

No. : CE/2016/43515

Date : 2016/04/22

Page: 1 of 7

TAIYO INK MFG. CO., LTD.

900, HIRASAWA, RANZAN-MACHI, HIKI-GUN, SAITAMA 355-0215 JAPAN

The following sample(s) was/were submitted and identified by/on behalf of the applicant as :

Sample Submitted By	:	TAIYO INK MFG. CO., LTD.
Sample Description	:	FLEXFINER30SA (UL:-)
Color	:	AMBER
Style/Item No.	:	FILM
Buyer/Order No.	:	BN0303s
Sample Receiving Date	:	2016/04/19
Testing Period	:	2016/04/19 TO 2016/04/22

Test Requested

As specified by client, with reference to RoHS 2011/65/EU Annex II and amending Directive (EU) 2015/863 to determine Cadmium, Lead, Mercury, Cr(VI), PBBs, PBDEs, DBP, BBP, DEHP, DIBP contents in the submitted sample.

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

:

Conclusion

Based on the performed tests on selected part of submitted sample(s), the test results of Cadmium, Lead, Mercury, Cr(VI), PBBs, PBDEs, DBP, BBP, DEHP, DIBP comply with the limits as set by RoHS and amending Directive (EU) 2015/863.



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No. : CE/2016/43515

Date : 2016/04/22

Page : 2 of 7

TAIYO INK MFG. CO., LTD.

900, HIRASAWA, RANZAN-MACHI, HIKI-GUN, SAITAMA 355-0215 JAPAN

Test Result(s)

PART NAME No.1

AMBER FILM :

Test Item(s)	Unit	Method	MDL	Result No.1	Limit
Cadmium (Cd)	mg/kg	With reference to IEC 62321-5 (2013) and performed by ICP-AES.	2	n.d.	100
Lead (Pb)	mg/kg	With reference to IEC 62321-5 (2013) and performed by ICP-AES.	2	n.d.	1000
Mercury (Hg)	mg/kg	With reference to IEC 62321-4 (2013) and performed by ICP-AES.	2	n.d.	1000
Hexavalent Chromium Cr(VI)	mg/kg	With reference to IEC 62321 (2008) and performed by UV-VIS.	2	n.d.	1000
Sum of PBBs	mg/kg		-	n.d.	1000
Monobromobiphenyl	mg/kg	1	5	n.d.	-
Dibromobiphenyl	mg/kg	1	5	n.d.	-
Tribromobiphenyl	mg/kg	1	5	n.d.	-
Tetrabromobiphenyl	mg/kg	1	5	n.d.	-
Pentabromobiphenyl	mg/kg	1	5	n.d.	-
Hexabromobiphenyl	mg/kg	1	5	n.d.	-
Heptabromobiphenyl	mg/kg	1	5	n.d.	-
Octabromobiphenyl	mg/kg		5	n.d.	-
Nonabromobiphenyl	mg/kg		5	n.d.	-
Decabromobiphenyl	mg/kg	With reference to IEC 62321-6 (2015) and performed by GC/MS.	5	n.d.	-
Sum of PBDEs	mg/kg		-	n.d.	1000
Monobromodiphenyl ether	mg/kg		5	n.d.	-
Dibromodiphenyl ether	mg/kg	1	5	n.d.	-
Tribromodiphenyl ether	mg/kg		5	n.d.	-
Tetrabromodiphenyl ether	mg/kg		5	n.d.	-
Pentabromodiphenyl ether	mg/kg		5	n.d.	-
Hexabromodiphenyl ether	mg/kg		5	n.d.	-
Heptabromodiphenyl ether	mg/kg		5	n.d.	-
Octabromodiphenyl ether	mg/kg		5	n.d.	-
Nonabromodiphenyl ether	mg/kg		5	n.d.	-
Decabromodiphenyl ether	mg/kg		5	n.d.	-

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No. : CE/2016/43515

Date : 2016/04/22

Page : 3 of 7

TAIYO INK MFG. CO., LTD.

900, HIRASAWA, RANZAN-MACHI, HIKI-GUN, SAITAMA 355-0215 JAPAN

Test Item(s)	Unit	Method	MDL	Result No.1	Limit
BBP (Butyl Benzyl phthalate) (CAS No.: 85-68-7)	mg/kg	With reference to IEC 62321-8/CD (2013). Analysis was performed by GC/MS.	50	n.d.	1000
DBP (Dibutyl phthalate) (CAS No.: 84-74-2)	mg/kg		50	n.d.	1000
DIBP (Di-isobutyl phthalate) (CAS No.: 84-69-5)	mg/kg		50	n.d.	1000
DEHP (Di- (2-ethylhexyl) phthalate) (CAS No.: 117-81-7)	mg/kg		50	n.d.	1000

Note :

- 1. mg/kg = ppm ; 0.1wt% = 1000ppm
- 2. n.d. = Not Detected
- 3. MDL = Method Detection Limit

4. " - " = Not Regulated

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No. : CE/2016/43515

Date : 2016/04/22

Page: 4 of 7

TAIYO INK MFG. CO., LTD.

900, HIRASAWA, RANZAN-MACHI, HIKI-GUN, SAITAMA 355-0215 JAPAN

These samples were dissolved totally by pre-conditioning method according to below flow chart. (Cr⁶⁺ test method excluded)

Technician: Climbgreat Yang Supervisor: Troy Chang Cutting / Preparation ¥ Sample Measurement Cr⁶⁺ Hg Pb、Cd (Note**) Acid digestion by suitable acid Microwave digestion with Add appropriate amount depended on different sample HNO₃/HCI/HF of digestion reagent material (as below table) Heat to appropriate Filtration temperature to extract Residue Solution Cool, filter digestate through filter Alkali Fusion 1) 2) HCI to dissolve **ICP-AES** Add diphenyl-carbazide for color development Sample Material **Digestion Acid** Aqua regia, HNO₃, HCI, HF, H₂O₂ Steel, copper, aluminum, solder HNO₃/HF Glass measure the absorbance Gold, platinum, palladium, ceramic Aqua regia at 540 nm by UV-VIS Silver HNO₃ Plastic H₂SO₄, H₂O₂, HNO₃, HCI

Note** (For IEC 62321)

Others

(1) For non-metallic material, add alkaline digestion reagent and heat to 90~95°C.

Added appropriate reagent to total

(2) For metallic material, add pure water and heat to boiling.

digestion

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No.: CE/2016/43515

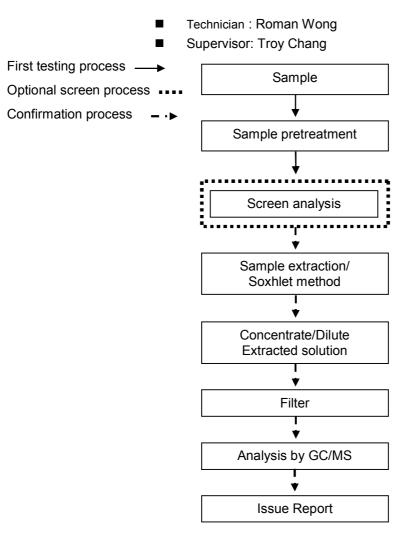
Date : 2016/04/22

Page : 5 of 7

TAIYO INK MFG. CO., LTD.

900, HIRASAWA, RANZAN-MACHI, HIKI-GUN, SAITAMA 355-0215 JAPAN

Analytical flow chart - PBB/PBDE



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No. : CE/2016/43515

Date : 2016/04/22

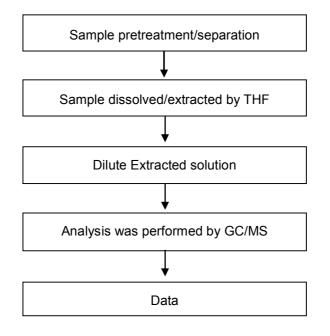
Page : 6 of 7

TAIYO INK MFG. CO., LTD. 900, HIRASAWA, RANZAN-MACHI, HIKI-GUN, SAITAMA 355-0215 JAPAN

Analytical flow chart - Phthalate

- Technician: Andy Shu
- Supervisor: Troy Chang

[Test method: IEC 62321-8]



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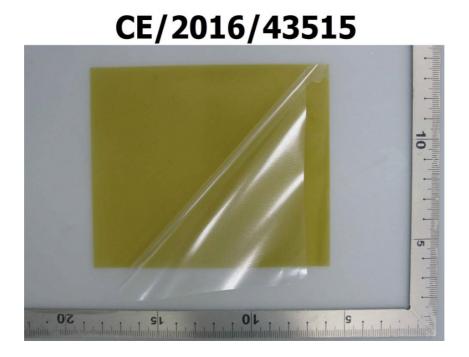
No. : CE/2016/43515

Date : 2016/04/22

Page : 7 of 7

TAIYO INK MFG. CO., LTD. 900, HIRASAWA, RANZAN-MACHI, HIKI-GUN, SAITAMA 355-0215 JAPAN

* The tested sample / part is marked by an arrow if it's shown on the photo. *



** End of Report **

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