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Non Food



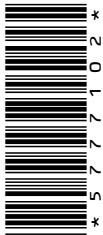
General Information

SGS Client's ID : 10027069
SGS Job No. : 6151700
Ordering Date : 04/04/2022
Sample Receipt Date : 08/04/2022
Testing Period : 11/04/2022 – 02/05/2022
Analytical Scope : according to client's requirements

Sample No.

Sample description

220387114 Ag nanoparticle based inkjet ink PRELECT SPS 210, 4QSDQ, Batch no. 3931725/10



Test Request

Analysis according to Directive 2011/65/EU (RoHS)

Analysis of halogens Chlorine (Cl), Bromine (Br)

Conclusion : Based on the performed tests on submitted sample(s), the test results of Lead, Mercury, Cadmium, hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE), Bis(2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP), and Diisobutyl phthalate (DIBP) **comply with** the requirements as set by Directive 2011/65/EU, Annex 2.

Halogens:

Based on the performed tests on submitted sample(s), the test results of Chlorine and Bromine **comply with** the limits with reference to requirements acc. IEC 61249-2-21:2003:

Chlorine or Bromine < 0,09% per homogeneous material;

Sum of Chlorine and Bromine < 0,15% per homogeneous material;

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Dieser Prüfbericht wurde elektronisch erstellt und freigegeben / This test report was electronically created and released:

	Datum / date	Name / name	Funktion / function	Abteilung /department
Erstellung / created	29.04.2022	i.A. Rezal Koch	Customer Service Coordinator	Connectivity & Products
Freigabe / released	02.05.2022	i.A. Niklas Eriksson	Project Manager	Connectivity & Products

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Test methods

- (1) Determination of Cadmium by ICP-OES, acc. to IEC 62321-5:2013-6
- (2) Determination of Lead by ICP-OES, acc. to IEC 62321-5:2013-6
- (3) Determination of Mercury by CV-AAS, acc. to IEC 62321-4:2013-6
- (4) Determination of Chromium by ICP-OES, acc. to IEC 62321-5:2013-6
- (5) Determination of Chromium(VI) acc. to IEC 62321:
 - A) Metal samples: Determination by ion chromatography after extraction with hot water and derivatisation with 1,5-diphenyl carbazide, acc. to IEC 62321-7-1:2015-9
 - B) Non-metallic samples: Determination by ion chromatography, acc. to IEC 62321-7-2:2017-03;

Remark: The concentration of Cr(VI) in a corrosion-protection can change depending on storage time and 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. to IEC 62321-6:2015-6

Remark: Acc. to IEC, the testing for PBB/PBDE is only intended for polymers.
- (7) Determination of Phthalates by GC/MS after extraction with THF, acc. to IEC 62321-8:2017-3;

Remark: Acc. to IEC, the testing for phthalates is only intended for polymers.
- (8) Determination of Chlorine (Cl) acc. to Wickbold combustion with reference to DIN 53474:2017-12; Analysis was performed via Ion chromatography acc. DIN EN ISO 10304-1:2009-07
- (9) Determination of Bromine (Br) acc. to Wickbold combustion with reference to DIN 53474:2017-12; Analysis was performed via Ion chromatography acc. DIN EN ISO 10304-1:2009-07

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Test results

Sample		220387114			
Test Item	Method	mg/kg	<u>BL</u> mg/kg	<u>RoHS Limit</u>	
Cadmium (Cd)	(1)	< 1	1	100	
Lead (Pb)	(2)	< 10	10	1000	
Mercury (Hg)	(3)	< 0,1	0,5	1000	
Chromium, hexavalent (Cr(VI))	(5 B)	< 1	1	1000	
Monobromodiphenyl ether	(6)	n.d.	50	1000 Sum of polybrominated diphenyl ethers	
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 PBDEs		-			
Monobromobiphenyl		(6)	n.d.		50
Dibromobiphenyl	n.d.		50		
Tribromobiphenyl	n.d.		50		
Tetrabromobiphenyl	n.d.		50		
Pentabromobiphenyl	n.d.		50		
Hexabromobiphenyl	n.d.		50		
Heptabromobiphenyl	n.d.		50		
Octabromobiphenyl	n.d.		50		
Nonabromobiphenyl	n.d.		50		
Decabromobiphenyl	n.d.		50		
Sum of PBBs	-				
Bis(2-ethylhexyl) phthalate (DEHP) (117-81-7)	(7)		n.d.	100	1000
Butyl benzyl phthalate (BBP) (85-68-7)		n.d.	100	1000	
Dibutyl phthalate (DBP) (84-74-2)		n.d.	100	1000	
Diisobutyl phthalate (DIBP) (84-69-5)		n.d.	100	1000	

Remark:

mg/kg = ppm

BL = Report limit

n.a. = not analyzed

n.d. = not detected

* elevated reporting limit due to matrix interferences

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Test results:

Test Item(s):	Unit	Test Method	Results 220387114	RL
Chlorine (Cl)	mg/kg	(8)	745	50
Bromine (Br)	mg/kg	(9)	n.d.	50

Note: mg/kg = ppm

n.d.= not detected

RL = Report Limit

n.a.= not analyzed

n.d.= not detected

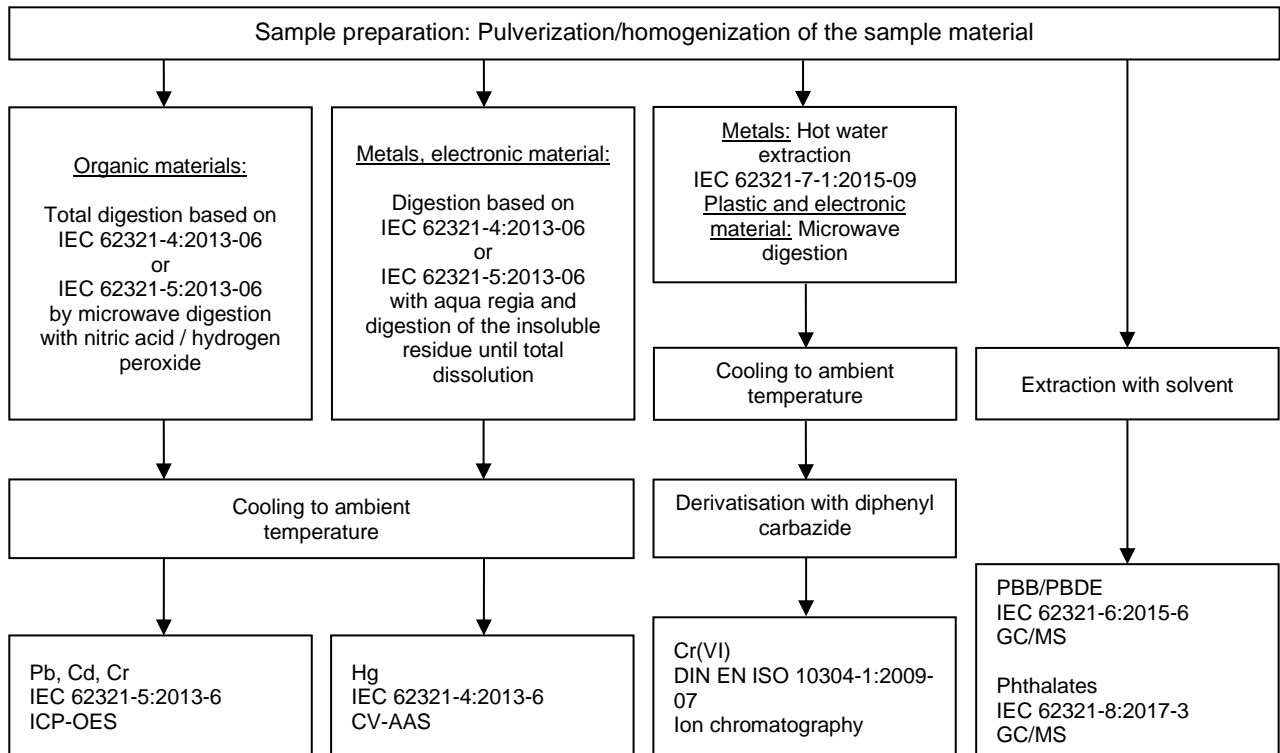
(*)=elevated reporting limit
due low sample amount

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Flow Chart for the working flow of the performed analysis



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Photo Documentation



*** End of test report ***

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