

DEKRA Testing and Certification (Shanghai) Ltd
NINGBO PACE PNEUMATICS CO.,LTD
NO.11 ANXING RD ZHANGQI TOWN,CIXI NINGBO CITY P.R.CHINA

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Date: 2014.06.03
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Test Report No. : 14-00247
Project no. : 14-00247

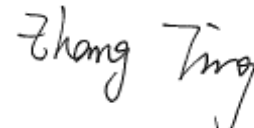
Client : NINGBO PACE PNEUMATICS CO.,LTD
NO.11 ANXING RD ZHANGQI TOWN,CIXI NINGBO
CITY P.R.CHINA

Date of order : 2014.05.27
Product : PNEUMATIC FITTINGS
Model : /
Reference No. : /
Scope of testing : Test of RoHS conformity (2011/65/EU)
Test Method : See below
Result : Please refer to next page(s).
Conclusion : Requirement passed
Testing Period : 2014.05.28— 2014.06.03

Signed for and on behalf of
DEKRA Testing and Certification (Shanghai) Ltd
Consumer Goods




Haiping Wu
Technical Manager



Ting Zhang
Project Engineer

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Picture of the product:



TEST RESULTS

sample-no.	sample designation	Pb (%)	Cd (%)	Hg (%)	Cr VI (%)	PBB (%)	PBDE (%)
001	silvery metal(shell)	2.6 ⁽¹⁾ (a)	< 0.01	< 0.1	< 0.1	NA	NA
002	silvery metal(contact piece)	< 0.1	< 0.01	< 0.1	< 0.1	NA	NA
003	black plastic(shell)	< 0.1	< 0.01	< 0.1	< 0.1	<0.1	< 0.1
004	blue plastic(sealed cover)	< 0.1	< 0.01	< 0.1	< 0.1	<0.1	< 0.1
005	black rubber(sealed ring)	< 0.1	< 0.01	< 0.1	< 0.1	<0.1	< 0.1

(a) The analysis by X-ray fluorescence spectrometry showed a detection for Pb. The verification and quantification of Pb was performed by ICP-OES.

1) The annex to directive 2011/65/EU (exemptions of RoHS-directive) contains following point:

"6 (c) Copper alloy containing up to 4 % lead by weight."

Description of the analysis procedure (brief version):

Test of RoHS conformity

The measurements are performed according to DIN EN 62321, “Electrotechnical products - Determination of levels of six regulated substances”.

The product is divided in single material samples. The materials are analysed on different parameters of the RoHS-directive to assure that the complete product is RoHS-conform or not. At first a XRF (X-ray fluorescence spectrometry) screening is performed. For every sample following statements can be made.

Table: Screening limits in mg/kg for regulated elements in various matrices

Element	Polymers	Metals	Composite Material
Cd	$BL \leq (70-3\sigma) < X < (130+3\sigma) \leq OL$	$BL \leq (70-3\sigma) < X < (130+3\sigma) \leq OL$	$LOD < X < (150+3\sigma) \leq OL$
Pb	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (500-3\sigma) < X < (1500+3\sigma) \leq OL$
Hg	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (500-3\sigma) < X < (1500+3\sigma) \leq OL$
Br	$BL \leq (300-3\sigma) < X$		$BL \leq (250-3\sigma) < X$
Cr	$BL \leq (700-3\sigma) < X$	$BL \leq (700-3\sigma) < X$	$BL \leq (500-3\sigma) < X$

Below limit (**BL**): the tested material complies to the RoHS directive.

Inconclusive (**X**): If the level of the measurement is around the maximum allowed, or if the level for Chrome or Bromine is too high, other more accurate methods are needed to determine the exact level or the composition of Chrome and Bromine.

Over limit (**OL**): If the level of lead, mercury or cadmium is well above the maximum allowed levels (the XRF uncertainty is taken into account), the tested material does not comply with the RoHS directive.

In case of **inconclusive** XRF results, following analysis procedures are applied:

In order to examine the material samples for the heavy metals cadmium, lead and mercury they are digested in acid and the solutions are used to carry out the analysis for the heavy metals by ICP-OES or atomic-absorption spectroscopy.

Hexavalent chromium is checked by extracting the sample with water at 100 °C (determination of Cr VI in colorless and colored chromate coating on metals) respectively with alkaline extraction at 90-95 °C (determination of Cr VI in polymers and electronic components) followed by photometric analysis.

In the case of metallic components with a surface coating containing hexavalent Chromium (passivation) the concentration is expressed in mg of Chromium VI per component. In order to obtain further information about the concentration on the surface coating it is necessary to know the weight per unit area of the coating and the surface area of the component. Information about surface coatings is to be provided by the client.

The examination for bromine-based flame retardant products is carried out by gas chromatography-mass spectrometry after extraction by solvents; this involves the individual analysis and quantification of the substances specified in the RoHS. The current valid regulations relating to exceptions in respect of the analysed substances are to be taken into account by the client.

The following Polybrominated Biphenyls (PBBs) and Polybrominated Diphenyl Ethers (PBDEs) are analyzed:

2-Bromobiphenyl PBB2, Dibromobiphenyl PBB15, Tribromobiphenyl PBB30, Tetrabromobiphenyl PBB52, Pentabromobiphenyl PBB103, Hexabromobiphenyl PBB153, Heptabromobiphenyl PBB250, Octabromobiphenyl PBB250, Nonabromobiphenyl PBB250, Decabromobiphenyl PBB209, Bromodiphenylether BDE2, Dibromodiphenylether BDE15, Tribromodiphenylether BDE30, Tetrabromodiphenylether BDE62, Pentabromodiphenylether BDE99, Hexabromodiphenylether BDE153, Heptabromodiphenylether BDE183, Octabromodiphenylether BDE203, Nonabromodiphenylether BDE206, Decabromodiphenylether BDE209.

Limits according to RoHS (2011/65/EU) / Test methods (additional chemical analysis):

Parameter	Limits according to RoHS	Test method
Cadmium	0,01 % (100 mg/kg or 0,1 g/kg)	DIN EN ISO 11885
Lead	0,1 % (1000 mg/kg or 1 g/kg)	DIN EN ISO 11885
Hexavalent Chromium	0,1 % (1000 mg/kg or 1 g/kg)	GMW 3034 / ISO 3613
Mercury	0,1 % (1000 mg/kg or 1 g/kg)	DIN EN 1483
PBB and PBDE	0,1 % (1000 mg/kg or 1 g/kg)	GC/MS

Sample Photos



Test item1

Test item2

Test item3

Test item4

Test item5

---End of Report---