confidential***



## **1. Introduction**

This report covers Pira's laboratory distribution testing of packaging for diagnostic specimens for:

Versapak International Ltd  
The Versapak Centre  
Centurion Way  
Erith  
Kent  
DA18 4AF

## **2. Background**

Versapak wishes to supply heavy duty padded packs for diagnostic specimens. In order to meet carriage of dangerous goods regulations the pack must be capable of meeting certain performance requirements. Versapak approached Pira International to conduct the relevant tests on three pack sizes.

Important note, the regulations make it clear that packs must be 'capable of passing' the tests outlined below. It is not a formal requirement of the dangerous goods regulations that these tests be conducted by an independent laboratory.

## **3. Objective**

To demonstrate compliance with the drop test requirements of United Nations Packing Instruction 650 for packaging for diagnostic specimens

## **4. Samples**

Five packs of each of 3 sizes were sent to Pira for testing along with 1 pack of vials as a typical diagnostic specimen.

A summary of the packaging submitted for testing is presented in Table 1 with photographs of samples in Appendix A.

**Table 1 Summary specification of packaging submitted**

<b>Description</b>	3 sizes of heavy duty padded hold-all style packs for diagnostic specimens		
<b>Sample</b>	Pack 1	Pack 2	Pack 3
<b>External dimensions</b>	300x200x300 mm	480x280x300 mm	660x280x370
<b>Empty weight</b>	1.63 kg	2.53 kg	3.92 kg
<b>Manufacturer</b>	Versapak		
<b>Method of closure</b>	Zipped		
<b>Material</b>	PVC coated nylon with padding		

## 5. Work undertaken

Pira filled out the packs with the vials supplied and a range of liquid filled containers as detailed in Table 2

**Table 2 Pack contents for testing**

	Vials in plastic holder & plastic bag	Liquid filled plastic jars	Total filled pack weight
Pack 1	1	0	2.4 kg
Pack 2	1	2 off	4.96 kg
Pack 3	1	3 off	7.65 kg

Pira then conducted testing in accordance with the requirements of Packing Instruction 650 of the United Nations Recommendations on the Transport of Dangerous Goods (13<sup>th</sup> edition) comprising:

- Drop tests from a height of 1.2m on five complete pack systems (of each size) through the following drops:
  1. Flat onto base
  2. Flat onto top
  3. Flat onto longest side
  4. Flat onto shortest side
  5. Onto a corner



## 6. Results

Packs and contents were inspected following each drop sequence. The results are presented in Table 3-5.

Table 3 Observations following drop testing – Pack 1

Pack 1	Drop	Observations
Sample A	1	No damage to pack or contents
Sample B	2	No damage to pack or contents
Sample C	3	No damage to pack or contents
Sample D	4	No damage to pack or contents
Sample E	5	No damage to pack or contents

Table 4 Observations following drop testing – Pack 2

Pack 2	Drop	Observations
Sample A	1	No damage to pack or contents
Sample B	2	No damage to pack or contents
Sample C	3	No damage to pack or contents
Sample D	4	No damage to pack or contents
Sample E	5	No damage to pack or contents

Table 5 Observations following drop testing – Pack 3

Pack 3	Drop	Observations
Sample A	1	No damage to pack or contents
Sample B	2	No damage to pack or contents
Sample C	3	No damage to pack or contents
Sample D	4	No damage to pack or contents
Sample E	5	No damage to pack or contents



## 7. Conclusion

The packs provided satisfactory protection to the replicated diagnostic specimens within and are therefore considered compliant with the drop test requirements of United Nations Packing Instruction 650 for packaging for diagnostic specimens.

Prepared by

Checked by

Justin Scott

Khalid Ahmad

*Consultant*

*Consultant*



## Appendix A Photographs



*Photograph 1 Vial pack*



*Photograph 2 Case 1 and contents*



*Photograph 3 Case 2 and contents*



*Photograph 4 Case 3 and contents*



*Photograph 5 Case 1 zipped up*



*Photograph 6 Example of drop test*