Test Report

No. 4336235-06 Date : 20/NOV/2017

Steiner GmbH & Co. KG
Mr. R.-H. Spies (PhD)
Jägersgrund 1
57339 Erndtebrück
GERMANY

DAkkS Deutsche Akkreditierungsstelle
D-PL-14115-02
Gegenprobensachverständige nach § 43 LFGB

The following samples were submitted and identified by/on behalf of the client as

SGS Job file	:	4336235
Order date	:	24/OCT/2017
Order number	:	EB-6012995-S-0255
Sample receiving Date	:	25/OCT/2017
Testing period	:	25/OCT/2017 – 20/NOV/2017

Sample No	Sample designation
171145553	Sample 6: Al-coated Polyethylenenaphthalate (PEN) film

Test requested : In accordance with the RoHS Directive 2011/65/EU and subsequent amendments

Test Method(s)

(1) Determination of Cadmium by ICP-OES, acc. IEC 62321-5:2013

(2) Determination of Lead by ICP-OES, acc. IEC 62321-5:2013

(3) Determination of Mercury by CV-AAS, acc. IEC 62321-4:2013

(4) Determination of Chromium by ICP-OES, acc. IEC 62321-5:2013

(5) Determination of Chromium (VI) acc. IEC 62321:

A) (metal samples) Determination after extraction with hot water and derivatisation with 1,5-diphenyl-carbazide based on IEC 62321-7-1:2015 (metal samples), ion chromatography

B) (non-metallic samples) Determination after alkaline extraction and derivatisation with 1,5-diphenyl-carbazide based on IEC 62321, Ed1, 2008, C5 (polymer and electronic samples), ion chromatography

Remark: Due to its highly reactive nature the concentration of CrVI in a corrosion-protection changes drastically with time and storage conditions. The results obtained by IEC 62321-7-1:2015 can therefore only give an indication of the presence/absence of Cr(VI) within the limitations of the method at the time of testing.

(6) Determination of PBB/PBDE by GC/MS, acc. IEC 62321-6:2015

Remark: Please note that acc. to IEC the testing of metals for PBB/PBDE is gratuitous

Test Result(s) : Please refer to next page(s)

Conclusion : Based on the performed tests on submitted sample(s), the test results of Lead, Mercury, Cadmium, hexavalent Chromium, Polybrominated Biphenyls(PBB) and Polybrominated Diphenyl Ethers (PBDE) **comply with** the limits as set by RoHS Directive 2011/65/EU, Annex 2 and subsequent amendments

SGS INSTITUT FRESENIUS GmbH

i.V.
Wera Leonhard /tp
Projektleiterin / Project Manager

i.A.
Annkatrin Kuhl
Projektleiterin / Project Manager

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Die Prüfergebnisse beziehen sich auf die untersuchten Proben. Die Veröffentlichung und Vervielfältigung unserer Prüfberichte und Gutachten zu Werbezwecken sowie deren auszugsweise Verwendung in sonstigen Fällen bedürfen unserer schriftlichen Genehmigung. Alle Dienstleistungen werden auf Grundlage der anwendbaren Allgemeinen Geschäftsbedingungen der SGS, die auf Anfrage zur Verfügung gestellt werden, erbracht.

Geschäftsführer: Stefan Steinhardt, Aufsichtsratvorsitzender: Dirk Hellemans, Sitz der Gesellschaft: Taunusstein, HRB 21543 Amtsgericht Wiesbaden

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Test results by chemical method
(Unit: mg/kg)

Sample No.		171145553		
Test Item(s):	Method (refer to)		RL	RoHS Limit
Cadmium(Cd)	(1)	n.d.	2**	100
Lead (Pb)	(2)	n.d.	10	1000
Mercury (Hg)	(3)	n.d.	0,5	1000
Chromium, hexavalent (Cr(VI))	(5 B)	n.d.	1	1000
Sum of PBDEs	(6)	**-**	-	1000 (Sum of polybrominated diphenyl ether)
Monobromodiphenyl ether		n.d.	50	
Dibromodiphenyl ether		n.d.	50	
Tribromodiphenyl ether		n.d.	50	
Tetrabromodiphenyl ether		n.d.	50	
Pentabromodiphenyl ether		n.d.	50	
Hexabromodiphenyl ether		n.d.	50	
Heptabromodiphenyl ether		n.d.	50	
Octabromodiphenyl ether		n.d.	50	
Nonabromodiphenyl ether		n.d.	50	
Decabromodiphenyl ether		n.d.	50	
Sum of PBBs		**-**	-	1000 (Sum of polybrominated biphenyls)
Monobromobiphenyl		n.d.	50	
Dibromobiphenyl		n.d.	50	
Tribromobiphenyl		n.d.	50	
Tetrabromobiphenyl		n.d.	50	
Hexabromobiphenyl		n.d.	50	
Pentabromobiphenyl		n.d.	50	
Heptabromobiphenyl		n.d.	50	
Octabromobiphenyl		n.d.	50	
Nonabromobiphenyl		n.d.	50	
Decabromobiphenyl		n.d.	50	

Note : mg/kg = ppm n.d.= not Detected RL = Report Limit n.a.= not analyzed

**= elevated reporting limit due to matrix interferences

The analytical findings are only valid for the sample as analyzed. Written acknowledgement for publication and duplication of our analytical reports for promotional purpose, as well as fractional use for other purposes mandatory. Electronically submitted results are for your information only. For legally binding results refer to the originally signed analytical report. Numbers following „<“ represent limits of quantification. Determination of parameters marked with * was performed with a cooperation partner.

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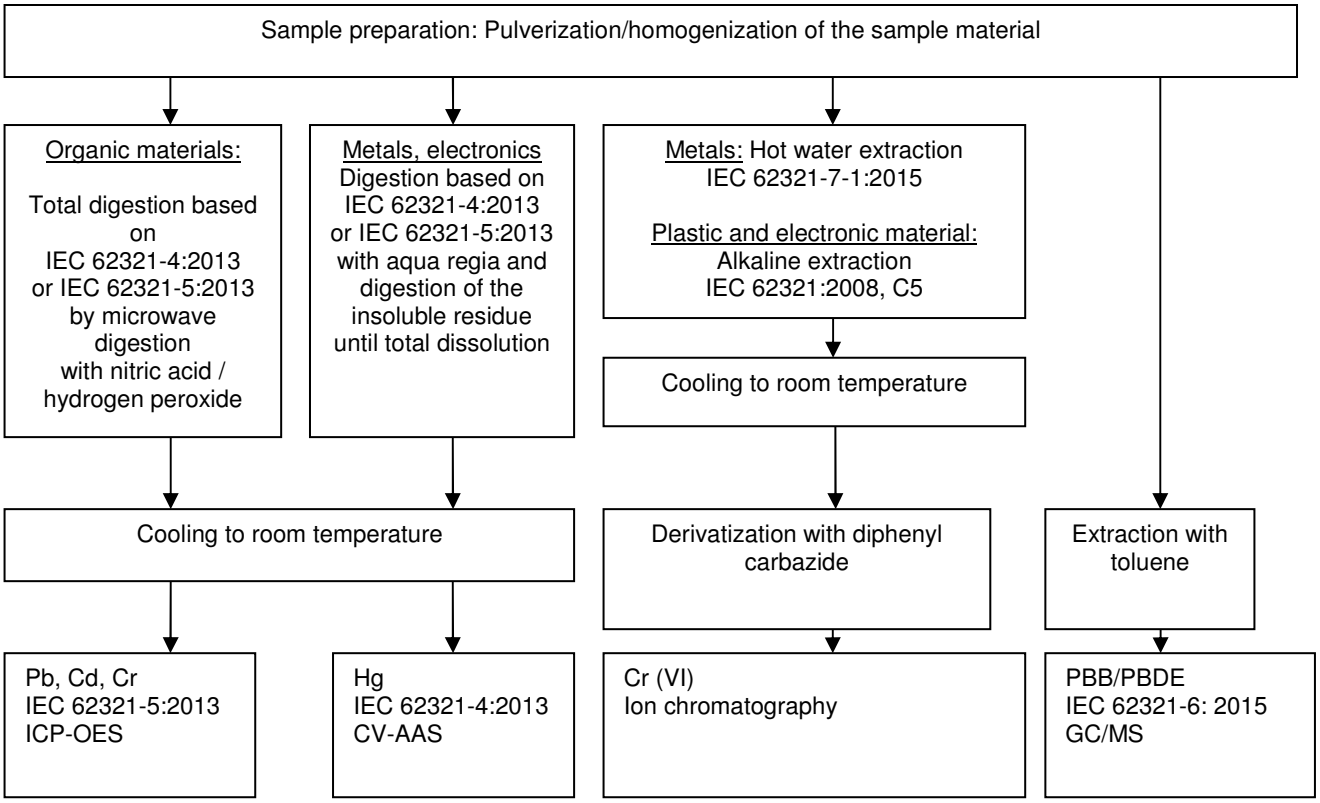
Flow Chart for the working flow of the performed analysis



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Sample Photo(s)

End of Report

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