

Test Report No.: 31270374.001-31270375.001

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Client: **Alien Technology Corporation**
18220 Butterfield Blvd.
Morgan Hill, CA 95037 US

Buyer's name: N/A

Manufacturer's name: N/A

Test item(s): RFID Tags

**Identification/
Model No(s):** **ALN-9640 Squiggle Inlay,
ALN-9662 Short**

Testing Laboratory: TUV Rheinland of North America
2709 SE Otis Corley Dr, Suite 11 Bentonville, AR 72712

Sample Receiving date: 15 Feb 2012

Testing Period: 15 Feb 2012 - 17 Feb 2012

Test specification:

Overall results according to tests performed

Customer Requirement:

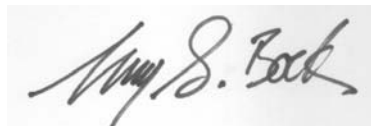
1. Substances of very high concern (SVHC) subject to authorisation according to EU no. 143/2011 (Annex XIV of EC no. 1907/2006)
2. Substances of very high concern (SVHC) in candidate list, by European Chemical Agency (ECHA),

With reference to Corrigendum to Regulation (EC) no.1907/2006, concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

Other Information:

None

For and on behalf of
TÜV Rheinland of North America, Inc.



2012-2-17 Scott Sagamang/Engineer

2012-2-17 Geoffrey Bock/Program Manager

Date

Name/Position

Date

Name/Position

Test result is drawn according to the kind and extent of tests performed.

This test report relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any safety mark on this or similar products.

Screening of SVHCs in subject to authorisation (according to EU no. 143/2011 (Annex XIV of EC no. 1907/2006), & candidate list, by European Chemical Agency (ECHA).

Product Classification

With reference to Corrigendum to Regulation (EC) no.1907/2006 and ECHA, this product is classified as:

- Article which **does not contain** substances released by the product under normal or reasonably foreseeable conditions of use
- Article which **contains** substances released by the product under normal or reasonably foreseeable conditions of use
- Preparation in special container
- Preparation

Conclusion:

Product Location	Conclusion	Detected Substance (if any)
Samples	<p>Acc. to authorisation list EU no. 143/2011 (Annex XIV of EC no. 1907/2006), and candidate list by ECHA, the detected SVHC concentration is: <input checked="" type="checkbox"/> < 0.1% <input type="checkbox"/> > 0.1%</p> <p>Obligation of Importer: <input type="checkbox"/> Necessary <input checked="" type="checkbox"/> Not necessary (For article) To communicate information down the supply chain according to article. 33 of REACH. OR</p> <ol style="list-style-type: none"> Notification to ECHA, if the quantities of SVHC in the produced/imported articles are above 1 ton in total per year per company. Provide sufficient information to ensure safe use of the article and, as a minimum, include the name of the substance, to their customers and on request to consumers within 45 days of the receipt of this request. <p>(For preparation / preparation in special container) Provide a safety data sheet if the individual concentration is more than or equal to 0.1% (w/w) for non gaseous preparations, and more than or equal to 0.2% by volume for gaseous preparations if at least one substance poses human health and/or environmental hazards, persistent, bioaccumulative and toxic or very persistent and very bioaccumulative.</p>	<p>--</p> <p>See test results and *note</p>

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Material list

Item: **ALN-9640 Squiggle Inlay, ALN-9662 Short**

Material No.	Material	Color	Location
1	Component(s)	Multicolor	Refer to photo [Material 1]
2	Component(s)	Multicolor	Refer to photo [Material 2]

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Test results
1. Screening of SVHCs subject to authorisation, according to EU no. 143/2011 (Annex XIV of EC no. 1907/2006) & SVHCs in Candidate List by ECHA

Test Method:

- 1) The non-metal part of test article is grinded to a homogeneous powder by cryogenic milling.
- 2) Test portion is digested with acid and assisted with microwave, the elements are analysed by ICP-OES.
- 3) Organic solvent extraction, GC-MS analysis.

Test No.:	T001(10)	T002(10)
Material No.:	1	2
Result (%)	ND	ND

Abbreviation: % = Percentage
ND = Not detected

***Note: SVHC content of the entire article produced and/or imported is not above a concentration of 0.1% (w/w). Therefore the obligations as required per Article 33 of EC no. 1907/2006 are not required.**

Theoretical percentage of SVHC in entire article	
SVHC	Percentage (%)
Not detected	N/A

Unit weight = 0.4865g

Remark:

(1) The reporting limit for each individual SVHC in Candidate List by ECHA:

	Substances	CAS No.	Reporting Limit
1	Anthracene	120-12-7	0.01%
2	Bis(tributyltin) oxide, hexabutylstannoxane (TBTO) ⁽⁵⁾	56-35-9	0.01%
3	Triethyl arsenate ⁽³⁾	15606-95-8	0.01%
4	Lead hydrogen arsenate ⁽³⁾	7784-40-9	0.01%
5	Cobalt(2+) dichloride ⁽³⁾	7646-79-9	0.01%
6	Sodium dichromate, dihydrate ⁽³⁾	7789-12-0	0.01%
7	Acrylamide	79-06-1	0.01%
8	Anthracene oil ⁽⁶⁾	90640-80-5	0.01%(*7)
9	Anthracene oil, anthracene paste, distn. Lights ⁽⁶⁾	91995-17-4	
10	Anthracene oil, anthracene paste, anthracene fraction ⁽⁶⁾	91995-15-2	
11	Anthracene oil, anthracene-low ⁽⁶⁾	90640-82-7	
12	Anthracene oil, anthracene paste ⁽⁶⁾	90640-81-6	
13	Coal tar pitch, high temperature ⁽⁶⁾	65996-93-2	
14	Aluminosilicate, Refractory Ceramic Fibres (RCF) ⁽⁸⁾	Index no : 650-017-00-8	0.01%
14	Zirconia Aluminosilicate, Refractory Ceramic Fibres ⁽⁸⁾		
16	Trichloroethylene	79-01-6	0.01%
17	Boric acid ⁽³⁾	10043-35-3/11113-50-1	0.01%
18	Disodium tetraborate, anhydrous ⁽³⁾	1330-43-4/12179-04-3/ 1303-96-4	0.01%
19	Tetraboron disodium heptaoxide, hydrate ⁽³⁾	12267-73-1	0.01%
20	Sodium chromate ⁽⁴⁾	7775-11-3	0.01%
21	Potassium chromate ⁽⁴⁾	7789-00-6	0.01%
22	Ammonium dichromate ⁽⁴⁾	7789-09-5	0.01%
23	Potassium dichromate ⁽⁴⁾	7778-50-9	0.01%
24	2-Methoxyethanol	109-86-4	0.01%
25	2-Ethoxyethanol	110-80-5	0.01%
26	Cobalt(II) sulphate ⁽³⁾	10124-43-3	0.01%
27	Cobalt(II) dinitrate ⁽³⁾	10141-05-6	0.01%
28	Cobalt(II) carbonate ⁽³⁾	513-79-1	0.01%
29	Cobalt(II) diacetate ⁽³⁾	71-48-7	0.01%
30	Chromium trioxide ⁽⁴⁾	1333-82-0	0.01%
31	Acids generated from chromium trioxide and their oligomers: Chromic acid Dichromic acid Oligomers of chromic acid and dichromic acid ⁽⁴⁾	7738-94-5 135030-68-2	0.01%
32	Short chain chlorinated paraffins (C10-C13) (SCCP)	85535-84-8	0.01%
33	2,4-Dinitrotoluene (2,4-DNT)	121-14-2	0.01%
34	Diisobutyl phthalate (DIBP)	84-69-5	0.01%
35	Tris(2-chloroethyl)phosphate	115-96-8	0.01%
36	Diarsenic pentoxide ⁽³⁾	1303-28-2	0.01%
37	Diarsenic trioxide ⁽³⁾	1327-53-3	0.01%

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38	Lead chromate ^{(3) (4)}	7758-97-6	0.01%
39	Lead chromate molybdate sulfate red (C.I. Pigment Red 104) ^{(3) (4)}	12656-85-8	0.01%
40	Lead sulfochromate yellow (C.I. Pigment Yellow 34) ⁽³⁾	1344-37-2	0.01%

(2) The reporting limit for each individual SVHC subject to authorisation according to EU no. 143/2011 (Annex XIV of EC no. 1907/2006):

	Substances	CAS No.	Reporting Limit
41	4,4'-Methylenedianiline (MA)	101-77-9	0.01%
42	Benzylbutyl phthalate (BBP)	85-68-7	0.01%
43	Diethylhexyl phthalate (DEHP)	117-81-7	0.01%
44	Dibutyl phthalate (DBP)	84-74-2	0.01%
45	HBCDD/ 1,3,5,7,9,11-HBCDD	25637-99-4/3194-55-6	0.01%
46	5-Tert-butyl-2,4,6-trinitro-m-xylene (MX)	81-15-2	0.01%
47	2-Ethoxyethyl acetate	111-15-9	0.01%
48	1,2-Benzenedicarboxylic acid, di-C7-11 - branched and linear alkyl esters (DHNUP), Mixtures of phthalates	68515-42-4 / various	0.01%
49	1,2-Benzenedicarboxylic acid, di-C6-8- branched alkyl esters, C7-rich (DIHP)	71888-89-6 / 90937-19-2	0.01%
50	Hydrazine	206-114-9	0.01%
51	1-Methyl-2-pyrrolidone	212-828-1	0.01%
52	1,2,3-trichloropropane	96-18-4	0.01%
53	Strontium chromate (3)	6/2/7789	0.01%
54	Zirconia Aluminosilicate Refractory Ceramic Fibres ⁽⁶⁾	Index no : 650-017-00-8	0.01%
55	Calcium arsenate ⁽²⁾	7778-44-1	0.01%
56	Bis(2-methoxyethyl) ether	111-96-6	0.01%
57	Aluminosilicate Refractory Ceramic Fibres ⁽⁶⁾	Index no : 650-017-00-8	0.01%
58	Potassium hydroxyoctaoxodizincatedichromate ⁽³⁾	11103-86-9	0.01%
59	N,N-dimethylacetamide	127-19-5	0.01%
60	Arsenic acid ⁽²⁾	7778-39-4	0.01%
61	2-Methoxyaniline; o-Anisidine	90-04-0	0.01%
62	Trilead diarsenate ⁽²⁾	3687-31-8	0.01%
63	1,2-dichloroethane	107-06-2	0.01%
64	Pentazinc chromate octahydroxide ⁽³⁾	49663-84-5	0.01%
65	Formaldehyde, oligomeric reaction products with aniline	25214-70-4	0.01%
66	Bis(2-methoxyethyl) phthalate	117-82-8	0.01%
67	4-(1,1,3,3-tetramethylbutyl)phenol	140-66-9	0.01%
68	Phenolphthalein	77-09-8	0.01%
69	Dichromium tris(chromate) ⁽³⁾	24613-89-6	0.01%
70	2,2'-dichloro-4,4'-methylenedianiline	101-14-4	0.01%

(3) The substances are tested in terms of its respective elements (As, Pb, Co, B)

(4) The substances are tested in terms of Cr (VI)

(5) The substances are tested and calculated in term of Tributyl tin.

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(6) The substances are UVCB (substance of unknown or variable composition, complex reaction products or biological materials), which are identified by its main constituents.

(7) Individual concentrations to the constituent of UVCB with an amount of < 0.01% were not considered by the calculation of the sum.

(8) The test result is based on microscopic and chemical evaluation.

(9) The tested material(s) was analyzed for relevant SVHC substance(s) only as the additional risk for other SVHC substances is low in the tested material(s). The testing is focused on the possibility of contamination during production & material specific contamination of the product.

(10) The other SVHC substances which are not mentioned in test result were found not detected.

(11) By calculation, this material probably contains Boric acid (CAS: 10043-35-3/11113-50-1), Disodium tetraborate, anhydrous (CAS: 1330-43-4/12179-04-3/1303-96-4), or Tetraboron disodium heptaoxide hydrate (CAS: 12267-73-1). It suggests to check the respective recipe. If the theoretical content of the respective substance is >0.1% in the weight of whole article.

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Sample Photos:



ALN-9640 Squiggle Inlay, ALN-9662 Short

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