TEST REPORT

Company Name Shown on Report:	Landu Innovations Technology Co., Ltd.
Address:	B1302, Building 3, Phase 1, Tianan Industrial Park, Bantian Street, Longgang District, Shenzhen City, 518129, China

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

Sample Name:	3D Printing Filament
Sample Model:	PLA Basic,Hyper PLA,PLA,PLA+,PLA Max,Hyper PLA+, PLA Matte,PLA Luminous,PLA Chameleon,PLA Marble, PLA Silk,PLA CF,PLA Wood,PETG,PETG Pro,PETG Sparkling,Hyper PETG,PETG CF,ABS,Hyper ABS,ABS+, ABS CF,ASA,TPU 95A,TPU Pro 98A,HIPS,PVA
Manufacturer:	Landu Innovations Technology Co., Ltd.
Address:	B1302, Building 3, Phase 1, Tianan Industrial Park, Bantian Street, Longgang District, Shenzhen City, 518129, China
Factory:	Hongshengda 3D Technology Co.. Ltd.
Address:	Minghui Technology Park, No. 426 Qingfeng Road, Qingxi Town, Dongguan City, Guangdong Province
Sample Received Date:	Jun.20, 2025
Test Period:	Jun.20, 2025 – Jun.24, 2025
Date of Issue:	Jun.25, 2025

ISSUED BY:

GUANGDONG TI COBO TESTING CO.,LTD.

Editor: Kiki **Checked by:** Cd lan **Approved by:** Sam Xie

1. Test Requested and Test Conclusion:

Based on the performed tests on specified material(s) or submitted sample(s).

Test items	Conclusion
RoHS Directive 2011/65/EU Revised instructions (EU) 2015/863 of the European parliament and of the council on the restriction of the use of certain hazardous substances in electrical and electronic equipment	
- Lead (Pb)/ Cadmium(Cd)/ Mercury(Hg)/ Hexavalent Chromium(Cr^{6+}) content.	PASS
- Dibutyl phthalate (DBP), Benzylbutyl phthalate (BBP), Di-(2-ethylhexyl) phthalate (DEHP), Diisobutyl phthalate(DIBP) content	PASS
- Polybrominated biphenyls (PBBs) &Polybrominated diphenyl ethers (PBDEs) content.	PASS

2. Test Result(s)

2.1 Heavy Metal Content

Test Method:

Lead (Pb)/Cadmium(Cd): IEC 62321-5:2013, analysis was performed by Inductively Coupled Plasma Optical Emission Spectrometer (ICP-OES).

Mercury(Hg): IEC 62321-4:2013+AMD1:2017, analysis was performed by Inductively Coupled Plasma Optical Emission Spectrometer (ICP-OES).

Hexavalent Chromium(Cr^{6+}) - metal: IEC 62321-7-1:2015, analysis was performed by Ultraviolet–visible spectroscopy (UV-Vis).

Hexavalent Chromium(Cr^{6+}) - nonmetal: IEC 62321-7-2:2017, analysis was performed by Ultraviolet–visible spectroscopy (UV-Vis).

Test Item	Lead (Pb)	Cadmium(Cd)	Mercury (Hg)	Hexavalent Chromium (Cr^{6+})	Hexavalent Chromium (Cr^{6+})
CAS No.	7439-92-1	7440-43-9	7439-97-6	18540-29-9	18540-29-9
Unit	mg/kg	mg/kg	mg/kg	mg/kg	$\mu g/cm^2$
Limit	1000	100	1000	1000	Negative
Material No.	**Result**				
1	N.D.	N.D.	N.D.	N.D.	--
2	N.D.	N.D.	N.D.	N.D.	--
3	N.D.	N.D.	N.D.	N.D.	--
4	N.D.	N.D.	N.D.	N.D.	--
5	N.D.	N.D.	N.D.	N.D.	--
6	N.D.	N.D.	N.D.	N.D.	--
7	N.D.	N.D.	N.D.	N.D.	--
8	N.D.	N.D.	N.D.	N.D.	--
9	N.D.	N.D.	N.D.	N.D.	--
10	N.D.	N.D.	N.D.	N.D.	--
11	N.D.	N.D.	N.D.	N.D.	--
12	N.D.	N.D.	N.D.	N.D.	--
13	N.D.	N.D.	N.D.	N.D.	--
14	N.D.	N.D.	N.D.	N.D.	--
15	N.D.	N.D.	N.D.	N.D.	--
16	N.D.	N.D.	N.D.	N.D.	--
17	N.D.	N.D.	N.D.	N.D.	--
18	N.D.	N.D.	N.D.	N.D.	--
19	N.D.	N.D.	N.D.	N.D.	--

20	N.D.	N.D.	N.D.	N.D.	--
21	N.D.	N.D.	N.D.	N.D.	--
22	N.D.	N.D.	N.D.	N.D.	--
23	N.D.	N.D.	N.D.	N.D.	--
24	N.D.	N.D.	N.D.	N.D.	--
25	N.D.	N.D.	N.D.	N.D.	--
26	N.D.	N.D.	N.D.	N.D.	--
27	N.D.	N.D.	N.D.	N.D.	--

Note:
1. mg/kg = milligram per kilogram, μg/cm^2 = Micrograms per square meter
2. N.D. = Not Detected (< RL)
3. "--" = Not Applicable
4. RL = Report Limit
5. Pb, Cd, Hg Report Limit: 10mg/kg; Cr^{6+} Report Limit: Nonmetal 10 mg/kg, metal 0.1μg/cm^2
6. Negative = Surface of metal sample absence of Cr^{6+}, Positive = Surface of metal sample presence of Cr^{6+}

2.2 Phthalates Content

Test Method: IEC 62321-8:2017, analysis was performed by Gas Chromatograph-Mass Spectrometer (GC-MS).

Test Item	Di-(2-ethylhexyl) phthalate (DEHP)	Dibutyl phthalate (DBP)	Benzylbutyl phthalate (BBP)	Diisobutyl phthalate(DIBP)
CAS No.	117-81-7	84-74-2	85-68-7	84-69-5
Limit (mg/kg)	1000	1000	1000	1000
Material No.	**Result (mg/kg)**			
1	N.D.	N.D.	N.D.	N.D.
2	N.D.	N.D.	N.D.	N.D.
3	N.D.	N.D.	N.D.	N.D.
4	N.D.	N.D.	N.D.	N.D.
5	N.D.	N.D.	N.D.	N.D.
6	N.D.	N.D.	N.D.	N.D.
7	N.D.	N.D.	N.D.	N.D.
8	N.D.	N.D.	N.D.	N.D.
9	N.D.	N.D.	N.D.	N.D.
10	N.D.	N.D.	N.D.	N.D.
11	N.D.	N.D.	N.D.	N.D.
12	N.D.	N.D.	N.D.	N.D.

13	N.D.	N.D.	N.D.	N.D.
14	N.D.	N.D.	N.D.	N.D.
15	N.D.	N.D.	N.D.	N.D.
16	N.D.	N.D.	N.D.	N.D.
17	N.D.	N.D.	N.D.	N.D.
18	N.D.	N.D.	N.D.	N.D.
19	N.D.	N.D.	N.D.	N.D.
20	N.D.	N.D.	N.D.	N.D.
21	N.D.	N.D.	N.D.	N.D.
22	N.D.	N.D.	N.D.	N.D.
23	N.D.	N.D.	N.D.	N.D.
24	N.D.	N.D.	N.D.	N.D.
25	N.D.	N.D.	N.D.	N.D.
26	N.D.	N.D.	N.D.	N.D.
27	N.D.	N.D.	N.D.	N.D.

Note:
1. mg/kg = milligram per kilogram
2. RL = Report Limit: 50mg/kg
3. N.D. = Not Detected (< RL)

2.3 Polybrominated biphenyls (PBBs) & Polybrominated diphenyl ethers (PBDEs) Content

Test Method: IEC 62321-6:2015, analysis was performed by Gas Chromatograph-Mass Spectrometer (GC-MS).

Test Item		Limit (mg/kg)	RL (mg/kg)	Result(mg/kg)				
				1	2	3	4	5
PBBs	Monobromobiphenyl	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Dibromobiphenyl	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Tribromobiphenyl	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Tetrabromobiphenyl	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Pentabromobiphenyl	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Hexabromobiphenyl	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Heptabromobiphenyl	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Octabromobiphenyl	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Nonabromobiphenyl	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Decabromobiphenyl	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Sum of detected PBBs	1000	--	N.D.	N.D.	N.D.	N.D.	N.D.
PBDEs	Monobromodiphenylether	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Dibromodiphenylether	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Tribromodiphenylether	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Tetrabromodiphenylether	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Pentabromodiphenylether	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Hexabromodiphenylether	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Heptabromodiphenylether	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Octabromodiphenylether	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Nonabromodiphenylether	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Decabromodiphenylether	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Sum of detected PBDEs	1000	--	N.D.	N.D.	N.D.	N.D.	N.D.

Test Item		Limit (mg/kg)	RL (mg/kg)	Result(mg/kg)				
				6	7	8	9	10
PBBs	Monobromobiphenyl	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Dibromobiphenyl	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Tribromobiphenyl	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Tetrabromobiphenyl	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Pentabromobiphenyl	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Hexabromobiphenyl	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Heptabromobiphenyl	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Octabromobiphenyl	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Nonabromobiphenyl	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Decabromobiphenyl	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Sum of detected PBBs	1000	--	N.D.	N.D.	N.D.	N.D.	N.D.
PBDEs	Monobromodiphenylether	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Dibromodiphenylether	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Tribromodiphenylether	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Tetrabromodiphenylether	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Pentabromodiphenylether	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Hexabromodiphenylether	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Heptabromodiphenylether	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Octabromodiphenylether	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Nonabromodiphenylether	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Decabromodiphenylether	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Sum of detected PBDEs	1000	--	N.D.	N.D.	N.D.	N.D.	N.D.

Test Item		Limit (mg/kg)	RL (mg/kg)	Result(mg/kg)				
				11	12	13	14	15
PBBs	Monobromobiphenyl	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Dibromobiphenyl	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Tribromobiphenyl	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Tetrabromobiphenyl	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Pentabromobiphenyl	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Hexabromobiphenyl	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Heptabromobiphenyl	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Octabromobiphenyl	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Nonabromobiphenyl	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Decabromobiphenyl	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Sum of detected PBBs	1000	--	N.D.	N.D.	N.D.	N.D.	N.D.
PBDEs	Monobromodiphenylether	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Dibromodiphenylether	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Tribromodiphenylether	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Tetrabromodiphenylether	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Pentabromodiphenylether	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Hexabromodiphenylether	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Heptabromodiphenylether	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Octabromodiphenylether	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Nonabromodiphenylether	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Decabromodiphenylether	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Sum of detected PBDEs	1000	--	N.D.	N.D.	N.D.	N.D.	N.D.

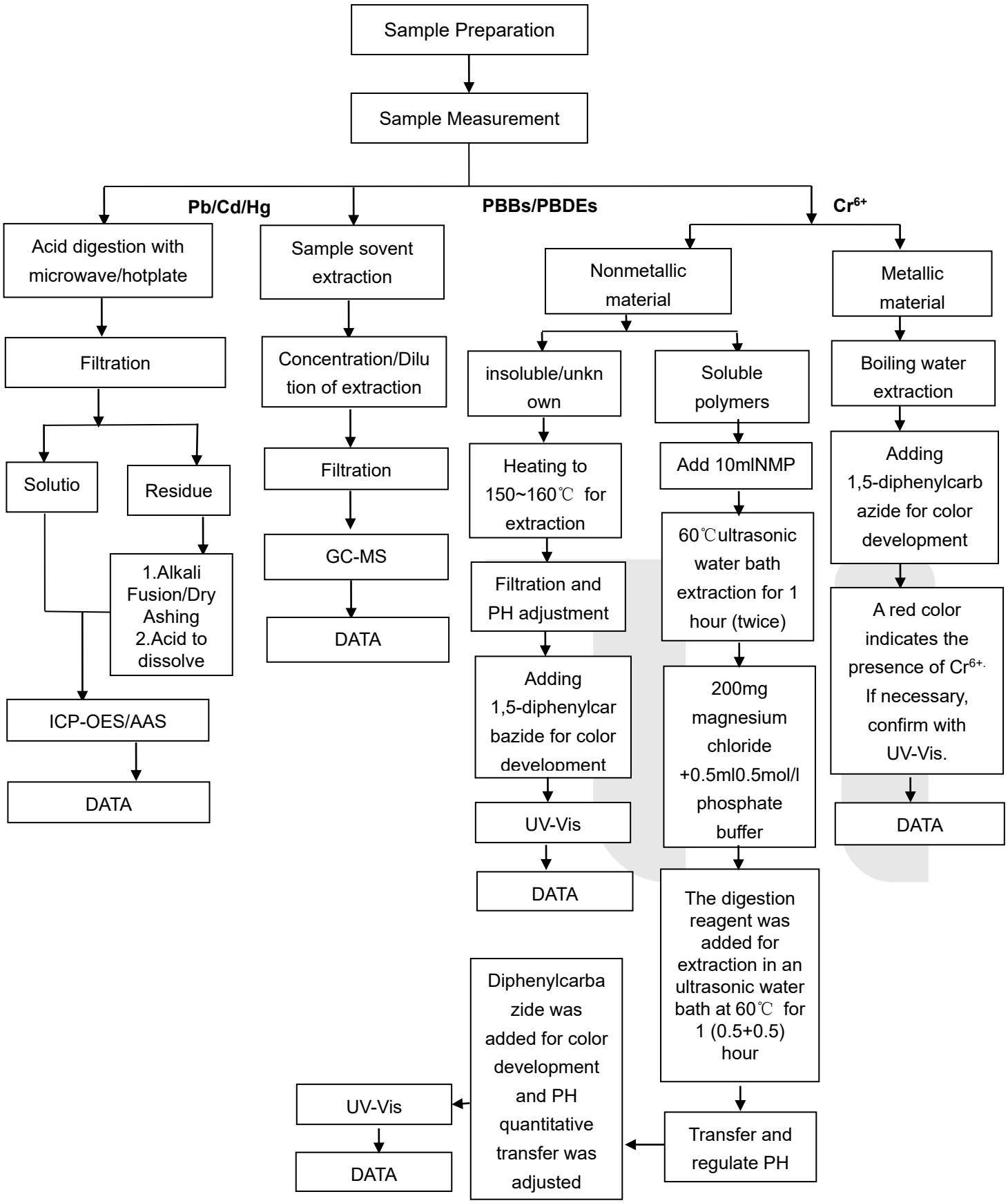
Test Item		Limit (mg/kg)	RL (mg/kg)	Result(mg/kg)				
				16	17	18	19	20
PBBs	Monobromobiphenyl	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Dibromobiphenyl	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Tribromobiphenyl	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Tetrabromobiphenyl	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Pentabromobiphenyl	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Hexabromobiphenyl	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Heptabromobiphenyl	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Octabromobiphenyl	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Nonabromobiphenyl	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Decabromobiphenyl	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Sum of detected PBBs	1000	--	N.D.	N.D.	N.D.	N.D.	N.D.
PBDEs	Monobromodiphenylether	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Dibromodiphenylether	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Tribromodiphenylether	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Tetrabromodiphenylether	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Pentabromodiphenylether	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Hexabromodiphenylether	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Heptabromodiphenylether	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Octabromodiphenylether	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Nonabromodiphenylether	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Decabromodiphenylether	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Sum of detected PBDEs	1000	--	N.D.	N.D.	N.D.	N.D.	N.D.

Test Item		Limit (mg/kg)	RL (mg/kg)	Result(mg/kg)				
				21	22	23	24	25
PBBs	Monobromobiphenyl	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Dibromobiphenyl	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Tribromobiphenyl	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Tetrabromobiphenyl	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Pentabromobiphenyl	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Hexabromobiphenyl	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Heptabromobiphenyl	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Octabromobiphenyl	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Nonabromobiphenyl	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Decabromobiphenyl	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Sum of detected PBBs	1000	--	N.D.	N.D.	N.D.	N.D.	N.D.
PBDEs	Monobromodiphenylether	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Dibromodiphenylether	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Tribromodiphenylether	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Tetrabromodiphenylether	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Pentabromodiphenylether	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Hexabromodiphenylether	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Heptabromodiphenylether	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Octabromodiphenylether	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Nonabromodiphenylether	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Decabromodiphenylether	--	5	N.D.	N.D.	N.D.	N.D.	N.D.
	Sum of detected PBDEs	1000	--	N.D.	N.D.	N.D.	N.D.	N.D.

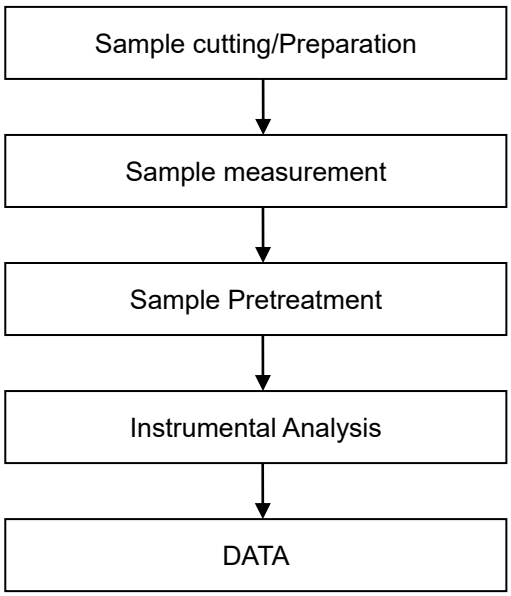
Test Item		Limit (mg/kg)	RL (mg/kg)	Result(mg/kg)	
				26	27
PBBs	Monobromobiphenyl	--	5	N.D.	N.D.
	Dibromobiphenyl	--	5	N.D.	N.D.
	Tribromobiphenyl	--	5	N.D.	N.D.
	Tetrabromobiphenyl	--	5	N.D.	N.D.
	Pentabromobiphenyl	--	5	N.D.	N.D.
	Hexabromobiphenyl	--	5	N.D.	N.D.
	Heptabromobiphenyl	--	5	N.D.	N.D.
	Octabromobiphenyl	--	5	N.D.	N.D.
	Nonabromobiphenyl	--	5	N.D.	N.D.
	Decabromobiphenyl	--	5	N.D.	N.D.
	Sum of detected PBBs	1000	--	N.D.	N.D.
PBDEs	Monobromodiphenylether	--	5	N.D.	N.D.
	Dibromodiphenylether	--	5	N.D.	N.D.
	Tribromodiphenylether	--	5	N.D.	N.D.
	Tetrabromodiphenylether	--	5	N.D.	N.D.
	Pentabromodiphenylether	--	5	N.D.	N.D.
	Hexabromodiphenylether	--	5	N.D.	N.D.
	Heptabromodiphenylether	--	5	N.D.	N.D.
	Octabromodiphenylether	--	5	N.D.	N.D.
	Nonabromodiphenylether	--	5	N.D.	N.D.
	Decabromodiphenylether	--	5	N.D.	N.D.
	Sum of detected PBDEs	1000	--	N.D.	N.D.

Note:
1. mg/kg = milligram per kilogram
2. RL = Report Limit
3. N.D. = Not Detected (< RL)
4. "--" = Not Applicable

RoHS Testing Flow Chart



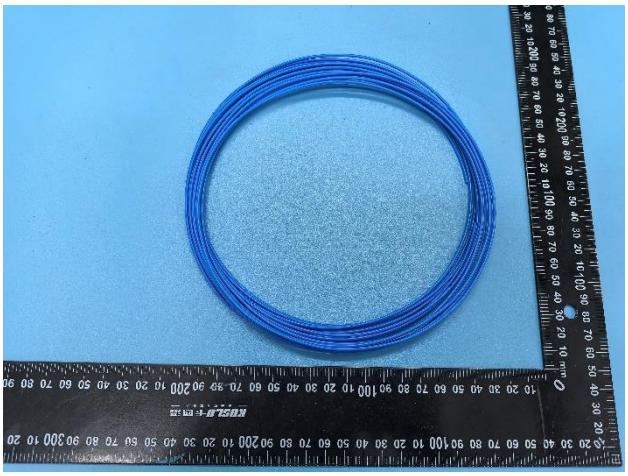
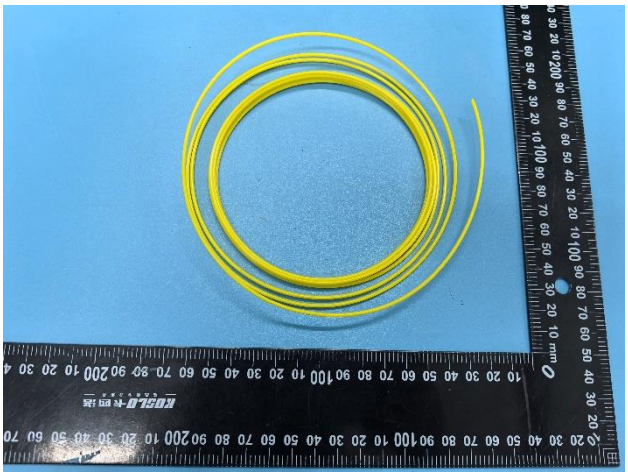
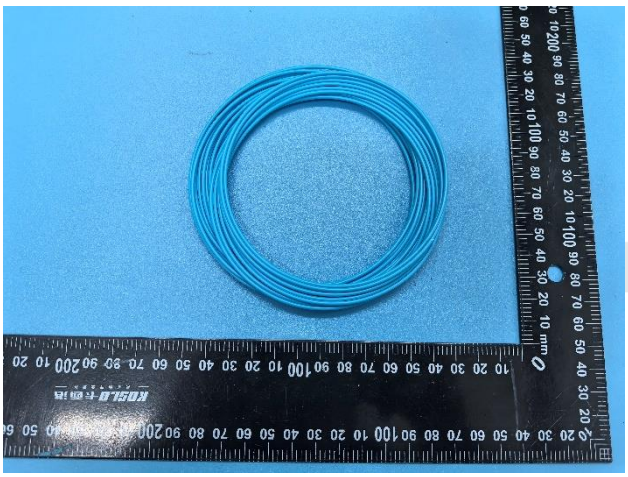
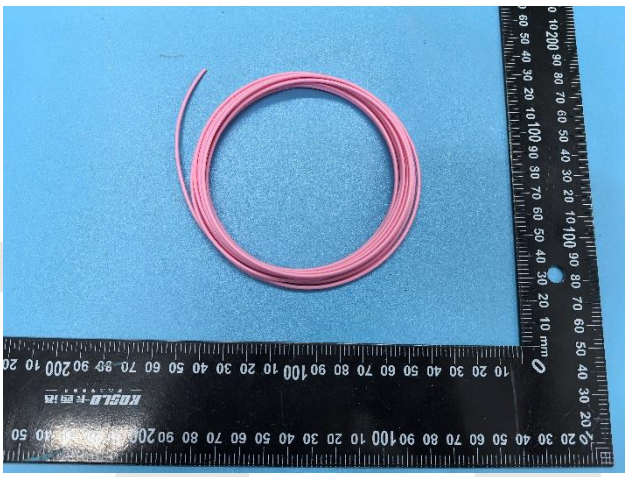
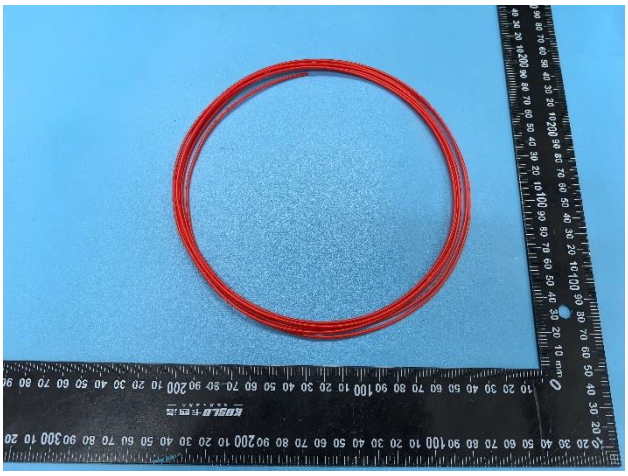
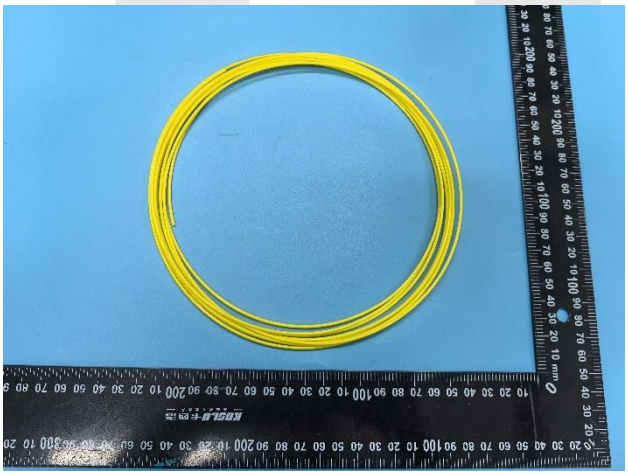
Phthalates Testing Flow Chart

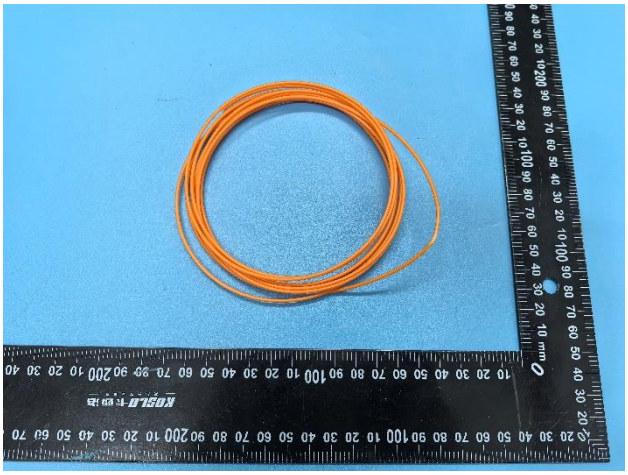


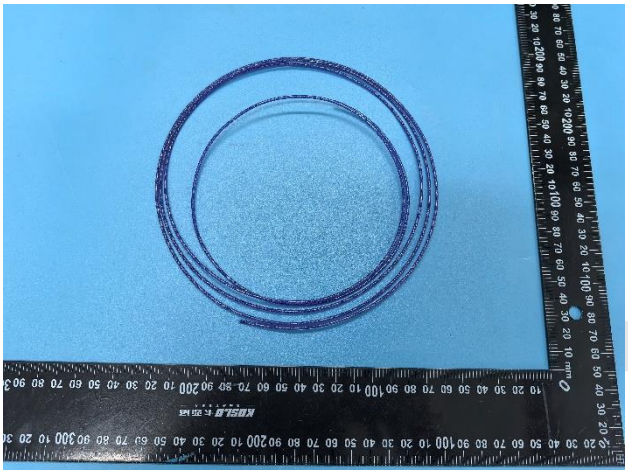
3. Sample description

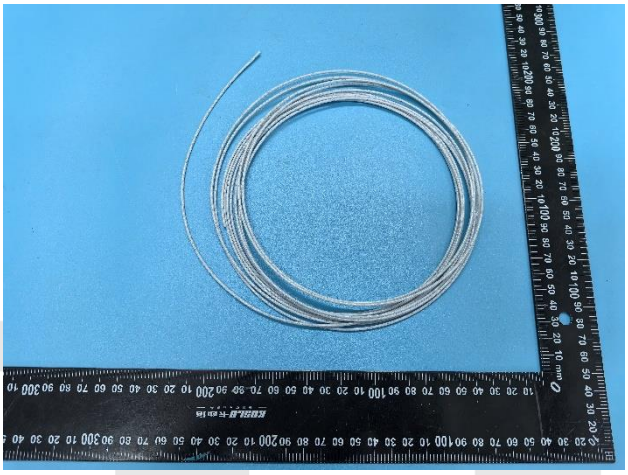
Material No.	Description
1	Blue plastic(PLA basic)
2	Yellow plastic(Hyper PLA)
3	Light blue plastic(PLA)
4	Pink plastic(PLA+)
5	Red plastic(PLA Max)
6	Yellow plastic(Hyper PLA+)
7	Orange plastic(PLA Matte)
8	Transparent green plastic(PLA Luminous)
9	Purple plastic(PLA Chameleon)
10	Black/white plastic(PLA Marble)
11	Pearl white plastic(PLA Silk)
12	Black plastic((PLA CF)
13	Brown plastic(PLA Wood)
14	Black plastic(PETG)
15	White plastic(PETG Pro)
16	Black plastic(PETG Sparkling)
17	Green plastic(Hyper PETG)
18	Black plastic(PETG CF)
19	White plastic(ABS)
20	Pink plastic(Hyper ABS)
21	Black plastic(ABS+)
22	Dark gray plastic(ABS CF)
23	Black plastic(ASA)
24	Yellow soft plastic(TPU 95A)
25	Black soft plastic(TPU Pro 98A)
26	Black plastic(HIPS)
27	Transparent yellow soft plastic(PVA)

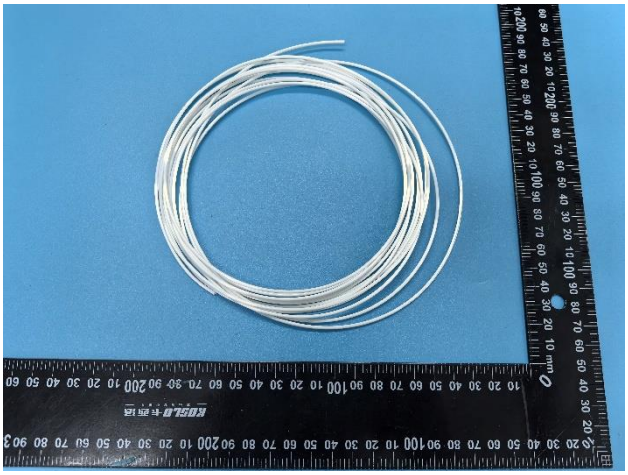
Photo of Sample

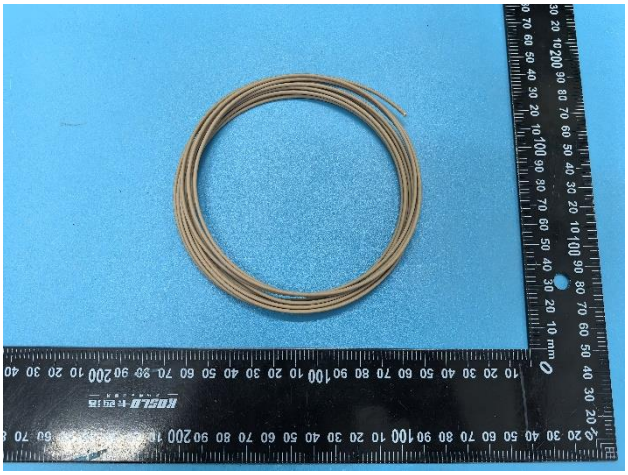







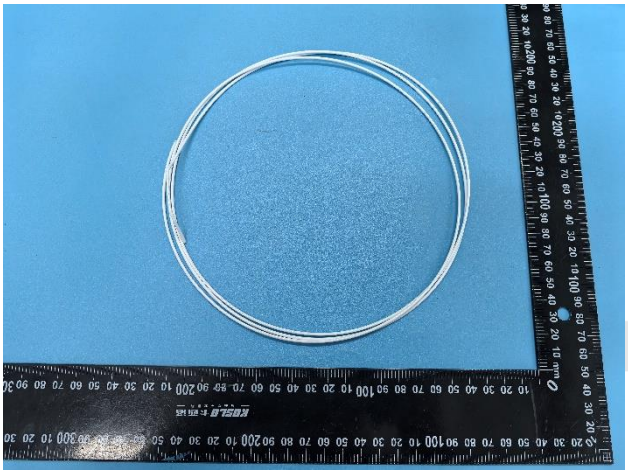


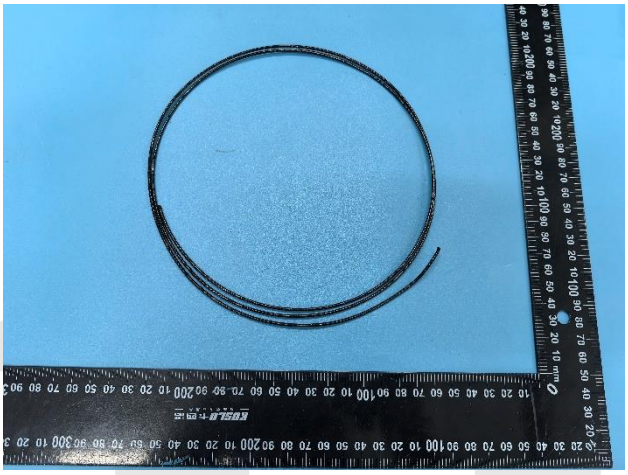


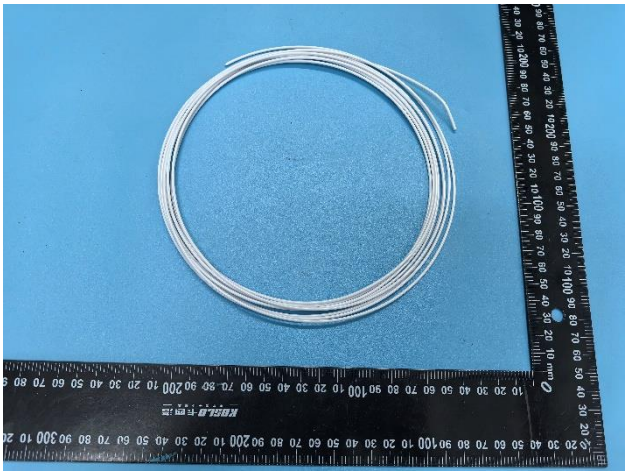


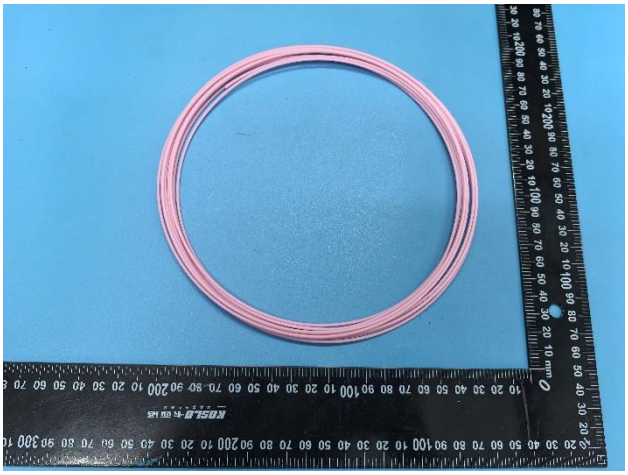


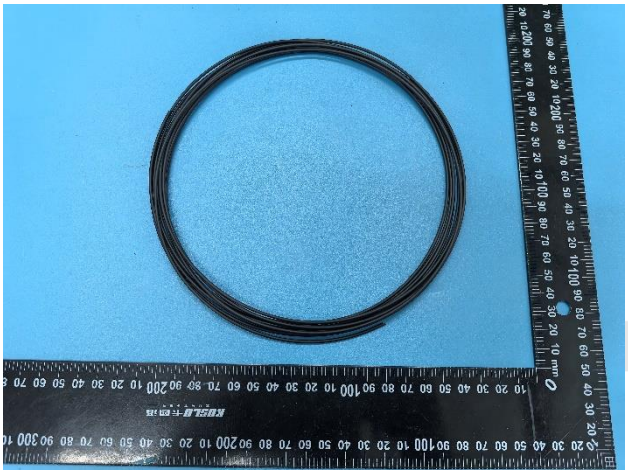


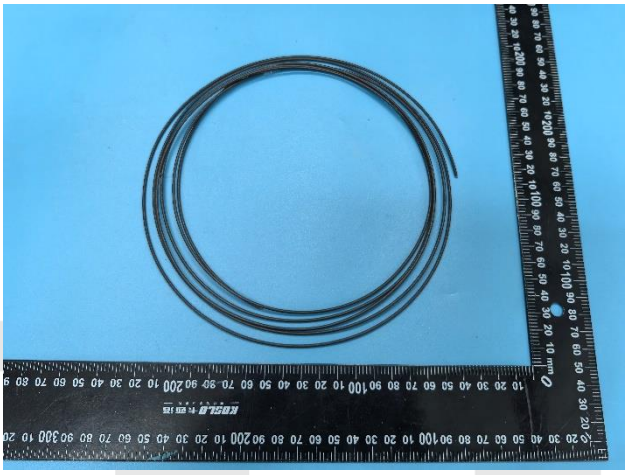


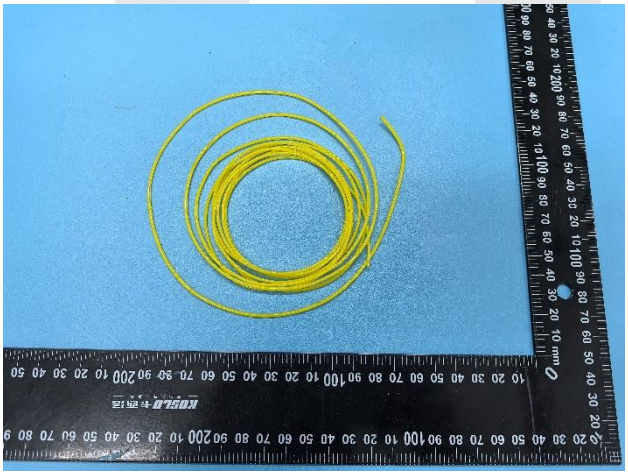


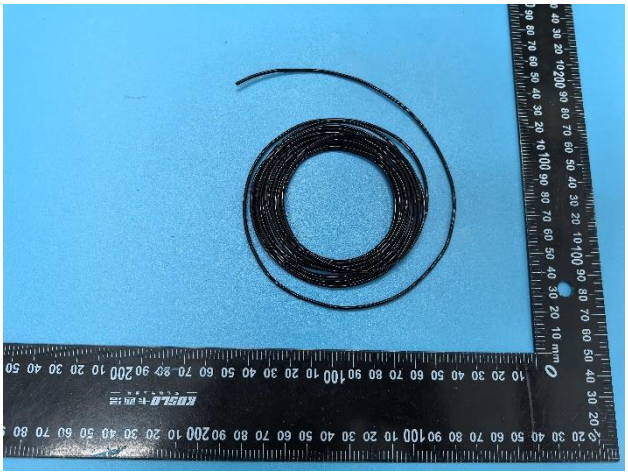


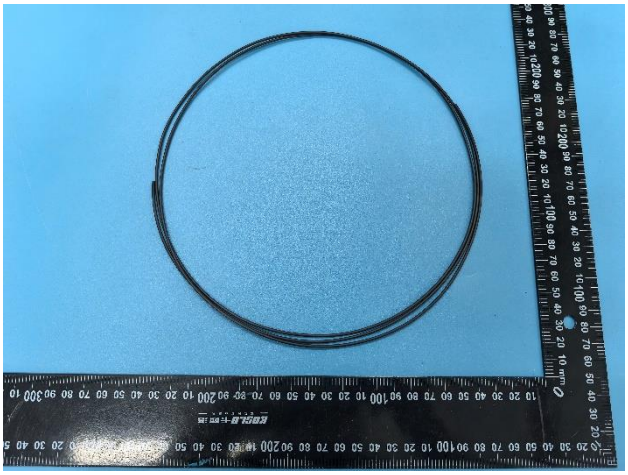


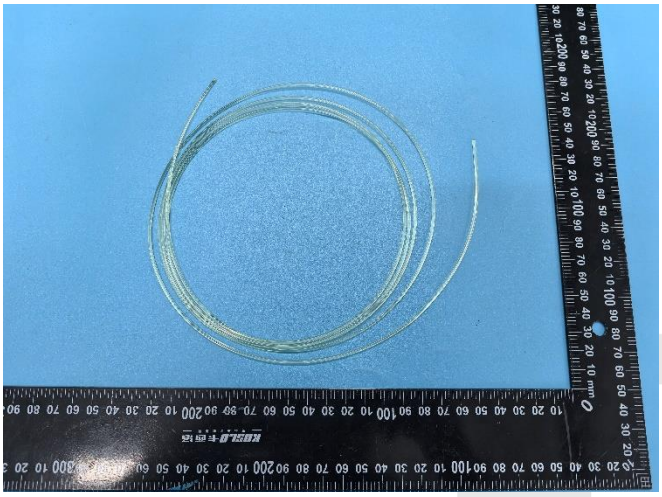












Remark: This report replaces the original report COBO25060853, which has been invalidated.

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End of Report