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08.08.2013

Report No. 0003069440/30 AZ137139a

(Revision of test report AZ137139)

Test item: two retaining rings

Identification: 1) stainless Steel HLS-33S
2) steel HLS-42

Condition at delivery: No claim

Date of delivery: 24.01.2013

Place of testing: Cologne


Test period: 04.02.2013 to 05.02.2013

Test scope: Parameters selected by customer

Test specification: Directive 2011/65 EU (RoHS)

Test result: Pass - The test items meet the test specification.

Cologne, 08.08.2013


Staatl. gepr. LM-Chem. Meike Dötsch
(Expert)


Dr. rer. nat. Markus Clemens
(Expert)

The test results exclusively refer to the samples examined.

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1. List of materials

Matlist.No.	Article	Article name
137139-1	1	stainless Steel HLS-33S
137139-2	2	steel HLS-42

Mat.No.	Article	Component	Material	Colour
001	1		metal	silver
002	2		metal	silver

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2. Results

RoHS-screening, RFA

Sample No.	137139-001	137139-002	
Sample composition	Mat. 001	Mat. 002	
Unit	mg/kg	mg/kg	
XRF-screening RoHS			
Bromine	n.t.	n.t.	
Cadmium	20 ¹	<10 ¹	
Chromium, total	174800 ²	2510 ³	
Mercury	<10	<10	
Lead	250	<20	

n.t. not tested (not determinable)

¹result of chemical test

²no Chromium VI, stainless steel

³chromium VI negative

RoHS, metals

Sample No.	137139-003	137139-004	
Sample composition	Mat. 001	Mat. 002	
Unit	mg/kg	mg/kg	
Cadmium	20	<10	

Limits according to Directive 2011/65/EU:

lead 1000 mg/kg

mercury 1000 mg/kg

chromium(VI) 1000 mg/kg

cadmium 100 mg/kg

polybrominated biphenyl or polybrominated diphenylethers 1000 mg/kg

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RoHS, chromium(VI)

Sample No.	137139-005		
Sample composition	Mat. 002		
Unit	.		
Chromium(VI)			
Spot test	neg		
Boiling test	neg		

---End of results---

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3. Summary of methods

RoHS-screening, RFA	Standard: DIN EN 62321	Issue date: 01.12.09
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Method description:
Semiquantitative determination of elements by x-ray fluorescence (XRF) in solid state materials

Notes:
Findings of total chromium can be caused by hexavalent chromium as well as trivalent or metallic chromium.

In case of positive findings, caused by possible matrix effects, the compliance with the limit value requirements should generally be verified by a reference method.

RoHS, metals		
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Method description:
Determination of the total content after decomposition (classical wet chemical acid digestion e.g. for metals respectively microwave digestion for plastics, ceramic components or similar) by ICP-OES according to DIN EN 62321 if necessary validation by ICP-MS according to DIN EN ISO 17294-2

RoHS, chromium(VI)	Standard: DIN EN 62321	Issue date: 01.12.09
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Method description:
Test for the presence of hexavalent chromium (Cr(VI)) in colourless and coloured corrosion-protected coatings on metals according to Electrotechnical products - Determination of levels of six regulated substances (lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls, polybrominated diphenyl ethers), Annex B