

Report For: Shield Manufacturing
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Laboratory #: 504957-09
Report Date: February 9, 2009
Received Date: January 16, 2009

Attention: David Berghash
Specimen: Educational Products

TEST REPORT

RE: ANALYSIS OF VARIOUS MATERIALS FOR ASTM F963 COMPLIANCE AND FOR PRESENCE OF PHTHALATES

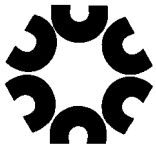
1.0 INTRODUCTION

On January 16, 2009, CMTL received thirty-six (36) samples for analysis to determine if the materials are compliant to section 4.3.5 of ASTM F963 (Lead Content only) using an Inductively Coupled Argon Plasma Spectrometer as per ASTM D1976-07 (Modified); and for presence of phthalates utilizing a Fourier Transform Infrared (FTIR) Spectrometer as per ASTM E1252-98 (2002).

The submitted samples were identified as follows:

- | | |
|-------------------------------|----------------------------------|
| 1. A011409 Barrier | 15. O011409 Felt Puck |
| 2. B011409 Orange Comp. Stick | 16. P011409 Black ABS Shaft |
| 3. C011409 Green Comp. Stick | 17. Q011409 Extend-A-Stick Red |
| 4. D011409 Yellow Comp. Stick | 18. R011409 Extend-A-Stick Blue |
| 5. E011409 Purple Comp. Stick | 19. S011409 Extend-A-Stick Black |
| 6. F011409 Blue Comp. Stick | 20. T011409 Extend-A-Stick White |
| 7. G011409 Red Comp. Stick | 21. U011409 Safety Shaft Red |
| 8. H011409 Orange Hurdle | 22. V011409 Safety Shaft Blue |
| 9. I011409 Blue Hurdle | 23. W011409 White Blade |
| 10. J011409 Green Hurdle | 24. X011409 Black Blade |
| 11. K011409 Red Hurdle | 25. Y011409 Blue Blade |
| 12. L011409 Yellow Hurdle | 26. Z011409 Red Blade |
| 13. M011409 Purple Hurdle | 27. AA011409 P.E. White Shaft |
| 14. N011409 White Hurdle | 28. BB011409 Extender Strap |

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- 29. CC011409 Tag-A-Long Strap
- 30. DD011409 145 Clear
- 31. EE011409 145 Black
- 32. FF011409 2005 Black

- 33. GG011409 Outdoor Self Tapping Screw
- 34. HH011409 Outdoor Screw
- 35. JJ011409 Indoor Screw
- 63. KK011409 Indoor Self Tapping Screw

2.0 RESULTS

2.1 Infrared Analysis

The samples were extracted with trichloroethylene (TCE) and the extract was analysed using a FTIR Spectrometer equipped with an Attenuated Reflectance attachment to evaluate the presence of phthalates.

The following results were obtained.

<u>SAMPLE</u>	<u>PRESENCE OF PHTHALATES</u>
1. A011409 Barrier	NO
2. B011409 Orange Comp. Stick	NO
3. C011409 Green Comp. Stick	NO
4. D011409 Yellow Comp. Stick	NO
5. E011409 Purple Comp. Stick	NO
6. F011409 Blue Comp. Stick	NO
7. G011409 Red Comp. Stick	NO
8. H011409 Orange Hurdle	NO
9. I011409 Blue Hurdle	NO
10. J011409 Green Hurdle	NO
11. K011409 Red Hurdle	NO
12. L011409 Yellow Hurdle	NO
13. M011409 Purple Hurdle	NO
14. N011409 White Hurdle	NO
15. O011409 Felt Puck	NO
16. P011409 Black ABS Shaft	NO
17. Q011409 Extend-A-Stick Red	NO
18. R011409 Extend-A-Stick Blue	NO
19. S011409 Extend-A-Stick Black	NO
20. T011409 Extend-A-Stick White	NO



<u>SAMPLE</u>	<u>PRESENCE OF PHTHALATES</u>
21. U011409 Safety Shaft Red	NO
22. V011409 Safety Shaft Blue	NO
23. W011409 White Blade	NO
24. X011409 Black Blade	NO
25. Y011409 Blue Blade	NO
26. Z011409 Red Blade	NO
27. AA011409 P.E. White Shaft	NO
28. BB011409 Extender Strap	NO
29. CC011409 Tag-A-Long Strap	NO
30. DD011409 145 Clear	NO
31. EE011409 145 Black	NO
32. FF011409 2005 Black	NO
33. GG011409 Outdoor Self Tapping Screw	NOT REQUIRED
34. HH011409 Outdoor Screw	NOT REQUIRED
35. JJ011409 Indoor Screw	NOT REQUIRED
36. KK011409 Indoor Self Tapping Screw	NOT REQUIRED

(See attached Infragraphs)



3.0 RESULTS OF ANALYSIS

Each component was individually dissolved in acid (section 8.3 of ASTM F963-07^{E1}) and then analysed using an Inductively Coupled Argon Plasma (ICAP) Spectrometer (ASTM D1976-07 (modified)) to determine the presence and relative concentration of soluble migrated lead.

The results of the analysis are as follows:

<u>SAMPLE NUMBER</u>	<u>PART IDENTIFICATION</u>	<u>SOLUBLE MIGRATED LEAD (PPM)</u>	<u>COMPLIANCE TO ASTM F963 (90 PPM MAX)</u>
504957-1	A011409 Barrier	3	YES
504957-2	B011409 Orange Comp. Stick	<1	YES
504957-3	C011409 Green Comp. Stick	<1	YES
504957-4	D011409 Yellow Comp. Stick	<1	YES
504957-5	E011409 Purple Comp. Stick	<1	YES
504957-6	F011409 Blue Comp. Stick	4	YES
504957-7	G011409 Red Comp. Stick	<1	YES
504957-8	H011409 Orange Hurdle	<1	YES
504957-9	I011409 Blue Hurdle	<1	YES
504957-10	J011409 Green Hurdle	<1	YES
504957-11	K011409 Red Hurdle	<1	YES
504957-12	L011409 Yellow Hurdle	<1	YES
504957-13	M011409 Purple Hurdle	<1	YES
504957-14	N011409 White Hurdle	3	YES
504957-15	O011409 Felt Puck	136	NO
504957-16	P011409 Black ABS Shaft	<1	YES
504957-17	Q011409 Extend-A-Stick Red	<1	YES
504957-18	R011409 Extend-A-Stick Blue	<1	YES
504957-19	S011409 Extend-A-Stick Black	<1	YES
504957-20	T011409 Extend-A-Stick White	<1	YES
504957-21	U011409 Safety Shaft Red	3	YES
504957-22	V011409 Safety Shaft Blue	<1	YES
504957-23	W011409 White Blade	<1	YES
504957-24	X011409 Black Blade	2	YES



<u>SAMPLE NUMBER</u>	<u>PART IDENTIFICATION</u>	<u>LEAD (PPM)</u>	<u>COMPLIANCE TO ASTM F963 (90 PPM MAX)</u>
504957-25	Y011409 Blue Blade	<1	YES
504957-26	Z011409 Red Blade	<1	YES
504957-27	AA011409 P.E. White Shaft	<1	YES
504957-28	BB011409 Extender Strap	<1	YES
504957-29	CC011409 Tag-A-Long Strap	<1	YES
504957-30	DD011409 145 Clear	12	YES
504957-31	EE011409 145 Black	<1	YES
504957-32	FF011409 2005 Black	<1	YES
504957-33	GG011409 Outdoor Self Tapping Screw	2	YES
504957-34	HH011409 Outdoor Screw	3	YES
504957-35	JJ011409 Indoor Screw	<1	YES
504957-36	KK011409 Indoor Self Tapping Screw	2	YES

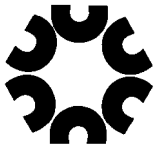


3.0 RESULTS OF ANALYSIS

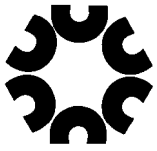
Each component was individually dissolved in acid (ashing at 550°C followed by Aqua Regia digestion) and then analysed using an Inductively Coupled Argon Plasma (ICAP) Spectrometer (ASTM D1976-07 (modified)) to determine the presence and relative concentration of total lead.

The results of the analysis are as follows:

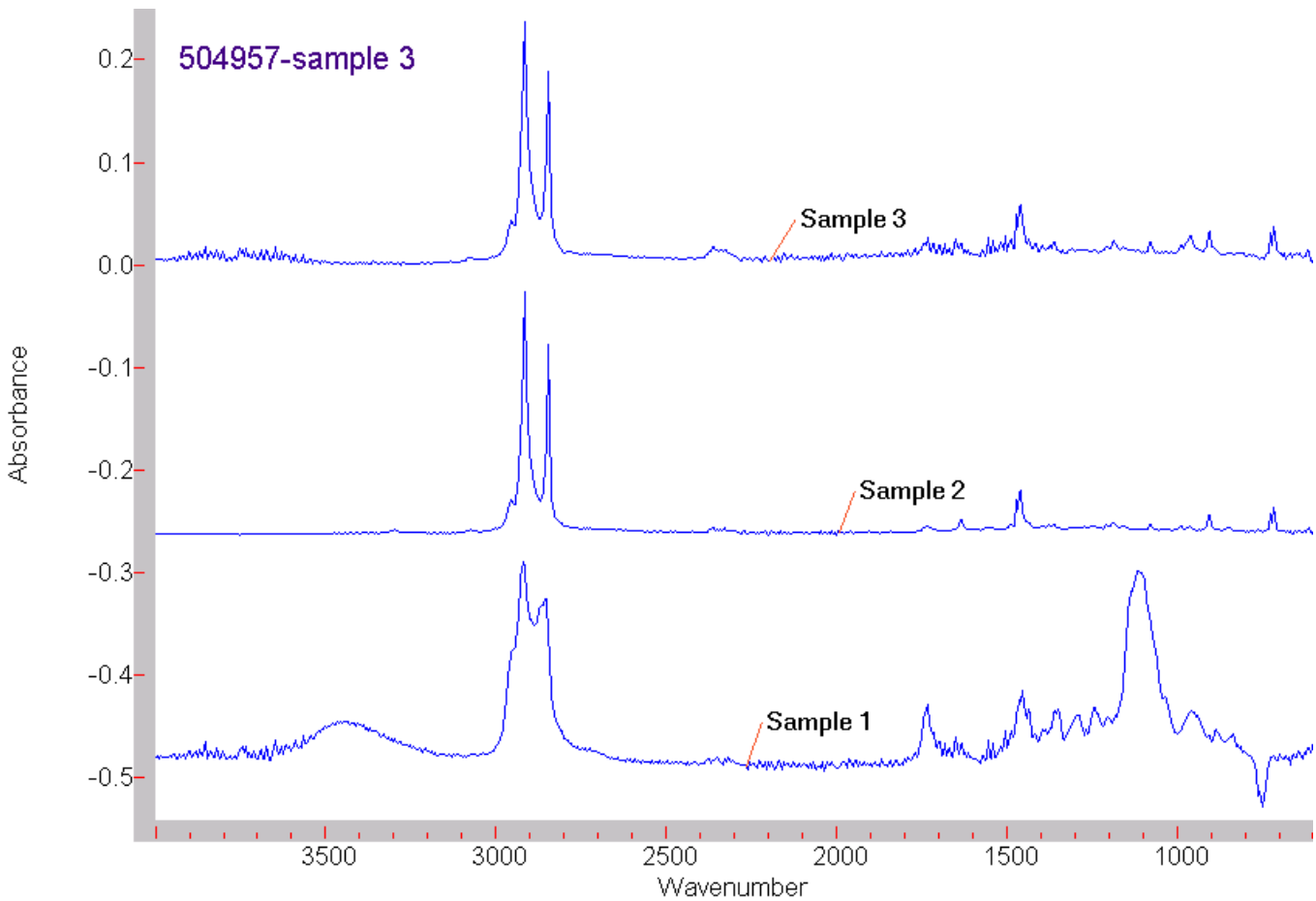
SAMPLE NUMBER	PART IDENTIFICATION	TOTAL LEAD (PPM)	COMPLIANCE TO ASTM 16 C.F.R. 1303 (600 PPM MAX)
504957-1	A011409 Barrier	5	YES
504957-2	B011409 Orange Comp. Stick	2	YES
504957-3	C011409 Green Comp. Stick	4	YES
504957-4	D011409 Yellow Comp. Stick	3	YES
504957-5	E011409 Purple Comp. Stick	3	YES
504957-6	F011409 Blue Comp. Stick	4	YES
504957-7	G011409 Red Comp. Stick	3	YES
504957-8	H011409 Orange Hurdle	<1	YES
504957-9	I011409 Blue Hurdle	1	YES
504957-10	J011409 Green Hurdle	<1	YES
504957-11	K011409 Red Hurdle	<1	YES
504957-12	L011409 Yellow Hurdle	<1	YES
504957-13	M011409 Purple Hurdle	<1	YES
504957-14	N011409 White Hurdle	<1	YES
504957-15	O011409 Felt Puck	149	YES
504957-16	P011409 Black ABS Shaft	1	YES
504957-17	Q011409 Extend-A-Stick Red	2	YES
504957-18	R011409 Extend-A-Stick Blue	1	YES
504957-19	S011409 Extend-A-Stick Black	1	YES
504957-20	T011409 Extend-A-Stick White	5	YES
504957-21	U011409 Safety Shaft Red	<1	YES
504957-22	V011409 Safety Shaft Blue	<1	YES
504957-23	W011409 White Blade	<1	YES
504957-24	X011409 Black Blade	<1	YES



<u>SAMPLE NUMBER</u>	<u>PART IDENTIFICATION</u>	<u>TOTAL LEAD (PPM)</u>	<u>COMPLIANCE TO ASTM 16 C.F.R. 1303 (600 PPM MAX)</u>
504957-25	Y011409 Blue Blade	2	YES
504957-26	Z011409 Red Blade	1	YES
504957-27	AA011409 P.E. White Shaft	1	YES
504957-28	BB011409 Extender Strap	4	YES
504957-29	CC011409 Tag-A-Long Strap	4	YES
504957-30	DD011409 145 Clear	<1	YES
504957-31	EE011409 145 Black	1	YES
504957-32	FF011409 2005 Black	<1	YES
504957-33	GG011409 Outdoor Self Tapping Screw	75	YES
504957-34	HH011409 Outdoor Screw	78	YES
504957-35	JJ011409 Indoor Screw	74	YES
504957-36	KK011409 Indoor Self Tapping Screw	74	YES



FTIR INFRAGRAPHS



Source: Shield Manufacturing.

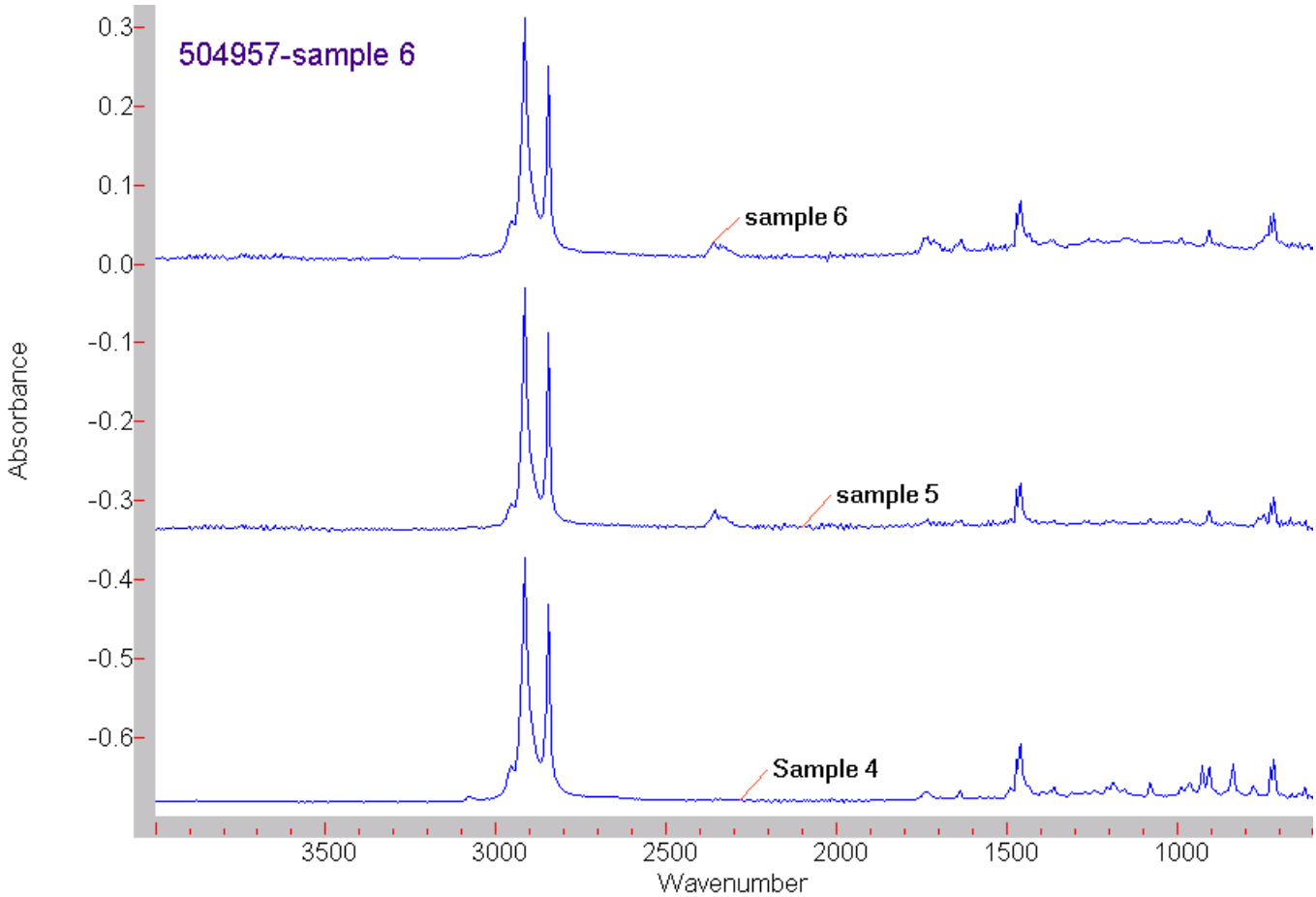
Samples I.D:

Sample #	Description
1	A011409 Barrier
2	B011409 Orange Comp. Stick
3	C011409 Green Comp. Stick

Remarks: The Infragraphs show that, the submitted samples described above, have **no presence of Phthalates.**



FTIR INFRAGRAPHS



Source: Shield Manufacturing.

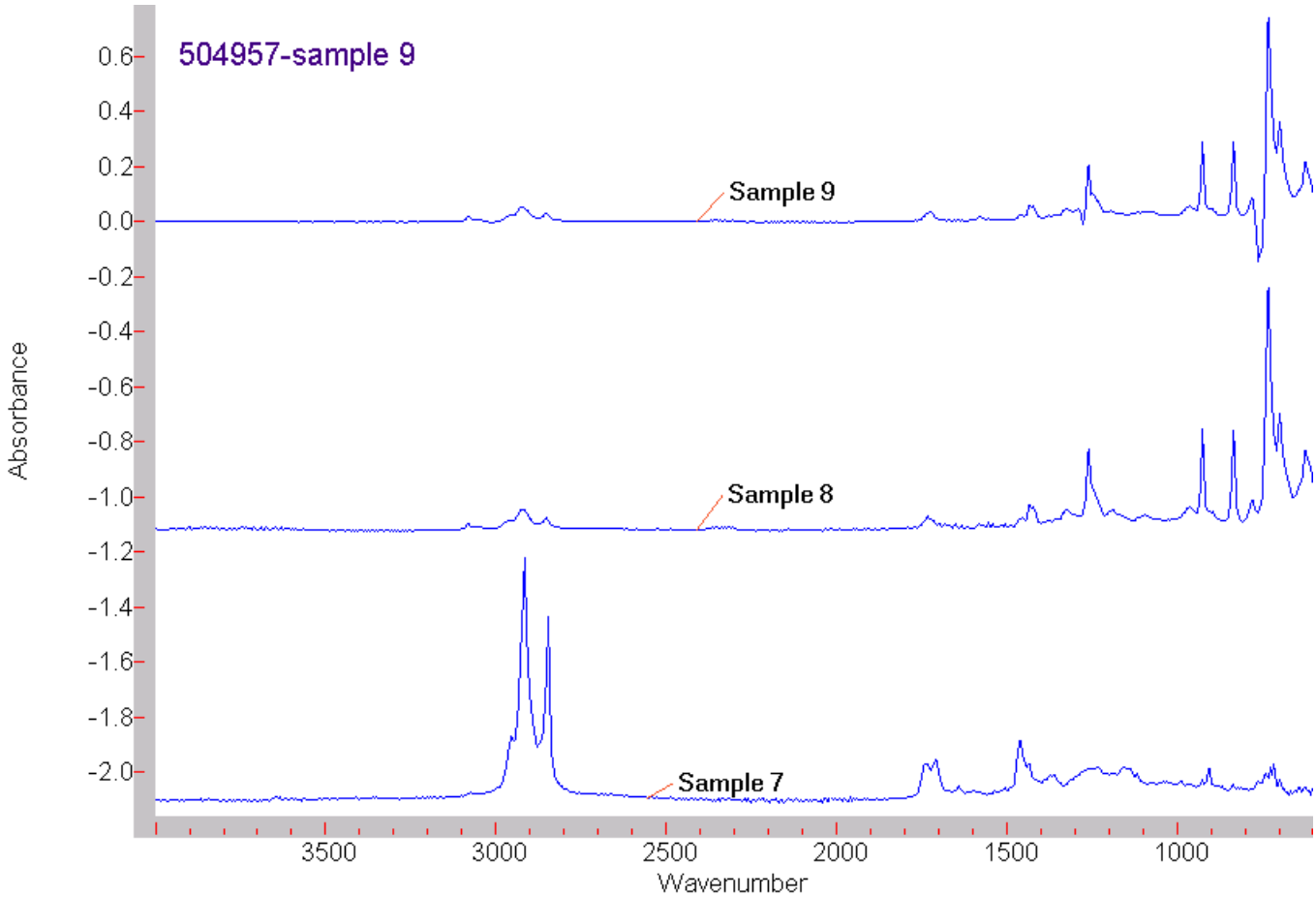
Samples I.D:

<u>Sample #</u>	<u>Description</u>
4	D011409 Yellow Comp. Stick
5	E011409 Purple Comp. Stick
6	F011409 Blue Comp. Stick

Remarks: The Infragraphs show that, the submitted samples described above, have **no presence of Phthalates.**



FTIR INFRAGRAPHS



Source: Shield Manufacturing.

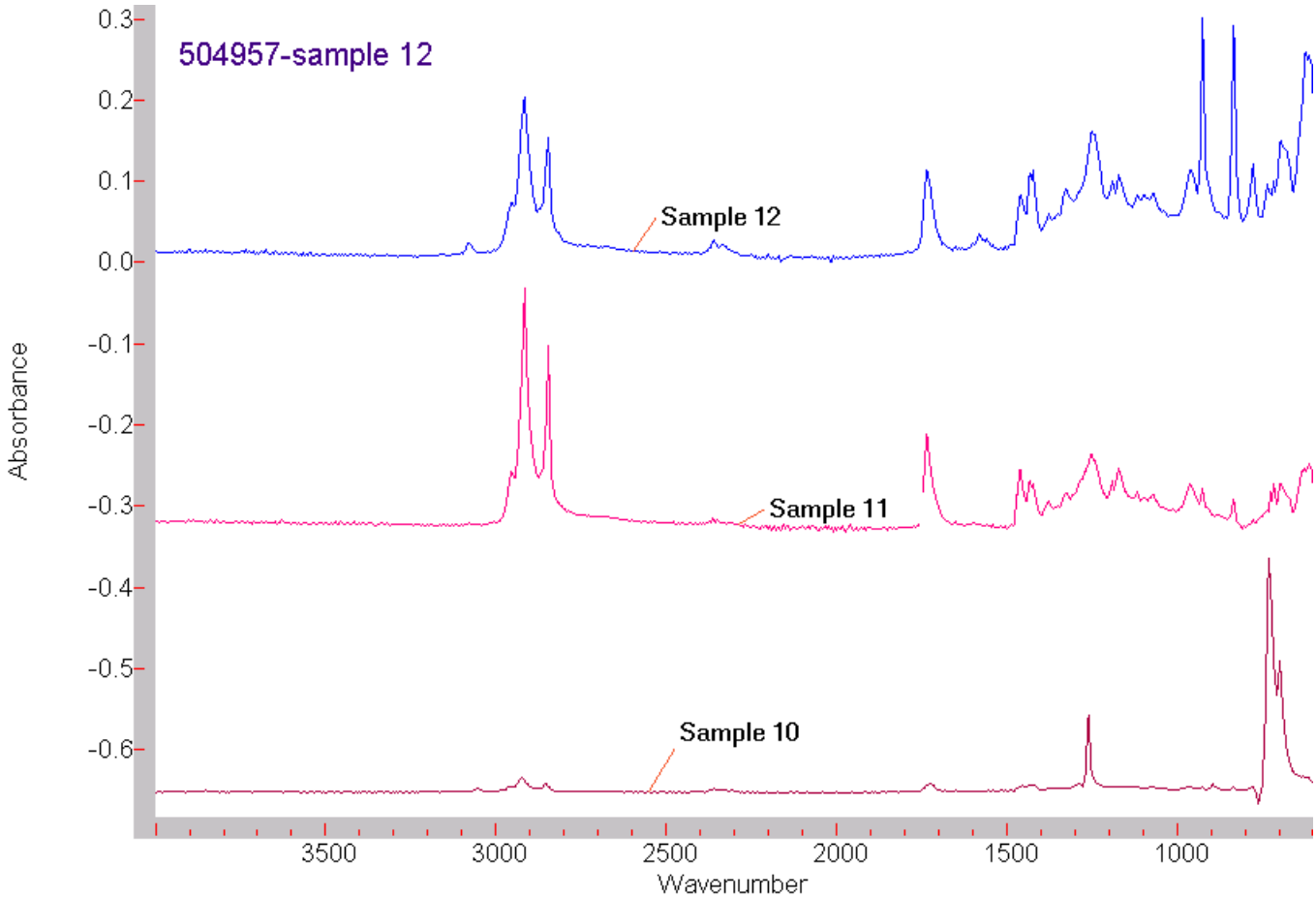
Samples I.D:

Sample #	Description
7	G011409 Red Comp. Stick
8	H011409 Orange Hurdle
9	I011409 Blue Hurdle

Remarks: The Infragraphs show that, the submitted samples described above, have **no presence of Phthalates.**



FTIR INFRAGRAPHS



Source: Shield Manufacturing.

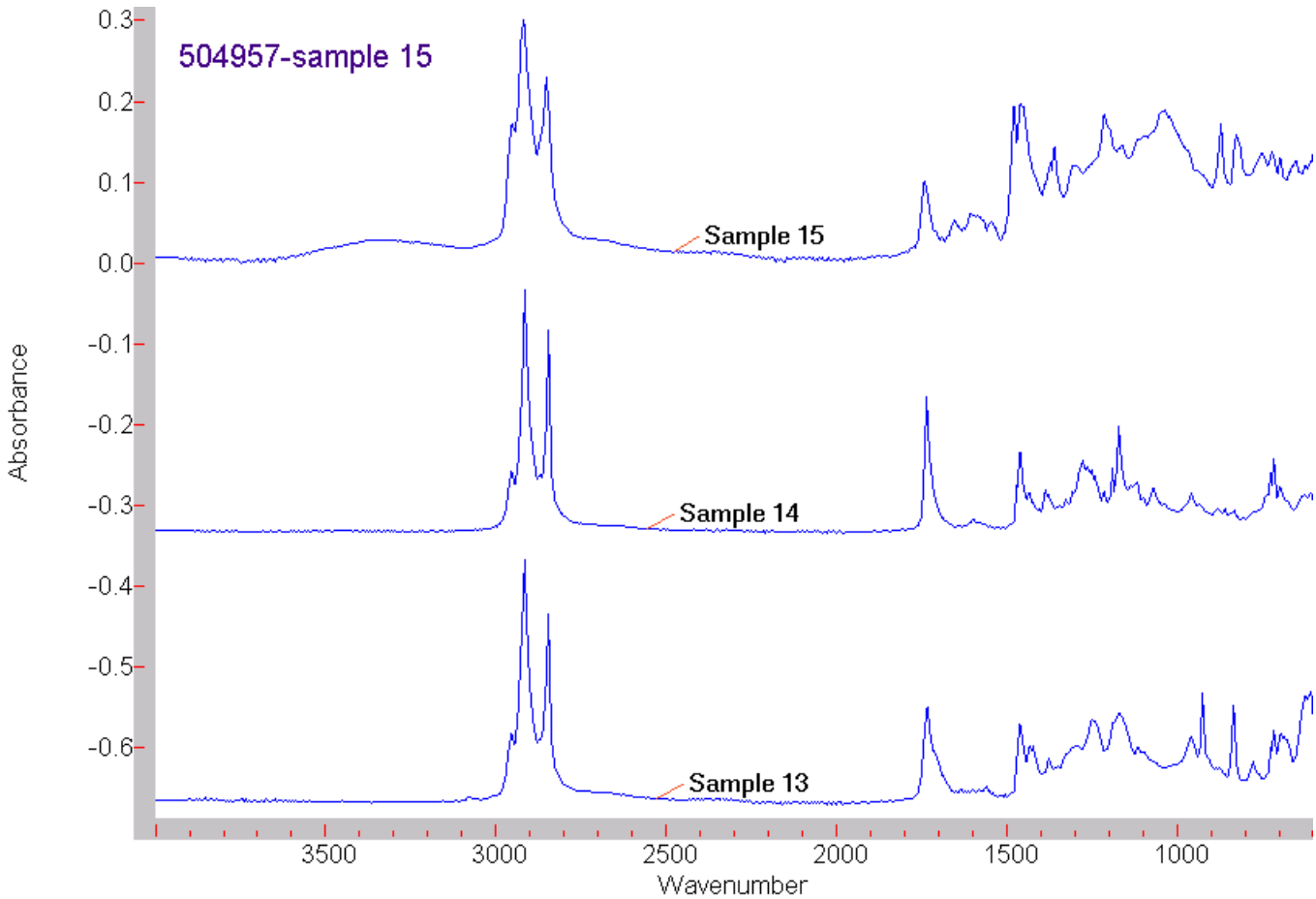
Samples I.D:

<u>Sample #</u>	<u>Description</u>
10	J011409 Green Hurdle
11	K011409 Red Hurdle
12	L011409 Yellow Hurdle

Remarks: The Infrared Spectra show that, the submitted samples described above, have **no presence of Phthalates.**



FTIR INFRAGRAPHS

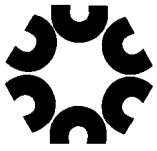


Source: Shield Manufacturing.

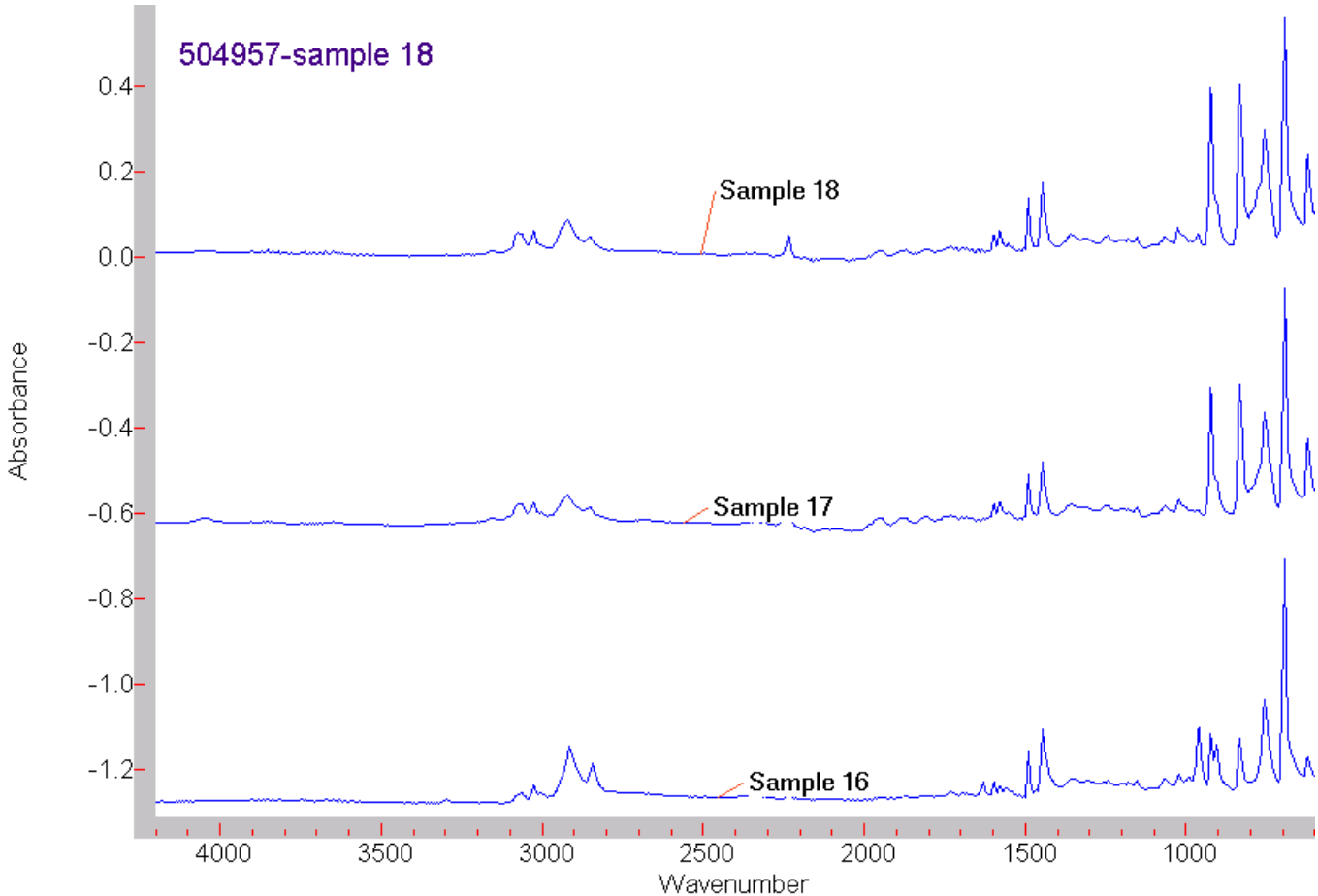
Samples I.D:

Sample #	Description
13	M011409 Purple Hurdle
14	N011409 White Hurdle
15	O011409 Felt Puck

Remarks: The Infragraphs show that, the submitted samples described above, have **no presence of Phthalates.**



FTIR INFRAGRAPHS



Source: Shield Manufacturing.

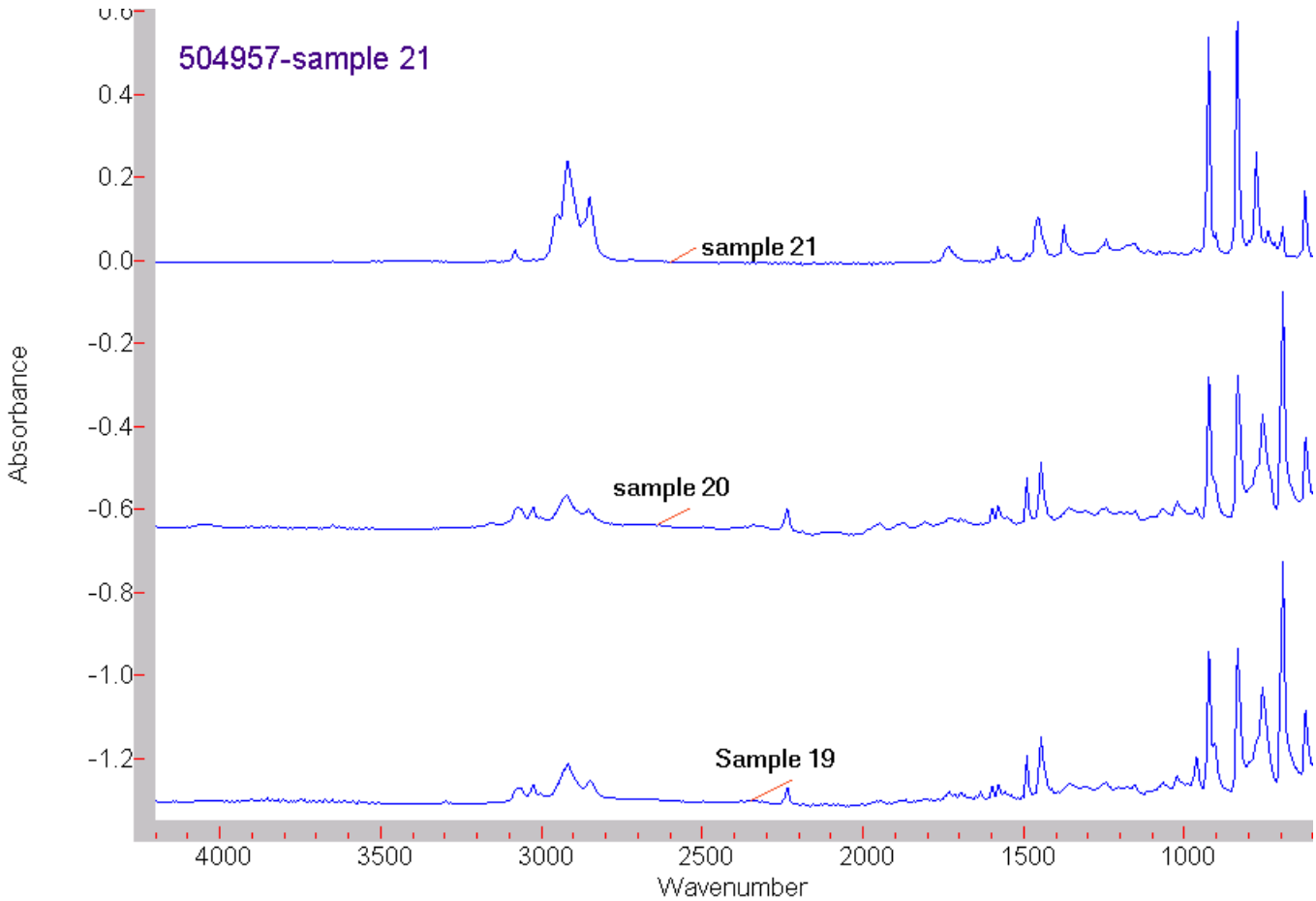
Samples I.D:

Sample #	Description
16	P011409 Black ABS Shaft
17	Q011409 Extend-A-Stick Red
18	R011409 Extend-A-Stick Blue

Remarks: The Infragraphs show that, the submitted samples described above, have **no presence of Phthalates.**



FTIR INFRAGRAPHS

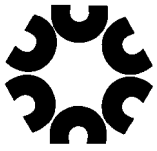


Source: Shield Manufacturing.

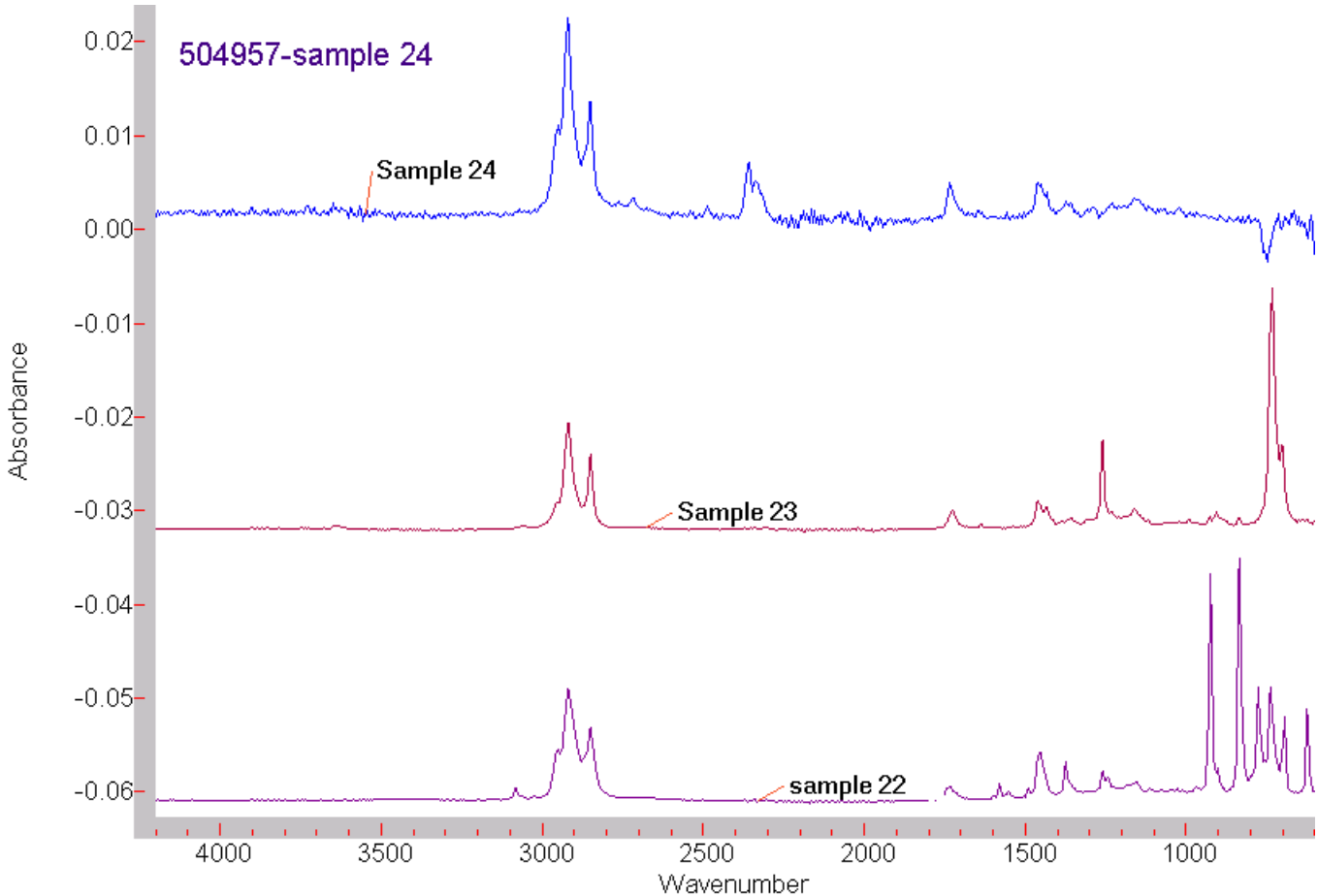
Samples I.D:

Sample #	Description
19	S011409 Extend-A-Stick Black
20	T011409 Extend-A-Stick White
21	U011409 Safety Shaft Red

Remarks: The Infragraphs show that, the submitted samples described above, have **no presence of Phthalates.**



FTIR INFRAGRAPHS



Source: Shield Manufacturing.

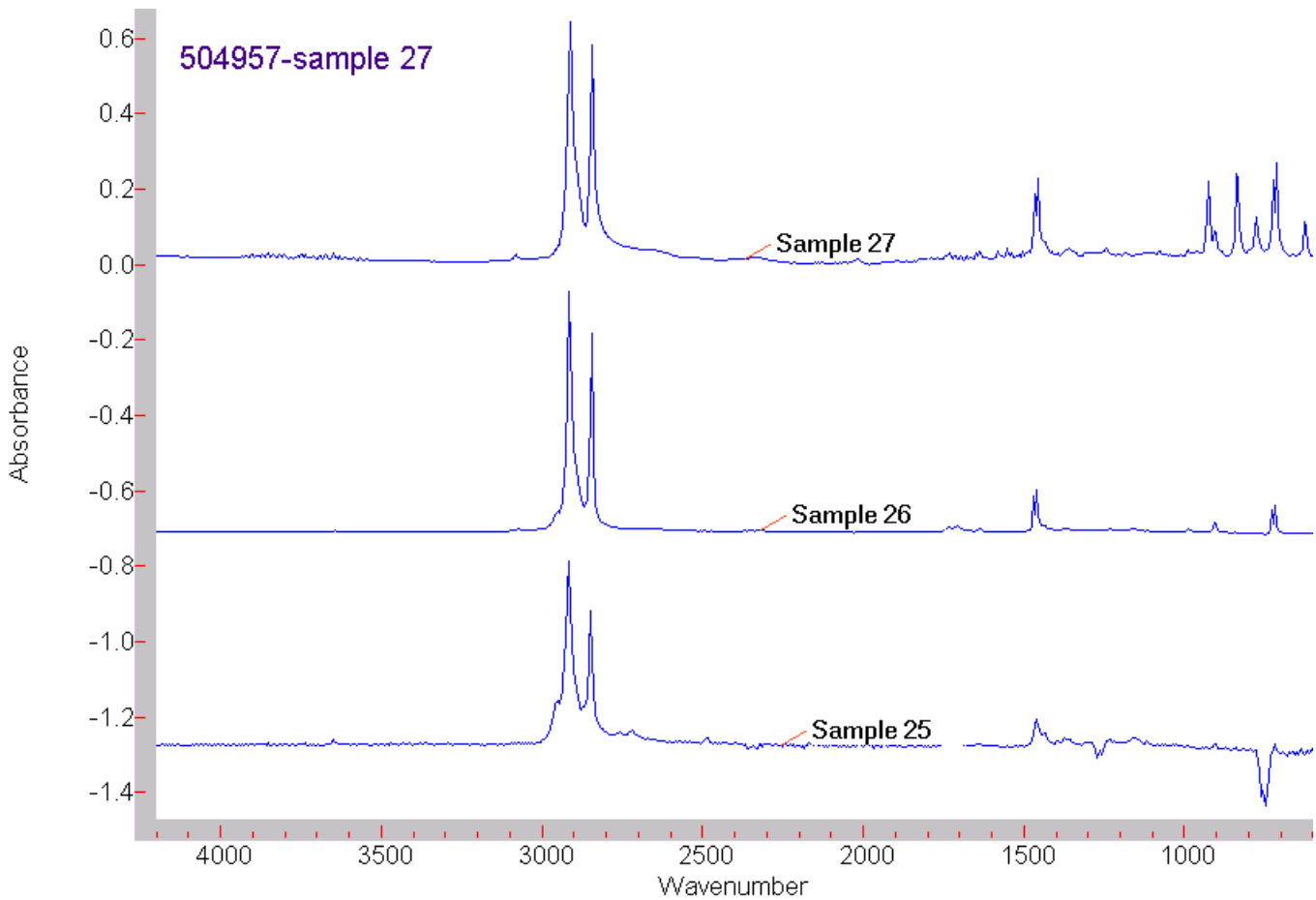
Samples I.D:

Sample #	Description
22	V011409 Safety Shaft Blue
23	W011409 White Blade
24	X011409 Black Blade

Remarks: The Infragraphs show that, the submitted samples described above, have **no presence of Phthalates.**



FTIR INFRAGRAPHS

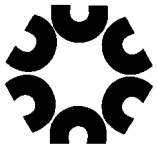


Source: Shield Manufacturing.

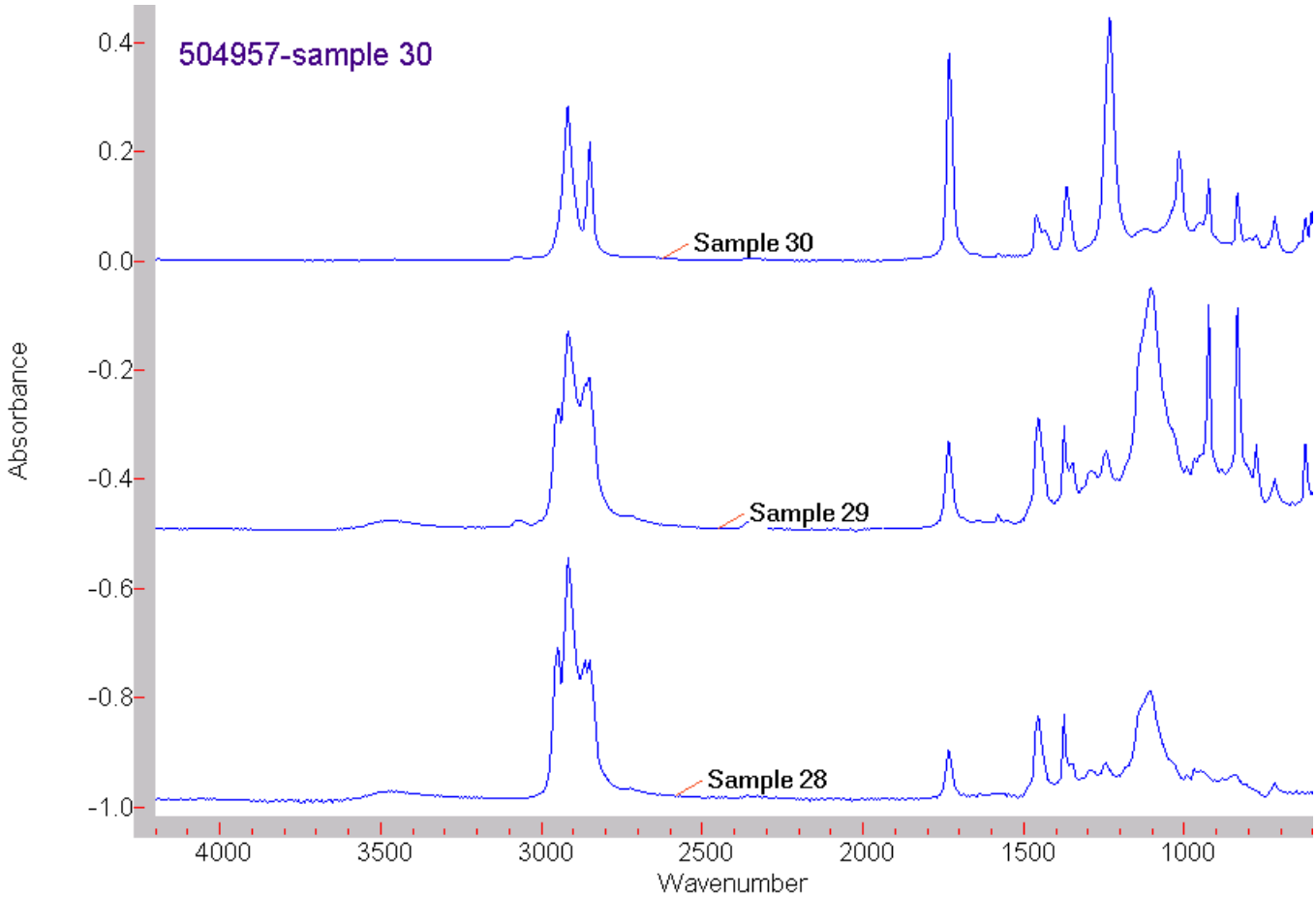
Samples I.D:

<u>Sample #</u>	<u>Description</u>
25	Y011409 Blue Blade
26	Z011409 Red Blade
27	AA011409 P.E. White Shaft

Remarks: The Infragraphs show that, the submitted samples described above, have **no presence of Phthalates.**



FTIR INFRAGRAPHS

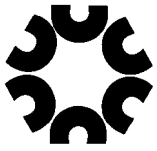


Source: Shield Manufacturing.

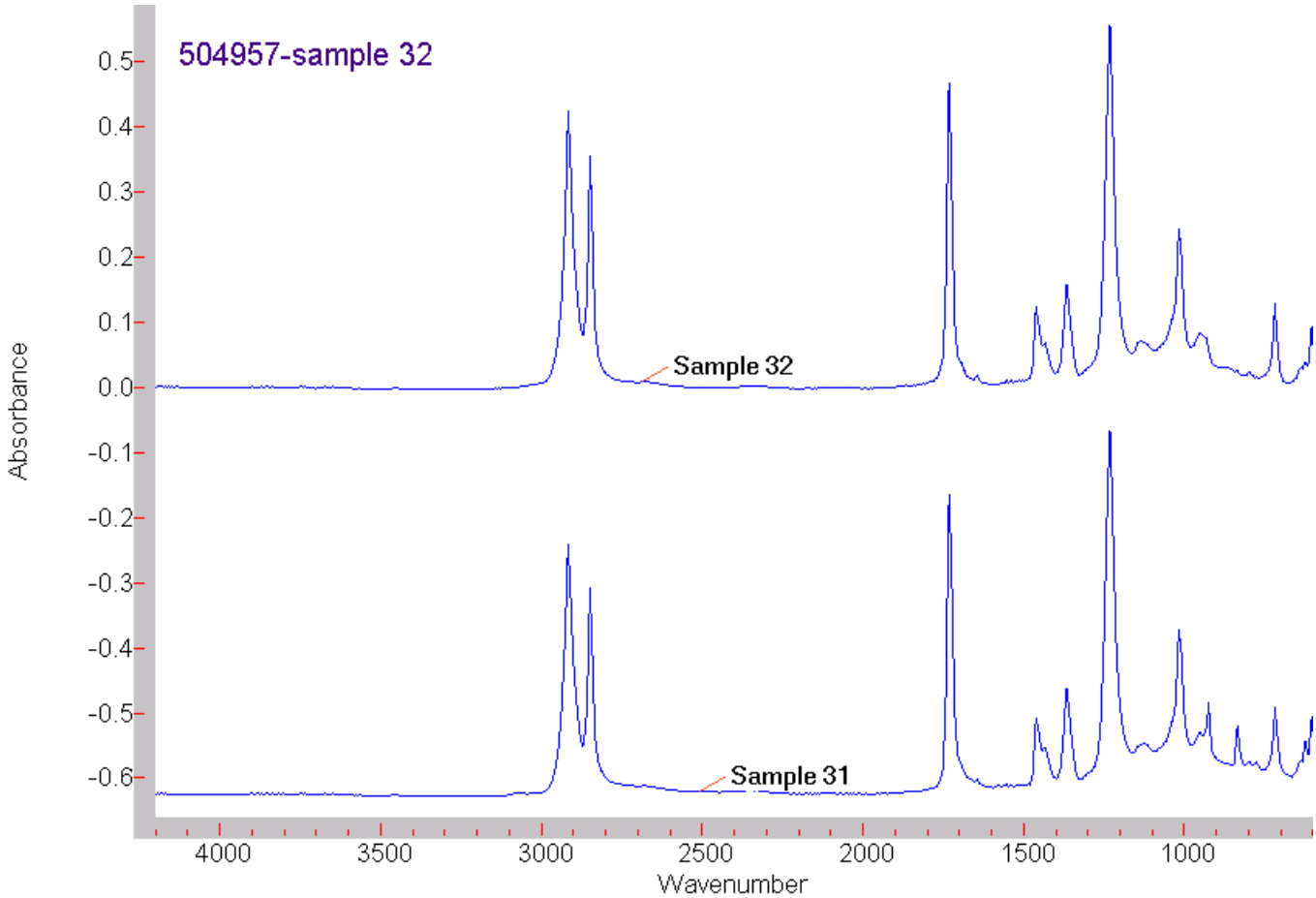
Samples I.D.:

<u>Sample #</u>	<u>Description</u>
28	BB011409 Extender Strap
29	CC011409 Tag-A-Long Strap
30	DD011409 145 Clear

Remarks: The Infragraphs show that, the submitted samples described above, have **no presence of Phthalates.**



FTIR INFRAGRAPHS



Source: Shield Manufacturing.

Samples I.D:

<u>Sample #</u>	<u>Description</u>
31	EE011409 145 Black
32	FF011409 2005 Black

Remarks: The Infragraphs show that, the submitted samples described above, have **no presence of Phthalates.**