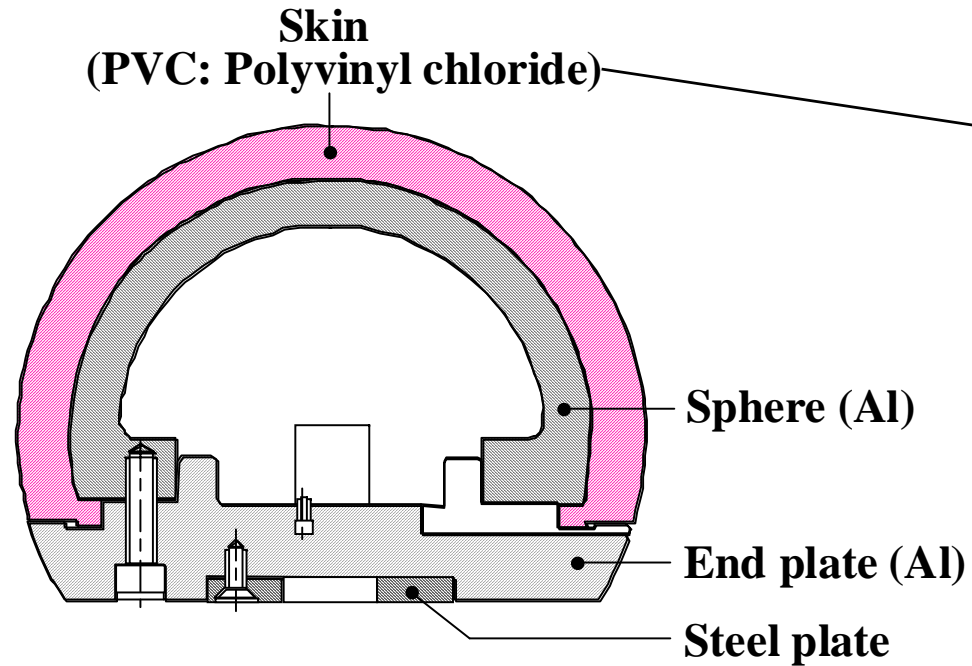


# **Aging Effect of PVC Headform Skin on the Drop Certification Testing**

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# JAMA-JARI headform impactor



**The skin stiffness may change by aging.**

## **OBJECTIVE**

**To investigate the aging effect of the PVC skin for JAMA-JARI pedestrian headform impactor on the drop certification test results.**



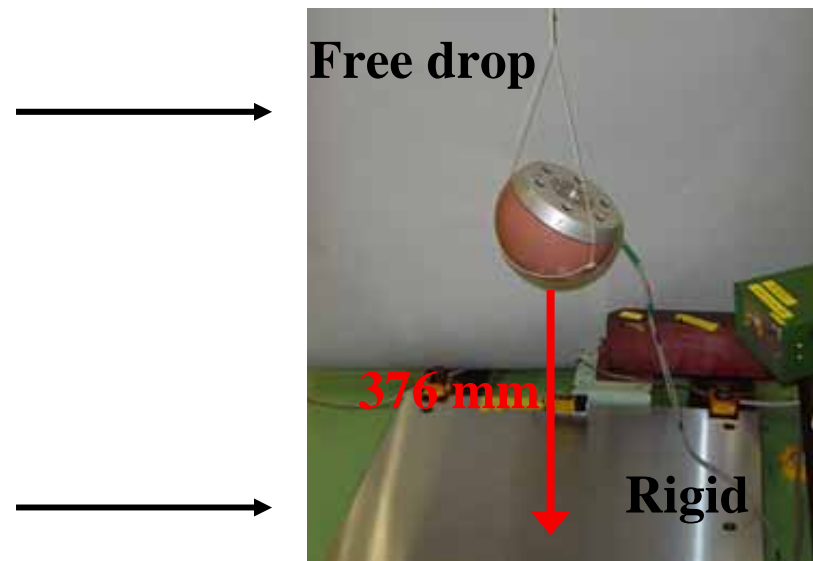
# METHOD

Two skins were soaked under different conditions:

**Skin 1)** with control of temperature and humidity  
 $21.4 \pm 0.8 \text{ }^\circ\text{C}$ ,  $\text{RH}45 \pm 15\%$

**Skin 2)** without control of temperature and humidity

Drop certification test by child headform impactor



IHRA corridor : 245 - 300 G  
for child headform impactor

# RESULTS

**Skin 1) put in a room with control of temperature and humidity**

Time	yy/mm	Results			
		Angle (deg.)	Peak resultant accel. (G)		
			Measured	Mean	SD
0 month	2002 Aug.	0	272	270	1.7
		120	269		
		240	269		
13 months	2003 Sep.	0	279	279	0.0
		120	279		
		240	279		
16 months	2003 Dec.	0	281	279	2.0
		120	279		
		240	277		
19 months	2004 Mar.	0	280	283	3.6
		120	287		
		240	282		
22 months	2004 Jun.	0	280	283	3.5
		120	283		
		240	287		
25 months	2004 Sep.	0	282	284	1.5
		120	284		
		240	285		

**Skin 2) put in a room without control of temperature and humidity**

Time	yy/mm	Results			
		Angle (deg.)	Peak resultant accel. (G)		
			Measured	Mean	SD
0 month	2002 Aug.	0	272	270	2.1
		120	269		
		240	268		
13 months	2003 Sep.	0	273	275	3.2
		120	279		
		240	274		
16 months	2003 Dec.	0	278	280	1.5
		120	280		
		240	281		
19 months	2004 Mar.	0	280	283	3.8
		120	281		
		240	287		
22 months	2004 Jun.	0	280	284	3.5
		120	286		
		240	286		
25 months	2004 Sep.	0	283	285	2.1
		120	286		
		240	287		

# **CONCLUSIONS**

- 1. Aging effect of PVC headform skin on the peak resultant acceleration at drop certification testing was less significant during 25 months.**
- 2. The peak resultant acceleration increased about 2 – 3 % after 13 months and about 5 - 6 % after 16 - 25 months.**
- 3. Two soaking conditions (temperature & humidity: controlled or uncontrolled) were selected, but they did not affect the difference of the aging effect significantly.**