

TEST REPORT **No:** ACCHL250009592 **Issue Date:** 21-Aug-2025 **Page 1 of 9**

PROTERIAL THAI ENAMEL WIRE CO., LTD.

171 MOO 12 BANGNA-TRAD KM.43 BANGWUA, BANGPAKONG, CHACHOENGSAO, 24180 THAILAND

The following sample(s) was/were submitted and identified by the client as:

Sample Name : Polyvinyl formal
Part No. : PVF
Country of Origin : Thailand

The following sample(s) was/were identified by SGS as:

Sample Number : ACC25-0002096-0001
Sample Condition : Sample is contained in plastic bag.
Quantity Submitted : 1 bag
Sample Received Date : Aug 15 2025
Testing Period : Aug 15 - Aug 20 2025
Test Requested : In accordance with the EU RoHS Directive 2011/65/EU (Annex II) [amended by Directive (EU) 2015/863]. Selected test (s) as requested by client.
Test Method(s) : Please refer to next page(s)
Test Result(s) : Please refer to next page(s)
Conclusion : Based on the performed tests on submitted sample(s), the results of Cadmium (Cd), Lead (Pb), Mercury (Hg), Hexavalent chromium (Cr-VI), Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs) and Phthalates such as Bis(2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP) and Diisobutyl phthalate (DIBP) comply with the limits as set by RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU where the decision rules based on simple acceptance which the probability of false accept may be as high as 50% in case the results is exactly on the tolerance limit.

**Signed for and on behalf of
SGS (Thailand) Limited**



Anchalee Wunnaphuek
Acting Chemical Laboratory Manager

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Test Result(s) :

Test Item(s)	Unit	Method	Result	MDL	Limit
Lead(Pb)	mg/kg	With reference to IEC 62321-5:2013, analysis was performed by ICP-OES.	ND	2	1000
Cadmium(Cd)	mg/kg	With reference to IEC 62321-5:2013, analysis was performed by ICP-OES.	ND	2	100
Mercury(Hg)	mg/kg	With reference to IEC 62321-4:2013+AMD1:2017, analysis was performed by ICP-OES.	ND	2	1000
Hexavalent Chromium(CrVI)	µg/cm²	With reference to IEC 62321-7-1:2015, analysis was performed by UV-Vis	ND	0.10	-
Polybrominated biphenyls (PBB)*	mg/kg	With reference to IEC 62321-6:2015, analysis was performed by GC-MS.	ND	-	1000
Monobrominated biphenyl (MonoBB)*	mg/kg	With reference to IEC 62321-6:2015, analysis was performed by GC-MS.	ND	5	-
Dibrominated biphenyl (DiBB)*	mg/kg	With reference to IEC 62321-6:2015, analysis was performed by GC-MS.	ND	5	-
Tribrominated biphenyl (TriBB)*	mg/kg	With reference to IEC 62321-6:2015, analysis was performed by GC-MS.	ND	5	-
Tetrabrominated biphenyl (TetraBB)*	mg/kg	With reference to IEC 62321-6:2015, analysis was performed by GC-MS.	ND	5	-
Pentabrominated biphenyl (PentaBB)*	mg/kg	With reference to IEC 62321-6:2015, analysis was performed by GC-MS.	ND	5	-
Hexabrominated biphenyl (HexaBB)*	mg/kg	With reference to IEC 62321-6:2015, analysis was performed by GC-MS.	ND	5	-
Heptabrominated biphenyl (HeptaBB)*	mg/kg	With reference to IEC 62321-6:2015, analysis was performed by GC-MS.	ND	5	-
Octabrominated biphenyl (OctaBB)*	mg/kg	With reference to IEC 62321-6:2015, analysis was performed by GC-MS.	ND	5	-
Nonabrominated biphenyl (NonaBB)*	mg/kg	With reference to IEC 62321-6:2015, analysis was performed by GC-MS.	ND	5	-
Decabrominated biphenyl (DecaBB)*	mg/kg	With reference to IEC 62321-6:2015, analysis was performed by GC-MS.	ND	5	-
Polybrominated diphenyl ether (PBDE)*	mg/kg	With reference to IEC 62321-6:2015, analysis was performed by GC-MS.	ND	-	1000
Monobrominated diphenyl ether (MonoBDE)*	mg/kg	With reference to IEC 62321-6:2015, analysis was performed by GC-MS.	ND	5	-

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Test Item(s)	Unit	Method	Result	MDL	Limit
Dibrominated diphenyl ether (DiBDE)*	mg/kg	With reference to IEC 62321-6:2015, analysis was performed by GC-MS.	ND	5	-
Tribrominated diphenyl ether (TriBDE)*	mg/kg	With reference to IEC 62321-6:2015, analysis was performed by GC-MS.	ND	5	-
Tetrabrominated diphenyl ether (TetraBDE)*	mg/kg	With reference to IEC 62321-6:2015, analysis was performed by GC-MS.	ND	5	-
Pentabrominated diphenyl ether (PentaBDE)*	mg/kg	With reference to IEC 62321-6:2015, analysis was performed by GC-MS.	ND	5	-
Hexabrominated diphenyl ether (HexaBDE)*	mg/kg	With reference to IEC 62321-6:2015, analysis was performed by GC-MS.	ND	5	-
Heptabrominated diphenyl ether (HeptaBDE)*	mg/kg	With reference to IEC 62321-6:2015, analysis was performed by GC-MS.	ND	5	-
Octabrominated diphenyl ether (OctaBDE)*	mg/kg	With reference to IEC 62321-6:2015, analysis was performed by GC-MS.	ND	5	-
Nonabrominated diphenyl ether (NonaBDE)*	mg/kg	With reference to IEC 62321-6:2015, analysis was performed by GC-MS.	ND	5	-
Decabrominated diphenyl ether (DecaBDE)*	mg/kg	With reference to IEC 62321-6:2015, analysis was performed by GC-MS.	ND	5	-
Dibutyl Phthalate(DBP)*	mg/kg	With reference to IEC 62321-8 : 2017, Analysis was performed by GC-MS	ND	50	1000
Benzyl Butyl Phthalate(BBP)*	mg/kg	With reference to IEC 62321-8 : 2017, Analysis was performed by GC-MS	ND	50	1000
Bis-(2-ethylhexyl) Phthalate(DEHP)*	mg/kg	With reference to IEC 62321-8 : 2017, Analysis was performed by GC-MS	ND	50	1000
Diisobutyl Phthalate(DIBP)*	mg/kg	With reference to IEC 62321-8 : 2017, Analysis was performed by GC-MS	ND	50	1000

Test part description

Result : metal with plating

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Note :

- (a) mg/kg = ppm ; 0.1wt% = 1000 ppm
- (b) ug/cm² = microgram/centremeter square
- (c) ND = Not Detected (Less than MDL)
- (d) MDL = Method Detection Limit
- (e) The result of Hexavalent Chromium (Cr(VI)) = a. The sample is positive for CrVI if the CrVI concentration is greater than 0.13 ug/cm². The sample coating is considered to contain CrVI
- b. The sample is negative for CrVI if CrVI is ND (concentration less than 0.10 ug/cm²). The coating is considered a non-CrVI based coating
- c. The result between 0.10 ug/cm² and 0.13 ug/cm² is considered to be inconclusive - unavoidable coating variations may influence the determination
- (f) "-" = Not regulated
- (g) For corrosion protection coatings on metals: Information on storage conditions and production date of the tested sample is unavailable and thus results of Cr(VI) represent status of the sample at the time of testing represent status of the sample at the time of testing.

Remarks :

- (1) The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863.
- (2) IEC 62321 series is equivalent to EN 62321 series.
- (3) 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

Test(s) marked * on test report is/are not included in the accreditation scope.

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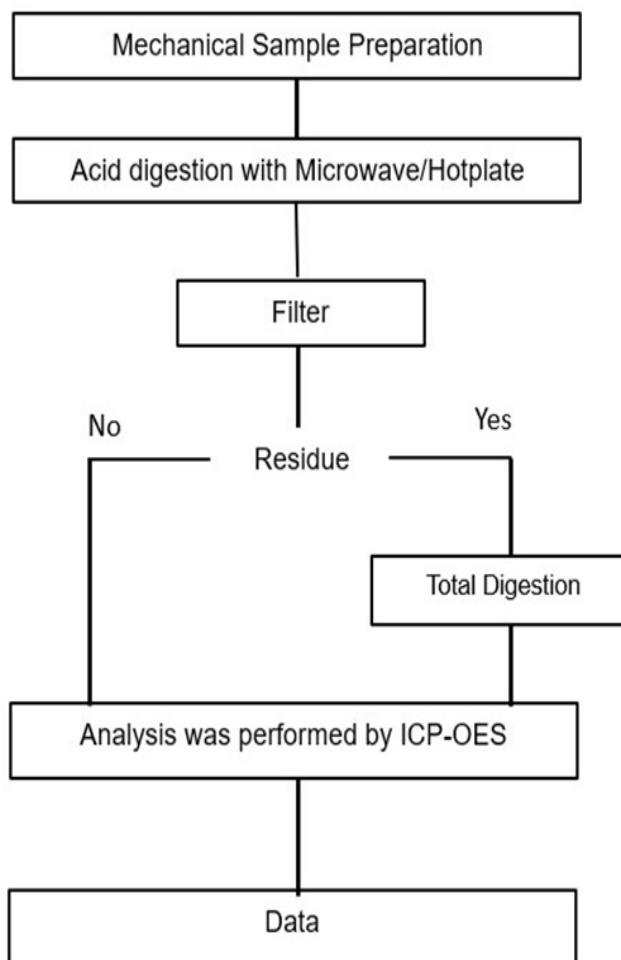
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Flow chart of Heavy metal Testing

(Test method : IEC 62321)



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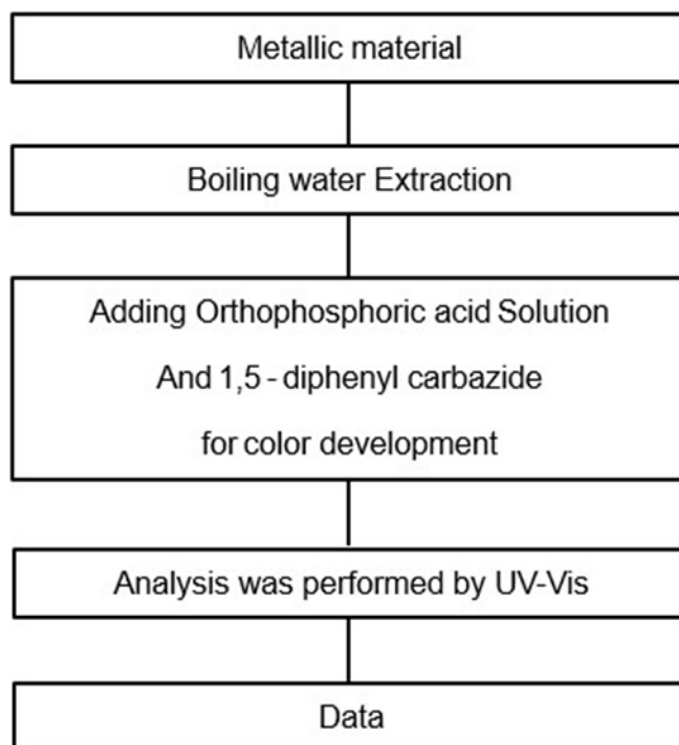
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Flow chart of Hexavalent Chromium Testing

(Test method : IEC 62321)



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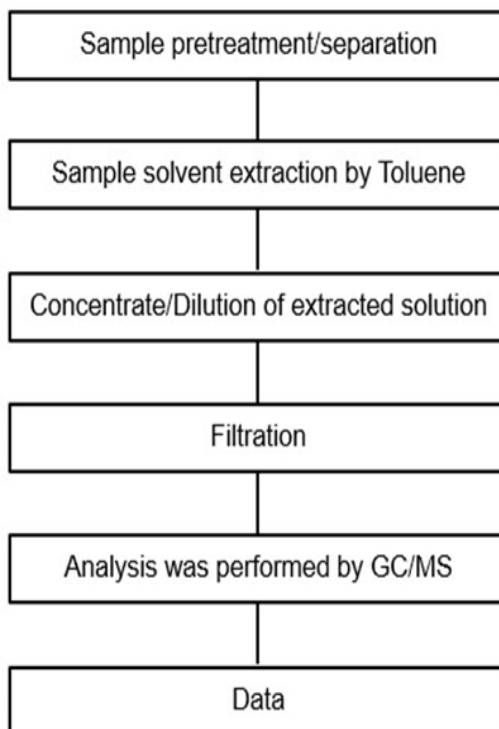
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Flow chart of PBBs, PBDEs Testing

(Test method : IEC 62321)



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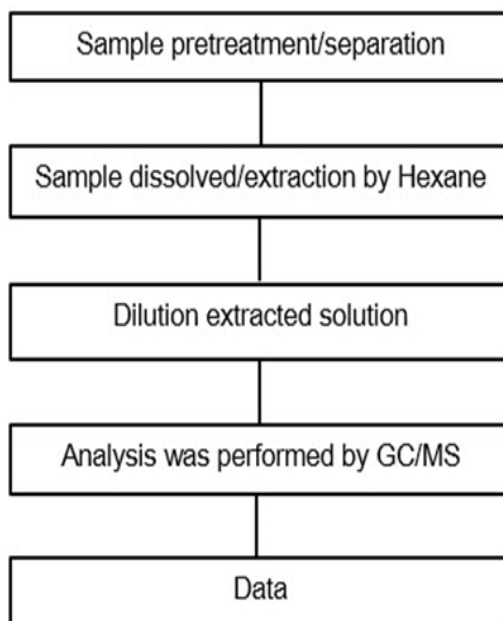
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Flow chart of Phthalates Analysis

(Test method : IEC 62321-8)



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Sample Photo:



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