





Report No.:ANT2407310012-010 Page 1 of 12

Applicant : Nantong Sanjing Chemglass Co.,Ltd

Address : Caobu Industrial Park Zone, Rudong County, Nantong City, Jiangsu, China

Manufacturer's name : Rudong Feiju Laser Technology Co.,Ltd

Address : Caobu Industrial Park Zone, Rudong County, Nantong City, Jiangsu, China

Report on the submitted samples said to be:

Sample Name : CO₂ Laser Tube

Trade Mark : N/A
Tested Style No. : C70

Series models : C80, C100, C130, C150

Sample reception time : July 31, 2024

Testing Period : July 31, 2024 ~ August 06, 2024

Test request : With reference to RoHS Directive (EU) 2015/863 amending Annex II to Directive

2011/65/EU.

Report Seal

Test method : Please refer to next page(s).

Results : Please refer to next page(s).

CONCLUSION

A. According to the customer's request, based on the performed tests on submitted sample, the result of Lead, Cadmium, Mercury, Hexavalent Chromium, PBBs, PBDEs, Dibutyl Phthalate (DBP), Benzyl butyl Phthalate (BBP), Bis(2-ethylhexyl) Phthalate (DEHP), Diispbutyl phthalate (DIBP) content comply with the limit as set of RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.

Redact By

Reviewed By

laic

Issued By

Date of issue August 12, 2024



Report No.:ANT2407310012-010 Page 2 of 12

Results:

A. EU RoHS Directive 2011/65/EU

Part No.	Sample Description	Test item	XRF Result	Chemical Test (mg/kg)	Conclusion
,	1	Pb	BL	1	
	En.	Cd	BL	1	
		Hg	BL	1	1
	by.	Cr(Cr(VI))▼	BL	x 1	ell'
C 1	Black plastic	Br(PBBs&PBDEs)▼	BL		Pass
		DBP	1	N.D.	K
	b.	BBP	1	N.D.	
		DEHP	1 20	N.D.	
		DIBP	1	N.D.	P.
		Pb	BL		2
	EN.	Cd	BL	1	الم
	,	Hg	BL	1	be.
	A	Cr(Cr(VI))▼	BL	20, 1	
2	Blue plastic (insulated wire)	Br(PBBs&PBDEs)▼	BL	1	Pass
	(insulated wife)	DBP	1	N.D.	A
MI	by.	BBP	1	N.D.	
	5	DEHP	1	N.D.	
		DIBP	1	N.D.	A
	61.	Pb	BL	1	7
		Cd	BL	1	
		Hg	BL	1	8
		Cr(Cr(VI))▼	BL	177	9
3	White rubber hose	Br(PBBs&PBDEs)▼	BL	ĺ	Pass
		DBP	1	N.D.	ba.
	1	BBP	1	N.D.	
	Eq.	DEHP	1	N.D.	
		DIBP	1	N.D.	A
	Par	Pb	BL	×1	ch,
4	,	Cd	BL		
		Hg	BL	1	1
	L.	Cr(Cr(VI))▼	BL	1	70.
	Red plastic pipe	Br(PBBs&PBDEs)▼	BL	1	Pass
		DBP 🚺	1	N.D.	1
	1	BBP	A	N.D.	∡
	Eq.	DEHP		N.D.	
	7	DIBP	1	N.D.	1



Report No.:ANT2407310012-010

Page 3 of 12

Part No.	Sample Description	Test item	XRF Result	Chemical Test (mg/kg)	Conclusion
<u> </u>	Pall	Pb	BL	1	
	<u>*</u>	Cd	BL	1	. Na
	4	Hg	BL	1	
	M.	Cr(Cr(VI))▼	BL	1 20	
5	Silver metal wire	Br(PBBs&PBDEs)▼	1	1	Pass
	La.	DBP		1	en.
by.	2	BBP	1	1 1	
		DEHP	1	1	K
	land in	DIBP	1	1	
		Pb	BL .	1	100
		Cd 🔨	BL	1	180
Page 1		Hg	BL	1/2	
4		Cr(Cr(VI))▼	BL	1	
6	White rubber hose	Br(PBBs&PBDEs)▼	BL	1	Pass
	Hose	DBP	1	N.D.	
	by.	BBP	1	N.D.	
		DEHP	1	N.D.	
	b.	DIBP	1	N.D.	ell,
by.	Time.	Pb	BL	W) 1	*
		Cd	BL	1	A
	La.	Hg	BL	1	
	c <u> </u>	Cr(Cr(VI))▼	BL	1	-6
7	Red plastic (insulated wire)	Br(PBBs&PBDEs)▼	BL	1	Pass
La	(ilisulated wile)	DBP	<u> </u>	N.D.	Z
1	Ell.	BBP		N.D.	-111
	· ·	DEHP	1	N.D.	1/2
	A	DIBP	1	N.D.	1
	67,	Pb	BL	1	
		Cd	BL	1	A
1	b.	Hg	BL	1	ch'
by,	9	Cr(Cr(VI))▼	BL		
8	Red plastic	Br(PBBs&PBDEs)▼	BL	1	Pass
	La.	DBP	1	N.D.	20,
	7	BBP	1	N.D.	
		DEHP	1	N.D.	b
P	1	DIBP	1	N.D.	,
	/ 10 10	-			A Total



Report No.:ANT2407310012-010

Page 4 of 12

Part No.	Sample Description	Test item	XRF Result	Chemical Test (mg/kg)	Conclusion
<u> </u>	by.	Pb	BL	1	ell,
		Cd	BL	1	X-
		Hg	BL	1	1
	by.	Cr(Cr(VI))▼	BL	1	
9	Black plastic	Br(PBBs&PBDEs)▼	BL	1	Pass
	Pa	DBP		N.D.	Eg.
by.	4	BBP	1	N.D.	*
	W)	DEHP	1	N.D.	1
	Y	DIBP	1	N.D.	× .



Report No.:ANT2407310012-010

Page 5 of 12

Note:

(1) Results were obtained by XRF for primary screening, and further chemical testing by ICP (for Cd, Pb, Hg), UV-Vis (for Cr(VI)) and GC-MS (for PBBs, PBDEs) are recommended to be performed, if the concentration exceeds the below warning value according to IEC 62321-3-1:2013.

Element	Unit	Non-metal	Metal	Composite Material
Cd	mg/kg	BL≤70-3σ <x< td=""><td>BL≤70-3σ<x< td=""><td>BL≤50-3σ<x< td=""></x<></td></x<></td></x<>	BL≤70-3σ <x< td=""><td>BL≤50-3σ<x< td=""></x<></td></x<>	BL≤50-3σ <x< td=""></x<>
Ou V		<130+3σ≤OL	<130+3σ≤OL	<150+3σ≤OL
Pb	mg/kg	BL≤700-3σ <x< td=""><td>BL≤700-3σ<x< td=""><td>BL≤500-3σ<x< td=""></x<></td></x<></td></x<>	BL≤700-3σ <x< td=""><td>BL≤500-3σ<x< td=""></x<></td></x<>	BL≤500-3σ <x< td=""></x<>
		<1300+3σ≤OL	<1300+3σ≤OL	<1500+3σ≤OL
Hg	mg/kg	BL≤700-3σ <x< td=""><td>BL≤700-3σ<x< td=""><td>BL≤500-3σ<x< td=""></x<></td></x<></td></x<>	BL≤700-3σ <x< td=""><td>BL≤500-3σ<x< td=""></x<></td></x<>	BL≤500-3σ <x< td=""></x<>
		<1300+3σ≤OL	<1300+3σ≤OL	<1500+3σ≤OL
Cr	mg/kg	BL≤700-3σ <x< td=""><td>BL≤700-3σ<x< td=""><td>BL≤500-3σ<x< td=""></x<></td></x<></td></x<>	BL≤700-3σ <x< td=""><td>BL≤500-3σ<x< td=""></x<></td></x<>	BL≤500-3σ <x< td=""></x<>
Br	mg/kg	BL≤300-3σ <x< td=""><td>67,</td><td>BL≤250-3σ<x< td=""></x<></td></x<>	67,	BL≤250-3σ <x< td=""></x<>

BL = Below Limit
OL = Over Limit
X = Inconclusive

- (2) The XRF screening test for RoHS elements The reading may be different to the actual content in the sample be of non-uniformity composition.
- (3) The maximum permissible limit is quoted from the document 2015/863/EC amending RoHS directive 2011/65/EU.
- (4) ▼=For restricted substances PBBs and PBDEs, the results show the total Br content; The restricted substance was Cr (VI), and the results showed the total Cr content.

Disclaimers:

This XRF Screening report is for reference purposes only. The applicant shall make its/his/her own judgment as to whether the information provided in this XRF screening report is sufficient for its/his/her purposes.

The result shown in this XRF screening report will differ based on various factors, including but not limited to, the sample size, thickness, area, surface flatness, equipment parameters and matrix effect (e.g. plastic, rubber, metal, glass, ceramic etc.). Further wet chemical pre-treatment with relevant chemical equipment analysis are required to obtain quantitative data.



Report No.:ANT2407310012-010 Page 6 of 12

(5) Test method:

Lead (Pb) & Cadmium (Cd) Content:

With reference to IEC 62321-5:2013, by acid digestion and analysis was performed by inductively coupled plasma atomic emission spectrometer (ICP-OES)

Mercury (Hg) Content:

With reference to IEC 62321-4:2013+AMD1:2017 CSV, by acid digestion and analysis was performed by inductively coupled plasma atomic emission spectrometer (ICP-OES)

Hexavalent Chromium (Cr⁶⁺) Content:

With reference to IEC 62321-7-1:2015 or IEC 62321-7-2:2017, by alkaline digestion and analysis was performed by UV-visible spectrophotometer (UV-Vis)

PBBs & PBDEs Content:

With reference to IEC 62321-6:2015, by solvent extraction and analysis was performed by gas chromatographic-mass spectrometer (GC-MS)

DBP, BBP, DEHP, DIBP Content:

With reference to IEC 62321-8:2017, by solvent extraction and analysis was performed by gas chromatographic-mass spectrometer (GC-MS)

RoHS Restricted Substances	Unit	MDL	Maximum Concentration Value (mg/kg) (by weight in homogenous materials)
Cadmium (Cd)	mg/kg	2	100
Lead (Pb)	mg/kg	2	1000
Mercury (Hg)	mg/kg	2	1000
Hexavalent Chromium (Cr(VI))	ug/cm² (Metal); mg/kg (Nonmetal)	0.1ug/cm² (Metal); 8mg/kg (Nonmetal)	See below (Metal); 1000mg/kg (Nonmetal)
Polybrominated biphenyls (PBBs)	mg/kg	5	1000
Polybrominated diphenyl ethers (PBDEs)	mg/kg	5	1000
Dibutyl Phthalate (DBP)	mg/kg	50	1000
Benzyl butyl Phthalate (BBP)	mg/kg	50	1000
Bis(2-ethylhexyl) Phthalate (DEHP)	mg/kg	50	1000
Diispbutyl Phthalate (DIBP)	mg/kg	50	1000



Page 7 of 12

Report No.:ANT2407310012-010

- MDL = Method Detection Limit
- /= Not apply
- LOQ = Limit of Quantification, The LOQ of Hexavalent chromium is 0.10 μg/cm²
- mg/kg = ppm=parts per million
- N.D.=Not Detected (<MDL or LOQ)
- a. The sample is positive for Cr (VI) if the Cr (VI) concentration is greater than 0.13ug/cm². The sample coating is considered to contain Cr (VI)
 - b. The sample is negative for Cr (VI) if Cr (VI) is N.D. (concentration less than 0.10ug/cm²). The sample coating is considered a non- Cr (VI) based coating
 - c. The result between 0.10µg/cm² and 0.13µg/cm² is considered to be inconclusive, unavoidable coating variations may influence the determination
- #1 According to the statement provided by the customer, RoHS Directive 2011/65/EU based on ANNEX III 5(a), Lead is exempted in glass of cathode ray tubes, electronic components and fluorescent tubes.
- #2 According to the statement provided by the customer, RoHS Directive 2011/65/EU based on ANNEX III 7(c)-I, Lead is exempted in electronic ceramic or glass parts (e.g. piezo electronic devices).
- #3 According to the statement provided by the customer, RoHS directive 2011/65/EU based on ANNEX III 6(c), Lead is exempted as an alloying element in Copper containing up to 4% (40000ppm) by weight.
- #4 According to the statement provided by the customer, RoHS Directive 2011/65/EU based on ANNEX III 7(a), Lead is exempted in high melting temperature type solders (i.e. lead-based alloys containing 85 % by weight or more lead).
- #5 According to the statement provided by the customer, RoHS Directive 2011/65/EU based on ANNEX III 6(b), Lead is exempted as an alloying element in Aluminum containing up to 0.4% (4000ppm) by weight.
- #6 According to the statement provided by the customer, RoHS Directive 2011/65/EU based on ANNEX III 8(b), Cadmium and its compounds in electrical contact is exempted.
- #7 According to the statement provided by the customer, RoHS Directive 2011/65/EU based on ANNEX III 6(a), Lead is exempted in steel for machining purposes and in galvanized steel containing up to 0.35% (3500ppm) by weight.
- Flow chart appendix is included
- Photo appendix is included.



Report No.:ANT2407310012-010 Page 8 of 12 **Appendix** 1. Test Flow chart for Cd/Pb /Hg content Digest sample Weigh sample and put Acid digestion by suitable Cutting/ in microwave into a microwave acid depended on different preparation digestion oven digestion vessel sample material Analyzed by inductively The digested solution Made up with coupled plasma atomic DATA was transferred into deionized water emission spectrometer a volumetric flask (ICP-OES) 2. Hexavalent Chromium(For non-metal material) ABS, PC and **PVC** matrixes Add Place it in a Add Ultrasonication diaestion conical flask **NMP** at 60 °C for 2 h solution Weigh Ultrasonication non-metal at 60 °C for 1 h sample Insoluble / unknown polymers and electronics- without Sb Place it in a Add Digest sample in microwave digestion digestion digestion oven vessel solution Л Cool, Separate the organic phase and filter Adjust the pH Transfer above content to Add test Transfer the contents value of the a beaker, Adjust the pH to a volumetric flask solution value of the solution solution Make up with

Analyzed by

UV-vis

deionized water

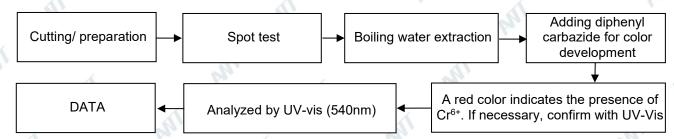
and filter



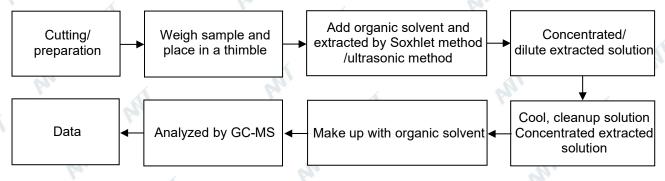
Report No.: ANT2407310012-010

Page 9 of 12

Test Flowchart for Cr6+ content (For metal material)



3. Test Flow chart for PBBs & PBDEs & DBP & BBP & DEHP & DIBP content

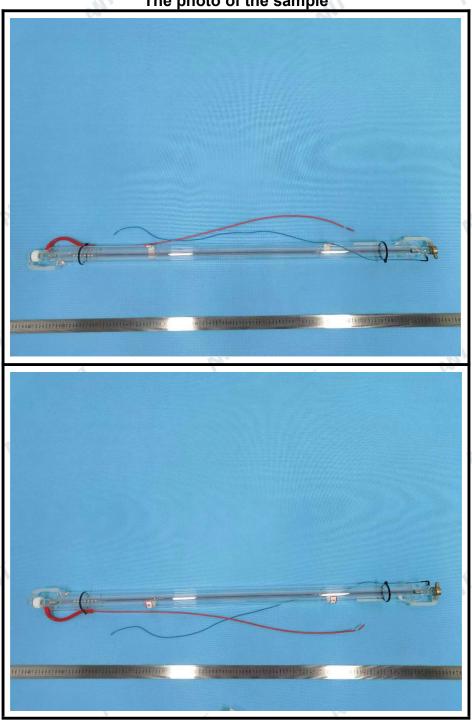




Report No.:ANT2407310012-010

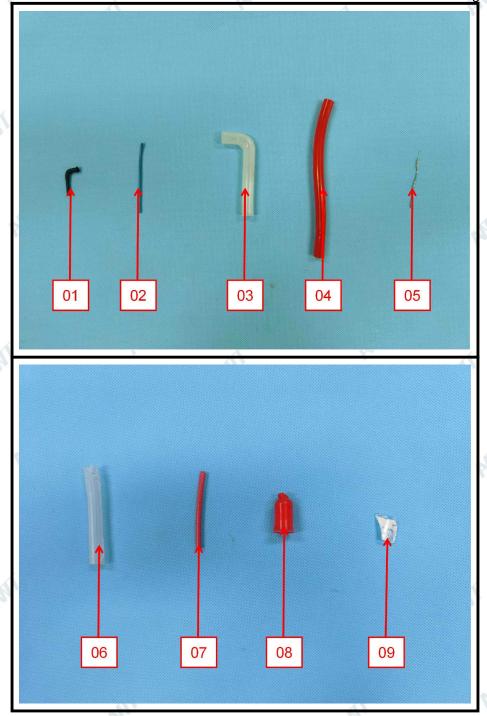
Page 10 of 12







Report No.:ANT2407310012-010 Page 11 of 12



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Report No.:ANT2407310012-010 Page 12 of 12

Statement:

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- 2. The result(s) shown in this report refer only to the sample(s) tested.
- 3. Without written approval of ANT, this report can't be reproduced except in full.
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*** End of Report ***