Test Report

No. **8621.SH.1812.0143E** Date: **Jan.08, 2019** Page: **1 / 10**

Applicant	:	SHENZHEN SMARTER TECHNOLOGY DEVELOPMENT CO., LTD.
Address	:	FLOOR 1, BLOCK 62, SHANMEIXIN VILLAGE, SONGGANG TOWN, BAOAN DISTRICT, SHENZHEN CITY, GUANGDONG PROVINCE, CHINA

Below information submitted by the applicant:

Name	:	LAZY SUSAN BEARINGS
Model	:	SMWP442
Reference info.	:	/
Supplier info.	:	/
Buyer info.	:	/
Destination	:	/
Original	:	/

Sample Received	:	Dec.27, 2018
Test Period	:	Dec.27, 2018 - Dec.29, 2018
Test Requirement	:	Refer to next pages
Test Method	:	Refer to next pages
Test Result	:	Refer to next pages
Test Conclusion	:	Refer to next pages

Data, extracted from original report 8621.SH.1812.0142E

Result Summary :

Test Items	Verdict
1. Based on the performed tests on submitted samples, the test results of tested elements were found to comply with the limitation stated in RoHS (2011/65/EU) and RoHS amending directive (No.2015/863)	PASS

Jerry Zhao, Technical Director
Singed for and on behalf of
TUV THURINGEN SHANGHAI CO., LTD.
Shanghai

TÜV Thüringen

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SAMPLE DESCRIPTION

Sample Description : LAZY SUSAN BEARINGS

REGULATION RESTRICTED LIMIATATION

LIMIATION SETTED BY Commission Delegated Directive (EU) No.2015/863 amending ANNEX II to directive 2011/65/EU of the European Parliament and the Council as regards the list of restricted substances.

Restricted substance	Units	Permissible Limitation
Lead, Pb	%	0.1, max
Mercury, Hg	%	0.1, max
Cadmium, Cd	%	0.01, max
Hexavalent Chromium, CrVI	%	0.1, max
Polybrominated biphenyls, PBBs	%	0.1, sum, max
Polybrominated diphenyl ethers, PBDEs	%	0.1, sum, max
Bis(2-ethylhexyl) phthalate, DEHP*	%	0.1, max
Butyl benzyl phthalate, BBP*	%	0.1, max
Dibutyl phthalate, DBP*	%	0.1, max
Diisobutyl phthalate, DIBP*	%	0.1, max

* those provisions shall be applied from 22 July 2019; The restriction of DEHP, BBP, DBP and DIBP shall apply to medical devices, including in vitro medical devices, and monitoring and control instruments, including industrial monitoring and control instruments, from 22 July 2021; The restriction of DEHP, BBP, DBP and DIBP shall not apply to cables or spare parts for the repair, the reuse, the updating of functionalities or upgrading of capacity of EEE placed on the market before 22 July 2019, and of medical devices, including in vitro medical devices, and monitoring and control instruments, including industrial monitoring and control instruments, placed on the market before 22 July 2021; The restriction of DEHP, BBP and DBP shall not apply to toys which are already subject to the restriction of DEHP, BBP and DBP through entry 51 of Annex XVII to Regulation (EC) No 1907/2006.

******** To be continued ********

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TEST RESULT(S)

Lead (Pb)/ Cadmium (Cd)/ Mercury(Hg)/ Hexavalent Chromium(Cr6+)/ PBBs/PBDEs

Test Method: With reference to IEC 62321-3-1: 2013/ IEC 62321-4&5: 2013/ IEC 62321-6: 2015/ IEC 62321-7-1: 2015/ IEC 62321-7-2:2017n, analyzed by EDXRF & ICP-AES & GC-MS & UV-Vis.

Note: selected items as required by the client.

Part No.	Part Description	Restricted Substances	Result of EDXRF (1)	Result of Chemical Testing (2) (mg/kg)	Conclusion on RoHS	Data Submitted / Resubmitted Date
1#	Silvery metal Al. Ring	Pb	---	151	comply	Nov.27, 2018 Nov.28, 2018
		Cd	---	n.d.	comply	
		Hg	---	n.d.	comply	
		Cr(VI)	---	negative	comply	
		PBBs	---	---	n.a.	
		PBDEs	---	---	n.a.	
		DBP	---	---	n.a.	
		BBP	---	---	n.a.	
		DEHP	---	---	n.a.	
		DIBP	---	---	n.a.	
2#	Silvery metal Screw	Pb	---	10	comply	Nov.27, 2018 Nov.28, 2018
		Cd	---	n.d.	comply	
		Hg	---	n.d.	comply	
		Cr(VI)	---	negative	comply	
		PBBs	---	---	n.a.	
		PBDEs	---	---	n.a.	
		DBP	---	---	n.a.	
		BBP	---	---	n.a.	
		DEHP	---	---	n.a.	
		DIBP	---	---	n.a.	
3#	White plastic Button	Pb	---	n.d.	Comply	Nov.27, 2018 Nov.28, 2018 Nov.29, 2018
		Cd	---	n.d.	Comply	
		Hg	---	n.d.	Comply	
		Cr(VI)	---	n.d.	Comply	
		PBBs	---	n.d.	Comply	
		PBDEs	---	n.d.	Comply	
		DBP	---	n.d.	Comply	
		BBP	---	n.d.	Comply	
		DEHP	---	n.d.	Comply	
		DIBP	---	n.d.	Comply	
4#	Silvery metal Bead	Pb	---	15	comply	Nov.27, 2018 Nov.28, 2018
		Cd	---	n.d.	comply	
		Hg	---	n.d.	comply	
		Cr(VI)	---	negative	comply	
		PBBs	---	---	n.a.	
		PBDEs	---	---	n.a.	
		DBP	---	---	n.a.	
		BBP	---	---	n.a.	
		DEHP	---	---	n.a.	
		DIBP	---	---	n.a.	

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Part No.	Part Description	Restricted Substances	Result of EDXRF (1)	Result of Chemical Testing (2) (mg/kg)	Conclusion on RoHS	Data Submitted / Resubmitted Date
5#	Transparent soft plastic Gasket	Pb Cd Hg Cr(VI) PBBs PBDEs DBP BBP DEHP DIBP	--- --- --- --- --- --- --- --- --- ---	n.d. n.d. n.d. n.d. n.d. n.d. n.d. n.d. n.d. n.d.	Comply Comply Comply Comply Comply Comply Comply Comply Comply Comply	Nov.27, 2018 Nov.28, 2018 Nov.29, 2018
6#	White soft plastic Ring	Pb Cd Hg Cr(VI) PBBs PBDEs DBP BBP DEHP DIBP	--- --- --- --- --- --- --- --- --- ---	n.d. n.d. n.d. n.d. n.d. n.d. n.d. n.d. n.d. n.d.	Comply Comply Comply Comply Comply Comply Comply Comply Comply Comply	Nov.27, 2018 Nov.28, 2018 Nov.29, 2018

******** To be continued ********

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Remark:

(1) (a) It is the result on total Br while test item on restricted substances is PBBs/PBDEs. It is the result on total Cr while test item on restricted substances is Cr^{6+}.

(b)Results are obtained by EDXRF for primary screening, and further chemical testing by ICP-OES (for Cd, Pb, Hg), UV-Vis (for Cr^{6+}) and GC/MS (for PBBs, PBDEs) is recommended to be performed, if the concentration exceeds the below warning value according to IEC62321-3-1:2013 (unit: mg/kg)

Element	Polymer	Metal	Composite Materials
Cd	BL≤(70-3σ)<X<(130+3σ) ≤OL	BL≤(70-3σ)<X<(130+3σ) ≤OL	LOD<X<(150+3σ) ≤OL
Pb	BL≤(700-3σ)<X<(1300+3σ) ≤OL	BL≤(700-3σ)<X<(1300+3σ) ≤OL	BL≤(500-3σ)<X<(1500+3σ) ≤OL
Hg	BL≤(700-3σ)<X<(1300+3σ) ≤OL	BL≤(700-3σ)<X<(1300+3σ) ≤OL	BL≤(500-3σ)<X<(1500+3σ) ≤OL
Br	BL≤(300-3σ)<X	--	BL≤(250-3σ)<X
Cr	BL≤(700-3σ)<X	BL≤(700-3σ)<X	BL≤(500-3σ)<X

(c) BL = Below Limit, OL = Over Limit, IN = Inconclusive, LOD = Limit of Detection,
-- = Not Regulated, NA = Not Applicable.

(d) The XRF screening test for RoHS elements – The reading may be different to the actual content in the sample be of non-uniformity composition.

(2) (a) mg/kg = ppm = 0.0001%, N.D.= Not Detected (<MDL), --- = Not Conducted.

(b) Unit and Method Detection Limit (MDL) in wet chemical test

Test Items	Pb	Cd	Hg
Units	mg/kg	mg/kg	mg/kg
MDL	2	2	2

The MDL for single compound of PBBs & PBDEs is 5 mg/kg and MDL of Cr^{6+} for polymer & composite sample is 2 mg/kg.

(c) According to IEC 62321:2008, result on Cr^{6+} for metal sample is shown as Positive/Negative.
Positive = Presence of Cr^{6+} coating, Negative = Absence of Cr^{6+} coating.

(3) * denotes that exemption was applicable.

******** To be continued ********

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(3) RoHS Exemptions

Exemptions	
RoHS Directive 2011/65/EU ANNEX III	
Exemption Items	**Expires Date**
1, Mercury in single capped (compact) fluorescent lamps not exceeding (per burner):	
1(a), For general lighting purposes < 30 W:2.5 mg	
1(b), For general lighting purposes≥ 30 W and < 50W:3.5mg	
1(c), For general lighting purposes ≥ 50 W and < 150 W: 5 mg	
1(d), For general lighting purposes ≥ 150 W: 15 mg	
1(e), For general lighting purposes with circular or square structural shape and tube diameter ≤ 17 mm: 7 mg	
1(f), For special purposes: 5 mg	
1(g), For general lighting purposes < 30 W with a lifetime equal or above 20 000 h: 3,5 mg	Expires on 31 December 2017
2(a), Mercury in double-capped linear fluorescent lamps for general lighting purposes not exceeding (per lamp):	
2(a)(1), Tri-band phosphor with normal lifetime and a tube diameter < 9 mm (e.g. T2): 4 mg	
2(a)(2), Tri-band phosphor with normal lifetime and a tube diameter ≥ 9 mm and ≤ 17 mm (e.g. T5): 3 mg	
2(a)(3), Tri-band phosphor with normal lifetime and a tube diameter > 17 mm and ≤ 28 mm (e.g. T8):3.5mg	
2(a)(4), Tri-band phosphor with normal lifetime and a tube diameter > 28 mm (e.g. T12): 3.5 mg	
2(a)(5), Tri-band phosphor with long lifetime (≥ 25 000 h): 5 mg	
2(b), Mercury in other fluorescent lamps not exceeding (per lamp):	
2(b)(2), Non-linear halophosphate lamps (all diameters): 15 mg	Expires on 13 April 2016
2(b)(3), Non-linear tri-band phosphor lamps with tube diameter > 17 mm (e.g. T9):15mg	
2(b)(4), Lamps for other general lighting and special purposes (e.g. induction lamps):15mg	
3, Mercury in cold cathode fluorescent lamps and external electrode fluorescent lamps (CCFL and EEFL) for special purposes not exceeding (per lamp):	
3(a), Short length (≤500 mm):3.5mg	
3(b), Medium length (> 500 mm and ≤ 1 500 mm):5mg	
3(c), Long length (> 1 500 mm):13mg	
4(a), Mercury in other low pressure discharge lamps (per lamp):15mg	
4(b), Mercury in High Pressure Sodium (vapour) lamps for general lighting purposes not exceeding (per burner) in lamps with improved colour rendering index Ra > 60:	
4(b) -I, P ≤155 W:30mg	
4(b) -II, 155 W < P ≤ 405 W:40mg	
4(b) -III, P > 405 W:40mg	
4(c), Mercury in other High Pressure Sodium (vapour) lamps for general lighting purposes not exceeding (per burner):	

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Exemptions	
RoHS Directive 2011/65/EU ANNEX III	
Exemption Items	**Expires Date**
4(c)-I, P ≤ 155 W:25mg	
4(c)-II, 155 W < P ≤ 405 W:30mg	
4(c)-III, P > 405 W:40mg	
4(e), Mercury in metal halide lamps (MH)	
4(f), Mercury in other discharge lamps for special purposes not specifically mentioned in this Annex	
4(g), Mercury in hand crafted luminous discharge tubes used for signs, decorative or architectural and specialist lighting and light-artwork, where the mercury content shall be limited as follows: (a) 20 mg per electrode pair+0,3mg per tube length in cm, but not more than 80 mg, for outdoor applications and indoor applications exposed to temperatures below 20 ℃; (b) 15 mg per electrode pair+0,24mg per tube length in cm, but not more than 80 mg, for all other indoor applications	Expires on 31 December 2018’
5(a), Lead in glass of cathode ray tubes	
5(b), Lead in glass of fluorescent tubes not exceeding 0,2 % by weight	
6(a), Lead as an alloying element in steel for machining purposes and in galvanized steel containing up to 0,35 % lead by weight	
6(b), Lead as an alloying element in aluminium containing up to 0,4 % lead by weight	
6(c), Copper alloy containing up to 4 % lead by weight	
7(a), Lead in high melting temperature type solders (i.e. lead- based alloys containing 85 % by weight or more lead)	
7(b), Lead in solders for servers, storage and storage array systems, network infrastructure equipment for switching, signalling, transmission, and network management for telecommunications	
7(c)-I, Electrical and electronic components containing lead in a glass or ceramic other than dielectric ceramic in capacitors, e.g. piezoelectronic devices, or in a glass or ceramic matrix compound	
7(c)-II, Lead in dielectric ceramic in capacitors for a rated voltage of 125 V AC or 250 V DC or higher	
7(c)-III, Lead in dielectric ceramic in capacitors for a rated voltage of less than 125 V AC or 250 V DC	Expires on 1 January 2013 and after that date may be used in spare parts for EEE placed on the market before 1 January 2013
7(c)-IV, Lead in PZT based dielectric ceramic materials for capacitors being part of integrated circuits or discrete semiconductors	Expires on 21 July 2016
8(a), Cadmium and its compounds in one shot pellet type thermal cut-offs	Expires on 1 January 2012 and after that date may be used in spare parts for EEE placed on the market before 1 January 2012
8(b), Cadmium and its compounds in electrical contacts	
9, Hexavalent chromium as an anticorrosion agent of the carbon steel cooling system in absorption refrigerators up to 0,75 % by weight in the cooling solution	

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Exemptions	
RoHS Directive 2011/65/EU ANNEX III	
Exemption Items	**Expires Date**
9(b), Lead in bearing shells and bushes for refrigerant-containing compressors for heating, ventilation, air conditioning and refrigeration (HVACR) applications	
11(a), Lead used in C-press compliant pin connector systems	May be used in spare parts for EEE placed on the market before 24 September 2010
11(b), Lead used in other than C-press compliant pin connector systems	Expires on 1 January 2013 and after that date may be used in spare parts for EEE placed on the market before 1 January 2013
12, Lead as a coating material for the thermal conduction module C-ring	May be used in spare parts for EEE placed on the market before 24 September 2010
13(a), Lead in white glasses used for optical applications	
13(b), Cadmium and lead in filter glasses and glasses used for reflectance standards	
14, Lead in solders consisting of more than two elements for the connection between the pins and the package of micropro-cessors with a lead content of more than 80 % and less than 85 % by weight	Expires on 1 January 2011 and after that date may be used in spare parts for EEE placed on the market before 1 January 2011
15, Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit flip chip packages	
17, Lead halide as radiant agent in high intensity discharge (HID) lamps used for professional reprography applications	
18(b), Lead as activator in the fluorescent powder (1 % lead by weight or less) of discharge lamps when used as sun tanning lamps containing phosphors such as BSP ($BaSi_2O_5$:Pb)	
21, Lead and cadmium in printing inks for the application of enamels on glasses, such as borosilicate and soda lime glasses	
23, Lead in finishes of fine pitch components other than connectors with a pitch of 0,65 mm and less	May be used in spare parts for EEE placed on the market before 24 September 2010
24, Lead in solders for the soldering to machined through hole discoidal and planar array ceramic multilayer capacitors	
25, Lead oxide in surface conduction electron emitter displays (SED) used in structural elements, notably in the seal frit and frit ring	
26, Lead in the following applications that are used durably at a temperature below – 20 °C under normal operating and storage conditions: (a) solders on printed circuit boards; (b) termination coatings of electrical and electronic components and coatings of printed circuit boards; (c) solders for connecting wires and cables; (d) solders connecting transducers and sensors. Lead in solders of electrical connections to temperature measurement sensors in devices which are designed to be used periodically at temperatures below – 150 °C.	These exemptions expire on 30 June 2021
29, Lead bound in crystal glass as defined in Annex I (Categories 1, 2, 3 and 4) of Council Directive 69/493/EEC ([1])	

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Exemptions	
RoHS Directive 2011/65/EU ANNEX III	
Exemption Items	**Expires Date**
30, Cadmium alloys as electrical/mechanical solder joints to elec-trical conductors located directly on the voice coil in transducers used in high-powered loudspeakers with sound pressure levels of 100 dB (A) and more	
31, Lead in soldering materials in mercury free flat fluorescent lamps (which e.g. are used for liquid crystal displays, design or industrial lighting)	
32, Lead oxide in seal frit used for making window assemblies for Argon and Krypton laser tubes	
33, Lead in solders for the soldering of thin copper wires of 100 µm diameter and less in power transformers	
34, Lead in cermet-based trimmer potentiometer elements	
37, Lead in the plating layer of high voltage diodes on the basis of a zinc borate glass body	
38, Cadmium and cadmium oxide in thick film pastes used on aluminium bonded beryllium oxide	
41. Lead in solders and termination finishes of electrical and electronic components and finishes of printed circuit boards used in ignition modules and other electrical and electronic engine control systems, which for technical reasons must be mounted directly on or in the crankcase or cylinder of hand-held combustion engines (classes SH:1, SH:2, SH:3 of Directive 97/68/EC of the European Parliament and of the Council) (2)	Expires on 31 December 2018
43, Cadmium anodes in Hersch cells for oxygen sensors used in industrial monitoring and control instruments, where sensitivity below 10 ppm is required.	Expires on 15 July 2023
Note: 1. (1) OJ L 326, 29.12.1969, p.36. (2) OJ L 59, 27.2.1998, p. 1. 2. For the purposes of Directive 2011/65/EU, a maximum concentration value of 0,1 % by weight in homogeneous materials for lead, mercury, hexavalent chromium, polybrominated biphenyls (PBB) and polybrominated diphenyl ethers (PBDE) and of 0,01 % by weight in homogeneous materials for cadmium shall be tolerated.	

******** To be continued ********

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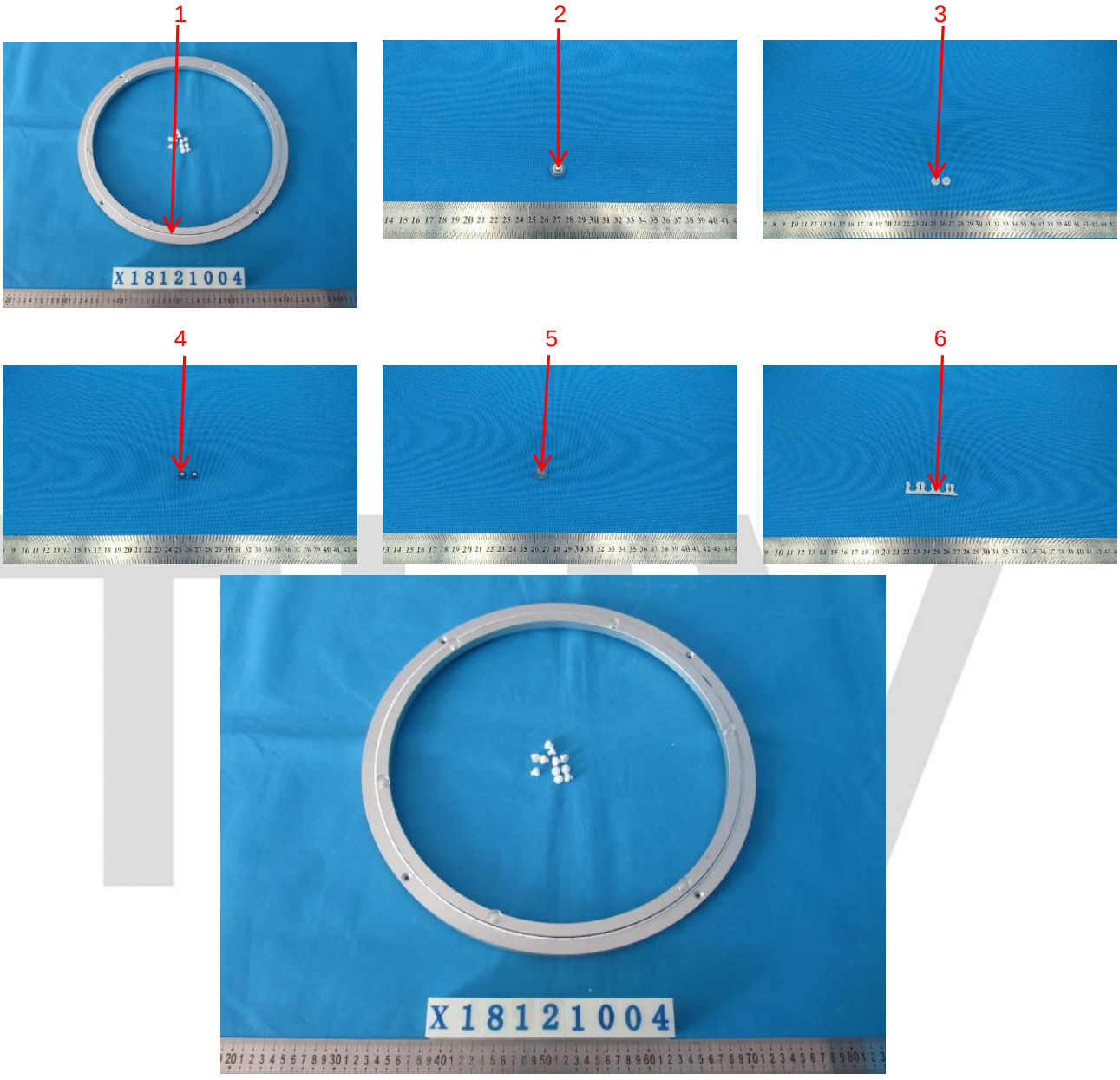
SAMPLE IMAGE



Tested specimen

Specimens within 30days of the receipt of this request. This information must ensure safe use of the article and, as a minimum, include the name of the substance.

****** END OF REPORT ******

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