

# TEST REPORT

**Test Report No.:** 316G3303.001  
**Report Date:** November 4, 2016

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**Client:** Alien Technology LLC  
 845 Embedded Way  
 San Jose, CA 95138 USA

**Project Number:** 143769  
**Date of Receipt:** 13 May 2016  
**Model Identification:** ALN-98xx, ALN-97xx, and ALN-96xx  
**Item Description:** Clear Dry Inlays  
**# of Samples Submitted:** NA  
**Product Code:** NA  
**Item Number:** NA  
**Style Number:** NA  
**Color:** Multi  
**Delivery condition:** Apparent good

**Customer Test Instructions:**


<b>Test specification:</b>	
1.	Total Lead Content in Substrates – Cal Prop 65
2.	Total Lead Content in Surface Coatings – Cal Prop 65
3.	Total Cadmium Content in Substrates– Cal Prop 65
4.	Total Cadmium Content in Surface Coatings – Cal Prop 65
5.	Total Phthalate Content in Substrates – Cal Prop 65
6.	Total Bisphenol A Content – Cal Prop 65
7.	Toxics in Packaging Clearinghouse

For and on behalf of  
 TUV Rheinland of North America



**Mark Smith / Laboratory Manager**  
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For and on behalf of  
 TUV Rheinland of North America



**Ashley Brown / Laboratory Technician**

*Test result is drawn according to the kind and extent of tests performed. This test report is not permitted to be duplicated in extracts without permission of the test facility. This test report does not entitle any safety mark on this or similar products.*

Testing Period: 28-Oct-16 to 4-Nov-16

**Material Breakdown List - Chemical Testing**

Material Number	Material	Color	Material Description
1	Plastic	Clear	Base
2	Coating	Gray	Inlay

**RESULTS****1. TOTAL LEAD CONTENT IN SUBSTRATES:**

Per client request, the samples were evaluated for total lead content with reference to Cal Prop 65 and client specifications. Any concentrations above 100 ppm will be noted.

**Test method:** The sample was analyzed by X-Ray Fluorescence Spectroscopy (XRF) according to CPSC-CH-E1002-08.1 / ASTM F2617

Test No.	Material or Component	Lead Content (mg/kg)
		MDL: 5 mg/kg
1	1	<5 mg/kg

Abbreviation: MDL = Method Detection Limit mg/kg denotes milligram per kilogram (ppm)

**2. TOTAL LEAD CONTENT IN SURFACE COATINGS:**

Per client request, the samples were evaluated for total lead content with reference to Cal Prop 65 and client specifications. Any concentrations above 90 ppm will be noted.

**Test method:** The sample was analyzed by X-Ray Fluorescence Spectroscopy (XRF) according to CPSC-CH-E1002-08.1 / ASTM F2617

Test No.	Material or Component	Lead Content (mg/kg)
		MDL: 5 mg/kg
1	2	<5 mg/kg

Abbreviation: MDL = Method Detection Limit mg/kg denotes milligram per kilogram (ppm)

**3. TOTAL CADMIUM CONTENT IN SUBSTRATES:**

Per client request, the samples were evaluated for total cadmium content with reference to Cal Prop 65 and client specifications. Any concentrations above 75 ppm will be noted.

**Test method:** The sample was analyzed by High Definition X-Ray Fluorescence Spectrometry (HD-XRF) with reference to ASTM F2853-10.

Test No.	Material or Component	Cadmium Content (mg/kg)
		MDL: 5 mg/kg
1	1	<15 mg/kg

Abbreviation: MDL = Method Detection Limit mg/kg denotes milligram per kilogram (ppm)

#### 4. TOTAL CADMIUM CONTENT IN SURFACE COATINGS:

Per client request, the samples were evaluated for total cadmium content with reference to Cal Prop 65 and client specifications. Any concentrations above 75 ppm will be noted.

**Test method:** The sample was analyzed by High Definition X-Ray Fluorescence Spectrometry (HD-XRF) with reference to ASTM F2853-10.

Test No.	Material or Component	Cadmium Content (mg/kg)
		MDL: 5 mg/kg
1	2	<29 mg/kg

Abbreviation: MDL = Method Detection Limit mg/kg denotes milligram per kilogram (ppm)

#### 5. TOTAL PHTHALATE CONTENT IN SUBSTRATES:

Per client request, the samples were evaluated for total phthalate content with reference to Cal Prop 65 and client specifications. Any concentrations above 1000 ppm (0.1%) will be noted.

**Test method:** The sample was analyzed by organic solvent extraction and GCMS according to CPSC-CH-C1001-09.3

Test No.	Material or Component	BBP (%)	DBP (%)	DNHP (%)	DEHP (%)	DINP (%)	DIDP (%)
		1	1,2	<0.005%	<0.005%	<0.005%	<0.005%

Abbreviation: MDL = Method Detection Limit  
 DBP = Dibutyl phthalate DEHP = Di-2-ethylhexyl phthalate  
 BBP = Butyl benzyl phthalate DnHP = Di-n-hexyl phthalate  
 DIDP = Di-iso-decyl phthalate DINP = Di-iso-nonyl phthalate

#### 6. TOTAL BISPHENOL A CONTENT

Per client request, the samples were evaluated for total Bisphenol A (BPA) content with reference to Cal Prop 65 and client specifications. Any concentrations above 100 mg/kg will be noted.

**Test method:** The sample was analyzed by appropriate in-house methods and Gas Chromatography with Mass Spectrometer.

Test No.	Material or Component	BPA Content (mg/kg)
		MDL: 10 mg/kg
1	1,2	<10 mg/kg

Abbreviation: MDL = Method Detection Limit mg/kg denotes milligram per kilogram (ppm)

**7. TOXICS IN PACKAGING (TPCH):**

The product shall comply with the Toxics in Packaging Clearinghouse and shall not have a total concentration of Cadmium, Hexavalent Chromium, Lead and Mercury in excess of 0.0100 % (100 ppm).

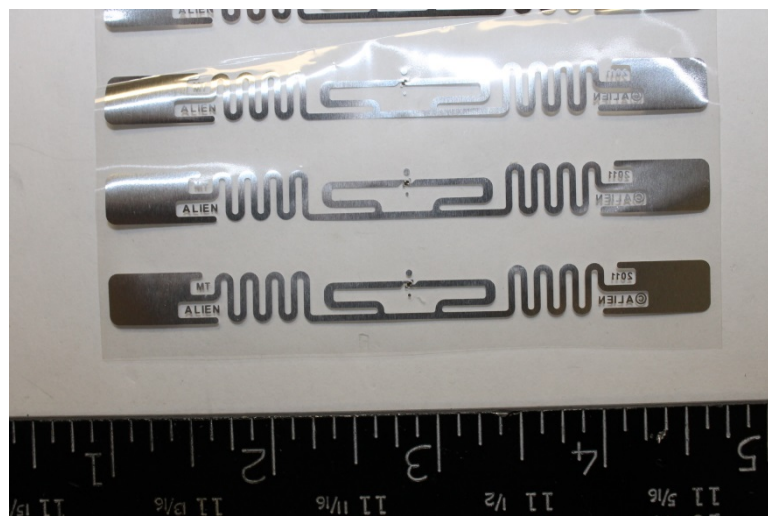
**Test method:** The sample was analyzed by High Definition X-Ray Fluorescence Spectrometry (HD-XRF).

Test No.	Material or Component	MDL: 5 mg/kg					Maximum Permissible Limit 100 mg/kg TOTAL (Pass/Fail)
		Hexavalent Chromium	Cadmium	Mercury	Lead	Total	
		(mg/kg)					
1	1	<5	<15	<5	<5	<30 mg/kg	Pass
2	2	ND(1)	<29	<5	<5	<39 mg/kg	Pass

Abbreviation: MDL = Method Detection Limit ND = None Detected mg/kg denotes milligram per kilogram (ppm)

(1) Chromium content was confirmed by spectroscopic methods.

**Sample Photos**



Test Article(s)

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