



Adhesive Tape Analysis

Test No. 21-5471 Summary Report

Each sample set consisted of three pairs of known and questioned tape samples for comparison. Participants were requested to compare the items within each set and report their findings. Data were returned from 43 participants and are compiled into the following tables:

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This report contains the data received from the participants in this test. Since these participants are located in many countries around the world, and it is their option how the samples are to be used (e.g., training exercise, known or blind proficiency testing, research and development of new techniques, etc.), the results compiled in the Summary Report are not intended to be an overview of the quality of work performed in the profession and cannot be interpreted as such. The Summary Comments are included for the benefit of participants to assist with maintaining or enhancing the quality of their results. These comments are not intended to reflect the general state of the art within the profession.

Participant results are reported using a randomly assigned "WebCode". This code maintains participant's anonymity, provides linking of the various report sections, and will change with every report.

Manufacturer's Information

Each sample pack consisted of three pairs of known and questioned adhesive tape samples for comparison (K1/Q1, K2/Q2, K3/Q3). Items K1 and Q1 were produced from the same roll of 3M Scotch™ clear tape. Items K2 and Q2 were produced from the same roll of 3M Scotch™ cream colored masking tape. Items K3 and Q3 were produced from two different rolls of silver colored duct tape of differing brands. For each item set, participants were requested to examine the adhesive tape samples and determine if both pieces were associated with a single source. Additionally, participants were asked to determine if a physical end match existed between the known item and the questioned item.

SAMPLE PREPARATION:

Each roll of tape was inspected and any debris removed.

Items K1 and Q1 (3M Scotch™ clear tape) were produced by using the cutting blade of a handheld tape dispenser from one roll. The paired items were produced in immediate succession to produce an end match.

Items K2 and Q2 (3M Scotch™ cream colored masking tape) were produced by hand-tearing each item from one roll. The items were produced in a manner to eliminate the possibility of a physical end match.

Items K3 (Highland™ duct tape) and Q3 (Tool Bench® duct tape) were produced from two different rolls with the use of a cutting blade from a packaging tape dispenser.

All questioned items were affixed to silicone release paper, and then packed in their respective pre-labeled questioned item envelopes. Each known item was affixed to silicone release paper and then packed in their respective pre-labeled known item envelopes.

SAMPLE SET ASSEMBLY:

Following the completion of sample production, associated and non-associated items were placed within a pre-labeled envelope and sealed with invisible tape until all sample sets were prepared. Once verification was completed, all sample sets were further sealed with evidence tape and initialed "CTS".

VERIFICATION:

The expected association and elimination results were confirmed by all predistribution laboratories with one inconsistency for the expected K2 & Q2 association. Preliminary review shows that this inconsistency was not significantly represented in the consensus for this sample pairing.

<u>Item</u>	<u>Color</u>	<u>Tape Type</u>	<u>Association</u>	<u>Physical End Match</u>
K1 & Q1	Clear	3M Scotch™ tape	yes	yes
K2 & Q2	Cream	3M Scotch™ Masking tape	yes	no
K3 & Q3	Silver	Highland™ & Tool Bench® Duct tape	no	no

Summary Comments

This test was designed to allow participants to assess their proficiency in the examination and comparison of adhesive tape samples. Participants received three pairs of adhesive tape samples, each containing one known sample and one questioned item (K1/Q1, K2/Q2, K3/Q3). Using their laboratory procedures, participants were asked to determine, within each pair, if the questioned item could have originated from the known sample and if a physical end match existed between the two items (Refer to Manufacturer's Information for preparation details).

For the sample pair K1 and Q1, there were 42 participants who reported examination results. All but 2 participants reported an association between the questioned tape sample (Q1) and the known sample (K1). Of the remaining 2 participants, one reported no association, and the other was inconclusive. With regards to a physical end match, 41 participants performed and reported their results. There were 38 participants that reported Item Q1 exhibited a physical end match to Item K1. Of the remaining three participants, two reported that there was no physical end match between Q1 and K1 and one participant reported the physical end match was inconclusive.

For the sample pair K2 and Q2, there were 41 participants who reported examination results. Of these, 34 participants reported that there was an association between the questioned tape sample (Q2) and the known tape sample (K2), 4 participants reported no association, and the last 3 participants were inconclusive. With regards to a physical end match, 39 participants who performed the end match reported that Item Q2 did not exhibit a physical end match to Item K2.

For the sample pair K3 and Q3, there were 43 participants who reported examination results. All but 1 participant confirmed that Q3 could not have originated from K3, and the remaining participant was inconclusive. With regards to a physical end match, 16 participants performed and reported there was no physical end match between Items K3 and Q3.

For examination methods, the most commonly reported methods included Stereo Microscopy, Macroscopic Examinations, and FTIR.

Examination Results

For each set of items, is the questioned material associated with the submitted known sample and is there a physical end match between the known sample and questioned item?

TABLE 1 - K1 and Q1							
<u>WebCode</u>	<u>Association</u>	<u>Physical End Match Comparison</u>		<u>WebCode</u>	<u>Association</u>	<u>Physical End Match Comparison</u>	
		<u>Performed</u>	<u>End Match ID</u>			<u>Performed</u>	<u>End Match ID</u>
2RKKWX	Yes	Yes	Yes	HPFKQH	Yes	Yes	Yes
3M6D9Y	Yes	Yes	Yes	HR6U2J	Yes	Yes	Yes
3RZ4FV	Yes	Yes	Yes	JWADCG	[No results submit for this item.]		
6JYTXV	Yes	Yes	Yes	L2DVNE	Yes	Yes	Yes
6TKX7V	Yes	Yes	Yes	L7U4CE	Yes	Yes	Yes
7V8T8U	Yes	Yes	Yes	LHQ8F8	Yes	Yes	Yes
84W26Q	Yes	Yes	Yes	LXEKRE	Yes	Yes	Yes
9XZWPQ	Yes	Yes	Yes	MXD7KC	Yes	Yes	Yes
D2M6ZM	Yes	Yes	Yes	MZ2FUD	Yes	Yes	Yes
D99XCM	Yes	Yes	Inc	N8HDZC	Yes	Yes	Yes
DBX7LN	Yes	Yes	Yes	PYHDZB	Yes	Yes	No
DC999M	Yes	Yes	Yes	QEQP69	Yes	Yes	Yes
DF8K4L	Yes	Yes	Yes	RKWKP9	Yes	Yes	Yes
DWRB3L	No	Yes	No	TJAQ24	Yes	Yes	Yes
EGD6RM	Yes	Yes	Yes	U2A4A6	Yes	Yes	Yes
EYXVQL	Inc	N/A		UG3W7	Yes	Yes	Yes
GFBDC	Yes	Yes	Yes	UZY2N7	Yes	Yes	Yes
GK78AJ	Yes	Yes	Yes	WPACGW	Yes	Yes	Yes
GPLFXJ	Yes	Yes	Yes	WWRHD4	Yes	Yes	Yes

TABLE 1 - K1 and Q1							
<u>WebCode</u>	<u>Association</u>	<u>Physical End Match Comparison</u>		<u>WebCode</u>	<u>Association</u>	<u>Physical End Match Comparison</u>	
		<u>Performed</u>	<u>End Match ID</u>			<u>Performed</u>	<u>End Match ID</u>
XA83B2	Yes	Yes	Yes				
XDWCK3	Yes	Yes	Yes				
XVR672	Yes	Yes	Yes				
Z3KWRZ	Yes	Yes	Yes				
Z7LWRW	Yes	Yes	Yes				

K1 & Q1 - Summary Response				Participants: 43			
<u>Association</u>		<u>Physical End Match Comparison</u>		<u>Association</u>		<u>Physical End Match Comparison</u>	
		<u>Performed</u>	<u>End Match ID</u>			<u>Performed</u>	<u>End Match ID</u>
Yes	40 (93.0%)	Yes	41 (95.3%)	Yes	38 (92.7%)		
No	1 (2.3%)	No	0 (0.0%)	No	2 (4.9%)		
Inc	1 (2.3%)	N/A	1 (2.3%)	Inc	1 (2.4%)		
No Response	1 (2.3%)	No Response	1 (2.3%)				

TABLE 1 - K2 and Q2

<u>WebCode</u>	<u>Physical End Match Comparison</u>			<u>WebCode</u>	<u>Physical End Match Comparison</u>		
	<u>Association</u>	<u>Performed</u>	<u>End Match ID</u>		<u>Association</u>	<u>Performed</u>	<u>End Match ID</u>
2RKKWX	Yes	Yes	No	JWADCG	[No results submit for this item.]		
3M6D9Y	No	Yes	No	L2DVNE	Yes	Yes	No
3RZ4FV	Yes	Yes	No	L7U4CE	Yes	Yes	No
6JYTXV	Yes	No		LHQ8F8	Yes	Yes	No
6TKX7V	Yes	Yes	No	LXEKRE	Yes	Yes	No
7V8T8U	Yes	Yes	No	MXD7KC	Yes	Yes	No
84W26Q	Yes	Yes	No	MZ2FUD	Yes	Yes	No
9XZWPQ	Yes	Yes	No	N8HDZC	No	Yes	No
D2M6ZM	Yes	Yes	No	PYHDZB	Yes	Yes	No
D99XCM	Inc	N/A		QEQP69	Yes	Yes	No
DBX7LN	Yes	Yes	No	RKWKP9	Inc	Yes	No
DC999M	Yes	Yes	No	TJAQ24	Yes	Yes	No
DF8K4L	No	Yes	No	U2A4A6	Yes	Yes	No
DWRB3L	Yes	Yes	No	UG3W7	Yes	Yes	No
EGD6RM	Yes	Yes	No	UZY2N7		Yes	No
EYXVQL	Inc	N/A		WPACGW	Yes	Yes	No
GFBDCB	Yes	Yes	No	WWRHD4	No	Yes	No
GK78AJ	Yes	Yes	No	XA83B2	Yes	Yes	No
GPLFXJ	Yes	Yes	No	XDWCK3	Yes	Yes	No
HPFKQH	Yes	Yes	No	XVR672	Yes	Yes	No
HR6U2J	Yes	Yes	No	Z3KWRZ	Yes	Yes	No

TABLE 1 - K2 and Q2							
<u>WebCode</u>	<u>Association</u>	<u>Physical End Match Comparison</u>		<u>WebCode</u>	<u>Association</u>	<u>Physical End Match Comparison</u>	
		<u>Performed</u>	<u>End Match ID</u>			<u>Performed</u>	<u>End Match ID</u>
Z7LWRW	Yes	Yes	No				

K2 & Q2 - Summary Response				Participants: 43			
<u>Association</u>		<u>Physical End Match Comparison</u>		<u>Association</u>		<u>Physical End Match Comparison</u>	
		<u>Performed</u>	<u>End Match ID</u>			<u>Performed</u>	<u>End Match ID</u>
Yes	34 (79.1%)	Yes	39 (90.7%)	Yes	0 (0.0%)		
No	4 (9.3%)	No	1 (2.3%)	No	39 (100%)		
Inc	3 (7.0%)	N/A	2 (4.7%)	Inc	0 (0.0%)		
No Response	2 (4.7%)	No Response	1 (2.3%)				

TABLE 1 - K3 and Q3

<u>WebCode</u>	<u>Association</u>	<u>Physical End Match Comparison</u>		<u>WebCode</u>	<u>Association</u>	<u>Physical End Match Comparison</u>	
		<u>Performed</u>	<u>End Match ID</u>			<u>Performed</u>	<u>End Match ID</u>
2RKKWX	No	N/A		JWADCG	No	Yes	No
3M6D9Y	No	Yes	No	L2DVNE	No	Yes	No
3RZ4FV	No	No		L7U4CE	No	No	
6JYTXV	No	No		LHQ8F8	No	No	
6TKX7V	No	Yes	No	LXEKRE	No	N/A	
7V8T8U	No	No		MXD7KC	No	Yes	No
84W26Q	No	Yes	No	MZ2FUD	No	No	
9XZWPQ	No	No		N8HDZC	No	Yes	No
D2M6ZM	No	No		PYHDZB	No	No	
D99XCM	Inc	N/A		QEQP69	No	Yes	No
DBX7LN	No	No		RKWKP9	No	No	
DC999M	No	No		TJAQ24	No	No	
DF8K4L	No	Yes	No	U2A4A6	No	No	
DWRB3L	No	Yes	No	UG3W7	No	No	
EGD6RM	No	No		UZY2N7	No	Yes	No
EYXVQL	No	No		WPACGW	No	Yes	No
GFBDC	No	Yes	No	WWRHD4	No	Yes	No
GK78AJ	No	Yes	No	XA83B2	No	No	
GPLFXJ	No	N/A		XDWCK3	No	No	
HPFKQH	No	No		XVR672	No	No	
HR6U2J	No	No		Z3KWRZ	No	Yes	No

TABLE 1 - K3 and Q3							
<u>WebCode</u>	<u>Association</u>	<u>Physical End Match Comparison</u>		<u>WebCode</u>	<u>Association</u>	<u>Physical End Match Comparison</u>	
		<u>Performed</u>	<u>End Match ID</u>			<u>Performed</u>	<u>End Match ID</u>
Z7LWRW	No		No				

K3 & Q3 - Summary Response				Participants: 43			
<u>Association</u>		<u>Performed</u>		<u>End Match ID</u>			
Yes	0 (0.0%)	Yes	16 (37.2%)	Yes	0 (0.0%)		
No	42 (97.7%)	No	23 (53.5%)	No	16 (100%)		
Inc	1 (2.3%)	N/A	4 (9.3%)	Inc	0 (0.0%)		
No Response	0 (0.0%)	No Response	0 (0.0%)				

Examination Methods

TABLE 2 - K1 and Q1

WebCode	Stereo Microscope	Polarized Light	Comparison	Macroscopic Exam	Fluorescence	FTIR	XRD	XRS/XRF	SEM/EDX	LA-IC P-MS	Pyrolysis GC	Other
2RKKWX	✓	✓	✓									
3M6D9Y	✓		✓									
3RZ4FV	✓	✓				✓						
6JYTXV	✓		✓									
6TKX7V	✓	✓	✓	✓	✓	✓		✓			✓	
7V8T8U	✓		✓									
84W26Q	✓		✓									
9XZWPQ	✓		✓	✓	✓							
D2M6ZM	✓	✓	✓	✓	✓	✓						
D99XCM	✓		✓	✓	✓	✓						
DBX7LN	✓	✓	✓									
DC999M	✓		✓									
DF8K4L	✓											
DWRB3L	✓		✓			✓		✓				GCMS
EGD6RM	✓	✓	✓									
EYXVQL												No analysis was conducted
GFBDC	✓		✓	✓								
GK78AJ	✓	✓	✓									
GPLFXJ		✓	✓	✓		✓						Raman
HPFKQH	✓	✓	✓									
HR6U2J	✓	✓	✓									
JWADCG												
L2DVNE	✓	✓	✓		✓	✓						microscope Raman
L7U4CE	✓		✓			✓						
LHQ8F8	✓	✓	✓	✓	✓	✓		✓				
LXEKRE	✓		✓			✓						Polarized Stereo
MXD7KC	✓		✓									
MZ2FUD	✓		✓									

TABLE 2 - K1 and Q1

WebCode	Stereo Microscope	Polarized Light	Comparison	Macroscopic Exam	Fluorescence	FTIR	XRD	XRS/XRF	SEM/EDX	LA-IC P-MS	Pyrolysis GC	Other
N8HDZC	✓		✓									
PYHDZB		✓	✓	✓	✓							
QEQP69	✓			✓	✓							
RKWKP9	✓	✓		✓	✓	✓	✓	✓				
TJAQ24	✓											
U2A4A6	✓											
UG3VW7	✓		✓	✓								Comparison Microscope
UZY2N7	✓											
WPACGW	✓			✓	✓							Toolscan
WWRHD4					✓			✓				
XA83B2	✓			✓	✓							
XDWCK3	✓			✓								
XVR672	✓		✓		✓							
Z3KWRZ	✓		✓	✓	✓							
Z7LWRW	✓											

Response Summary											Participants: 43
	Stereo Microscope	Polarized Light	Comparison	Macroscopic Exam	Fluorescence	FTIR	XRD	XRS/XRF	SEM/EDX	LA-ICP-MS	Pyrolysis GC
Participants	38	9	13	32	8	18	1	3	2	0	1
Percent	88%	21%	30%	74%	19%	42%	2%	7%	5%	0%	2%

TABLE 2 - K2 and Q2

WebCode	Stereo Microscope	Polarized Light	Comparison	Macroscopic Exam	Fluorescence	FTIR	XRD	XRS/XRF	SEM/EDX	LA-IC P-MS	Pyrolysis GC	Other
2RKKWX	✓		✓									
3M6D9Y	✓	✓		✓		✓						
3RZ4FV	✓					✓	✓					
6JYTXV	✓			✓								
6TKX7V	✓	✓		✓	✓	✓		✓				✓
7V8T8U	✓	✓		✓		✓			✓			✓
84W26Q	✓			✓	✓	✓		✓				✓
9XZWPQ	✓		✓	✓	✓	✓		✓				
D2M6ZM	✓			✓	✓	✓						
D99XCM												Items Q2 and K2 were not examined/analyzed
DBX7LN	✓		✓	✓								
DC999M	✓			✓		✓			✓			
DF8K4L	✓											
DWRB3L	✓			✓		✓			✓			GCMS
EGD6RM	✓			✓		✓		✓				
EYXVQL												No analysis was conducted
GFBDC	✓			✓	✓							Thickness measurement
GK78AJ	✓		✓	✓								
GPLFXJ			✓	✓		✓			✓			Raman
HPFKQH			✓	✓								
HR6U2J	✓	✓		✓	✓	✓		✓				
JWADCG												
L2DVNE	✓	✓			✓	✓						microscope Raman
L7U4CE	✓			✓		✓						
LHQ8F8	✓	✓	✓	✓	✓	✓			✓			
LXEKRE	✓			✓		✓						
MXD7KC	✓			✓		✓						
MZ2FUD	✓	✓		✓	✓	✓		✓				
N8HDZC	✓			✓								

TABLE 2 - K2 and Q2

WebCode	Stereo Microscope	Polarized Light	Comparison	Macroscopic Exam	Fluorescence	FTIR	XRD	XRS/XRF	SEM/EDX	LA-ICP-MS	Pyrolysis GC	Other
PYHDZB		✓	✓		✓							
QEQP69	✓			✓	✓							
RKWKP9	✓	✓		✓	✓							
TJAQ24	✓					✓			✓			
U2A4A6	✓											
UG3VW7	✓		✓	✓								
UZY2N7	✓											
WPACGW	✓			✓		✓						Toolscan
WWRHD4						✓		✓				
XA83B2	✓			✓		✓						✓
XDWCK3	✓	✓	✓	✓		✓			✓			✓
XVR672	✓		✓			✓						
Z3KWRZ	✓		✓	✓		✓						
Z7LWRW	✓			✓		✓		✓				Weight per unit area (tape backing), tape backing diameter, GC-MS (adhesive)
Response Summary												Participants: 43
	Stereo Microscope	Polarized Light	Comparison	Macroscopic Exam	Fluorescence	FTIR	XRD	XRS/XRF	SEM/EDX	LA-ICP-MS	Pyrolysis GC	
Participants	36	9	12	31	10	29	0	8	7	0	5	
Percent	84%	21%	28%	72%	23%	67%	0%	19%	16%	0%	12%	

TABLE 2 - K3 and Q3

WebCode	Stereo Microscope	Polarized Light	Comparison	Macroscopic Exam	Fluorescence	FTIR	XRD	XRS/XRF	SEM/EDX	LA-IC P-MS	Pyrolysis GC	Other
2RKKWX	✓											
3M6D9Y	✓		✓									
3RZ4FV	✓					✓						
6JYTXV	✓		✓									
6TKX7V	✓	✓	✓	✓	✓	✓		✓			✓	
7V8T8U	✓		✓									
84W26Q	✓		✓									
9XZWPQ	✓		✓	✓	✓							
D2M6ZM	✓		✓	✓	✓	✓						
D99XCM												Items Q3 and K3 were not examined/analyzed
DBX7LN	✓		✓	✓								
DC999M	✓		✓									
DF8K4L	✓											
DWRB3L	✓		✓			✓		✓				GCMS
EGD6RM	✓		✓									
EYXVQL	✓		✓									
GFBDC	✓		✓	✓								Fiber count
GK78AJ	✓		✓	✓								
GPLFXJ			✓	✓								
HPFKQH	✓		✓	✓								
HR6U2J	✓		✓									
JWADCG	✓		✓									
L2DVNE	✓	✓			✓	✓						
L7U4CE	✓		✓									
LHQ8F8	✓	✓	✓	✓	✓	✓		✓				
LXEKRE	✓		✓			✓						
MXD7KC	✓		✓									
MZ2FUD			✓									
N8HDZC	✓		✓									

TABLE 2 - K3 and Q3

WebCode	Stereo Microscope	Polarized Light	Comparison	Macroscopic Exam	Fluorescence	FTIR	XRD	XRS/XRF	SEM/EDX	LA-ICP-MS	Pyrolysis GC	Other
PYHDZB												Visual comparison
QEQP69	✓		✓		✓							
RKWKP9	✓		✓		✓		✓	✓				
TJAQ24	✓											
U2A4A6												Visual class characteristic comparison
UG3V7	✓	✓	✓									
UZY2N7	✓											
WPACGW	✓		✓		✓							Toolscan
WWRHD4					✓			✓				
XA83B2	✓		✓		✓							
XDWCK3	✓		✓									
XVR672	✓	✓			✓							
Z3KWRZ	✓	✓	✓		✓							
Z7LWRW			✓									

Response Summary												Participants: 43
	Stereo Microscope	Polarized Light	Comparison	Macroscopic Exam	Fluorescence	FTIR	XRD	XRS/XRF	SEM/EDX	LA-ICP-MS	Pyrolysis GC	
Participants	36	3	9	32	6	14	1	3	2	0	1	
Percent	84%	7%	21%	74%	14%	33%	2%	7%	5%	0%	2%	

Conclusions

TABLE 3

WebCode	Conclusions
2RKKWX	A physical match was found between Q1 in Item 1 and K1 in Item 1. Item Q1 and K1 came from the same object. No Physical match could be found between the Q2 in Item 2 and K2 in Item 2. Similarities in class characteristics were noted between Q2 in Item 2 and K2 in Item 2; however, a physical match was precluded. Item K3 can be eliminated as the source of Item Q3.
3M6D9Y	Items 1.1 and 1.2: One piece of cut, clear (transparent), colorless tape with two cut ends (Item 1.2) and one piece of cut, clear (transparent), colorless tape "removed from the roll" (Item 1.1) were analyzed for a physical fit. These items were physically fitted together and were, at one time, a portion of a single unit. Item 2.1: One piece of beige masking tape analyzed for comparison to item 2.2. Item 2.2: One piece of beige masking tape was analyzed. In the sample analyzed, the unknown masking tape and standard masking tape (Item 2.1) are not the same in physical or chemical characteristics. The unknown masking tape could not have originated from the standard. Item 3.1: One piece of grey duct tape analyzed for comparison to item 3.2. Item 3.2: One piece of grey duct tape was analyzed. The unknown duct tape and standard duct tape (Item 3.1) are not the same in physical characteristics. The unknown duct tape could not have originated from the standard.
3RZ4FV	The results extremely strongly support that there is a physical match between Item 1-Q1 and Item 1-K1 (Level +4). The results support to some extent that the questioned tape Item 2-Q2 originates from the same roll as the tape Item 2-K2 (Level +1). The questioned tape Item 3-Q3 does not originate from the same roll as the tape Item 3-K3.
6JYTXV	K1 and Q1 form a physical match and came from the same object. K2 and Q2 share similar class characteristics, but no physical match could be made. Q3 could not have come from K3.
6TKX7V	Chemical composition of Item Q1 and physical match of end of Item Q1 and Item K1 show that Item Q1 can originate from Item K1. Chemical composition of Item Q2 and Item K2 show that Item Q2 can originate from Item K2. Chemical composition of Item Q3 show that it can't originate from Item K3.
7V8T8U	Item 1: K1 findings - consists of colorless office tape - one end is serrated cut. Used for comparison to Q1. Q1 findings - consists of colorless office tape - ends are serrated cut. A physical match was found between one end of Q1 and K1. Conclusions: Q1 and K1 constitute a physical match and at one time formed a single object. Item 2: K2 findings - consists of masking tape - one end is torn. Used for comparison to Q2. Q2 findings - consists of masking tape - ends are torn. No physical match was found to the torn edge of K2. Microscopic comparisons and instrumental analyses of the construction and components of the tapes reveal that Q2 is similar to K2. Conclusions: Q2 may have originated from the same source as K2 or from a tape of the same type and construction. Item 3: K3 findings - consists of grey duct tape - one end is serrated cut. Used for comparison to Q3. Q3 findings - consists of grey duct tape - ends are serrated cut. Comparison to K3 revealed dissimilarities between the tapes in appearance and construction, therefore, a physical match comparison was not performed. Conclusions: K3 can be eliminated as the source of Q3.
84W26Q	Based on the results of the examinations performed I am of the opinion that: 1) Item 1-Q1 was able to be fitted back to Item 1-K1. Therefore, the two lengths of tape once formed a single unit. I can only conclude that Q1 came from the roll of adhesive tape as represented by K1. 2) Item 2-Q2 could not be differentiated from Item 2-K2 based on the physical and chemical properties examined. Therefore, Q2 could have come from the roll of masking tape as represented by K2. Other rolls of masking tape with the same physical and chemical properties would not be excluded as a possible source either. 3) Item 3-Q3 was determined to be different to Item 3-K3 based on visual differences in the appearance of their surface features. Therefore, the roll of duct tape as represented by K3 could not be a possible source for the length of tape in Q3.
9XZWPQ	1. Comparison Result: a. A physical match was found to exist between the torn edges of Q1 and K1. b. No physical match was found to exist between the torn edges of Q2 and K2. c. Q2 and K2 are consistent and no discriminating differences were observed with respect to their physical characteristics,

TABLE 3

WebCode	Conclusions
	<p>construction, as well as their chemical and elemental composition. d. Q3 and K3 are different with respect to the following physical characteristics: backing luster, backing texture and scrim weave type. Interpretation of Results: 1. It is the opinion of the undersigned that Q1 and K1 were at one time joined together to be one piece of clear tape. 2. It is the opinion of the undersigned that Q2 and K2 were not joined together as represented by the samples submitted. 3. It is the opinion of the undersigned that Q2 could have originated from the same source as represented by K2 or from another source exhibiting all of the same analyzed characteristics. 4. It is the opinion of the undersigned that Q3 could not have originated from the same source as represented by K3.</p>
D2M6ZM	<p>Q1 and K1 Comparison: The clear colorless office tape from Q1 is similar in physical characteristics and chemistry in comparison to the tape from K1. Based on distinct features of the torn edge of one end of Q1 piece of tape and the free end of K1, Q1 was observed to physically correspond with the end of K1. This provides strong support for the proposition that Q1 originated from and was at one time a part of K1 as opposed to the proposition that it originated from and was a part of another used roll. Q2 and K2 Comparison: The off-white masking tape from Q2 is similar in color, physical characteristics and chemistry in comparison to the tape from K2. The tape from Q2 could have come from the same roll of tape as K2, or any other source of tape similar in color, physical characteristics and chemistry. The ends of the tape from the Q2 were examined to see if either of the ends could be fracture matched back to the end of the tape from K2. No fracture match was found between the tape ends from Q2 and the tape end from K2. Q3 and K3 Comparison: The gray duct tape from Q3 is different in physical characteristics and chemistry in comparison to the tape from K3. The tape from Q3 could not have come from the same roll of tape as K3. All items were examined visually and by using stereomicroscopy, fluorescence, and Fourier Transformed Infrared Spectroscopy. Additionally, polarized light microscopy was used for examining Q1 and K1. Samples collected and analyzed during the examination and analysis of the items in this case have been returned to and retained with the original item.</p>
D99XCM	<p>RESULTS 1: Exhibit K1 consisted of a piece of tape constructed of a colorless polypropylene backing and a colorless acrylic-based adhesive. One end of the tape had a serrated edge, while the other end had a smooth edge. 2: Exhibit Q1 consisted of a piece of tape constructed of a colorless polypropylene backing and a colorless acrylic-based adhesive. Both ends of the tape had serrated edges. The tape in Exhibit Q1 was indistinguishable in color/appearance, texture, width, thickness, fluorescence, and chemical composition from the tape in Exhibit K1. The serrated edge profile of one of the tape ends of Exhibit Q1 aligned well with that of the serrated tape end of Exhibit K1. However, the forensic significance associated with these complementary edge profiles could not be assessed in the absence of the serrated cutting edge that produced these profiles, since the reproducibility of the serrated edge profile across multiple pieces of tape cut with this cutting edge could not be evaluated. Therefore, the presence of a physical match between this serrated tape end of Exhibit Q1 and the serrated tape end of Exhibit K1 could not be confirmed. No physical match was found between the other serrated tape end of Exhibit Q1 and the serrated tape end of Exhibit K1. CONCLUSION 1: The tape in Exhibit Q1 originated either from the source of Exhibit K1, or from another source of tape having indistinguishable physical and chemical properties.</p>
DBX7LN	<p>Item #K1 and Item #Q1 constitute a physical match and at one time formed a single object. Similarities in class characteristics were noted between Item #K2 and Item #Q2; however, no physical match could be found between Item #K2 and Item #Q2. Item #K3 and Item #Q3 do not constitute a physical match and did not at one time form a single object.</p>
DC999M	<p>One (1) of the serrated cut ends from Item Q1 is a physical match with the serrated cut end of Item K1 and therefore, at one time, formed a single roll of tape. Both of the torn edges from Item Q2 do not physically fit with the torn edge of Item K2, therefore no physical match can be achieved. Item Q2 is similar in microscopic, elemental, and chemical composition to Item K2 and therefore may have originated from the same source. Both of the torn edges from Item Q3 do not physically fit with the torn edge of Item K3, therefore no physical match can be achieved. Item Q3 is dissimilar to Item K3, therefore Item Q3 did not originate from the same source as Item K3.</p>
DF8K4L	<p>Items K1 and Q1 constitute a physical match and at one time formed a single object. Items K2 and Q2</p>

TABLE 3

WebCode	Conclusions
	do not constitute a physical match and did not at one time form a single object. Items K3 and Q3 do not constitute a physical match and did not at one time form a single object.
DWRB3L	On analysis, I found: 1. Adhesive tape Item Q1 to be different from the adhesive tape roll represented by Item K1. Hence, I am of the opinion that adhesive tape Item Q1 did not originate from Item K1. 2. Adhesive tape Item Q2 to be similar with the adhesive tape roll represented by Item K2. Hence, I am of the opinion that adhesive tape Item Q2 could have originate from Item K2. 3. Adhesive tape Item Q3 to be different from the adhesive tape roll represented by Item K3. Hence, I am of the opinion that adhesive tape Item Q3 did not originate from Item K3.
EGD6RM	The ends of adhesive tape in Item Q1 and the free end of adhesive tape in K1 all exhibit jagged cut ends. Comparison of one of the ends of Q1 against the free end of K1 reveals corresponding irregular contours. The tapes in Items Q1 and K1 were once one item. Macroscopic and instrumental examination and comparison of the tapes in Q2 and K2 reveals sufficient similarities in physical properties and chemical composition such that it can be concluded that the tapes in Q2 and K2 could have originated from the same source, or another source with similar manufacturing. Examination of the tapes in Q2 and K2 failed to reveal a fracture match of the items. Examination and comparison of the tapes in Q3 and K3 reveals visual dissimilarities on the tape backings. The tapes in Q3 and K3 could not have originated from the same source.
EYXVQL	1: Exhibit Q3 did not originate from the source of Exhibit K3. 2: Exhibits Q1, K1, Q2, and K2 were not examined and so no conclusion could be reached.
GFBDCB	Item 1: There is a physical match between the ends of samples K1 and Q1. They come from the same source (same roll). Item 2: There is no physical match between the ends of samples K2 and Q2. K2 and Q2 are undifferentiated (on physical and chemical characteristics). They can come from the same source (same roll) or from 2 different rolls with the same characteristics. Item 3: There is no physical match between the ends of samples K3 and Q3. We can observe differences between the samples (especially on "fiber count"). K3 and Q3 can't come from the same roll.
GK78AJ	Items K1 & Q1 constitute a physical match and at one time formed a single object. Items K2 & Q2 do not constitute a physical match and did not at one time form a single object. Items K3 & Q3 do not constitute a physical match and did not at one time form a single object.
GPLFXJ	1. Based on physical fitting and the comparison of physical characteristics (appearance, width and polarising patterns), and chemical compositions of the sampled backings and adhesive layers of the tapes, the two strips of clear adhesive tape marked "K1" and "Q1" were originally a single strip of tape. 2. Based on the comparison of physical characteristics (appearance, surface texture and width), and chemical compositions of the sampled backings and adhesive layers of the tapes, the two strips of masking tape marked "K2" and "Q2" could have originated from the same roll of tape, or another roll of tape with similar characteristics. 3. Based on differences in the surface texture, the strips of duct tape marked "K3" and "Q3" were not associated with each other.
HPFKQH	K1 vs Q1 – Both pieces of tape originated from the same roll of tape and were originally joined to each other. In my opinion there is a conclusive link between them. K2 vs Q2 – The masking tapes are similar in their physical appearance and could have originated from the same roll of tape. However, no unique link was found between them. The roll of tape could be discriminated from other rolls of tape of the same type. Therefore, the similarities between the tapes in K2 and Q2 provides a positive association between them. I consider that there is limited evidence to support the proposition that both pieces of tape originated from the same roll of tape. K3 vs Q3 The tapes are generally similar in appearance but differ in manufacturing detail. In my opinion, they could not have originated from the same roll of tape.
HR6U2J	Based on the agreement of class and individual characteristics, the pieces of tape in Exhibit 1.1 (known sample) and Exhibit 1.2 (questioned sample) were once physically connected. Physical fit examinations disclosed that Exhibit 2.1 (known sample) and Exhibit 2.2 (questioned sample) have a disagreement of individual characteristics and therefore could not have been physically connected at the separated

TABLE 3

WebCode	Conclusions
	<p>ends. Further comparative examinations of Exhibit 2.1 with Exhibit 2.2 disclosed them to be consistent in their physical, chemical, and elemental characteristics. As a result of these findings, Exhibit 2.2 (questioned sample) could have originated from the same source as the roll of tape represented by Exhibit 2.1 (known sample) or another source with the same characteristics. A tape association is not a means of positive identification and the number of possible sources for a specific tape is unknown. Comparative examinations of Exhibit 3.1 (known sample) with Exhibit 3.2 (questioned sample) disclosed them to be inconsistent in their physical characteristics. As a result of these findings, Exhibit 3.2 could not have originated from the same source as the roll of tape represented by in Exhibit 3.1. Please note that based on the gross differences in physical characteristics, no physical fit examination was performed.</p>
JWADCG	<p>The following methodologies were used in the examination of this case: visual examination, physical examination and microscopy. Examination of K3 and Q3 (Item 3-1 and Item 3-2) each revealed a strip of gray duct tape. No physical match was noted between Item 3-1 and Item 3-2. Item 3-2 was found to have different manufacturing characteristics from Item 3-1. Therefore, Q3 (Item 3-2) could not have originated from the same source as K3 (Item 3-1). The remaining items were not examined.</p>
L2DVNE	<p>Tape material analysis: Case 1: Item K1, a known tape and Item Q1, a questioned tape from Case 1 are office tapes. They have colourless, transparent backing and colourless adhesive. The width of the tapes is 19 mm. Items K1 and Q1 are indistinguishable regarding colour and other physical properties and chemical composition of backing and adhesive. Therefore, the adhesive tape in Item Q1 could have originated from the adhesive tape roll represented by Item K1 or from tape rolls manufactured in the same manner. Case 2: Item K2, a known tape and Item Q2, a questioned tape from Case 2 are masking tapes. They have light yellow paper backing and yellowish adhesive. The width of the tapes is 24 mm. Items K2 and Q2 are indistinguishable regarding colour and other physical properties and chemical composition of backing and adhesive. Therefore, the adhesive tape in Item Q2 could have originated from the adhesive tape roll represented by Item K2 or from tape rolls manufactured in the same manner. Case 3: Item K3, a known tape and Item Q3, a questioned tape from Case 3 are duct tapes. They have grey backing, fibre reinforcement and white adhesive. The width of the tapes is 47 mm. Items K3 and Q3 are indistinguishable regarding chemical composition of backing and adhesive, but they are inconsistent regarding surface texture and fibre reinforcement. Therefore, the adhesive tape in Item Q3 could not have originated from the adhesive tape roll represented by Item K3. Physical end match analysis: Case 1: In the item Q1 there is an adhesive tape which corresponds in width with the adhesive tape roll represented by item K1. One end of item Q1 corresponds in shape with tape roll represented by item K1 but both ends of the tapes have been cut with a same tape cutter. Because the end of item Q1 and the cut end of tape in item K1 have been cut with same tape cutter conclusion whether the adhesive tape in Item Q1 originated from the adhesive tape roll represented by item K1 is inconclusive. Case 2: In the item Q2 there is an adhesive tape which corresponds in width with the adhesive tape roll represented by item K2. The end of the item Q2 does not correspond in shape with the end of the adhesive tape roll represented by Item K2. However conclusion whether the adhesive tape in Item Q2 originated from the adhesive tape roll represented by Item K2 is inconclusive. Case 3: In the item Q3 there is an adhesive tape which corresponds in width with the adhesive tape roll represented by item K3. The construction of the item Q3 does not correspond with the adhesive tape roll represented by item K3. Neither of the ends of the adhesive tape in item Q3 corresponds in shape with the cut end of the adhesive tape roll by Item K3. The adhesive tape in item Q3 do not originate from the adhesive tape roll represented by Item K3.</p>
L7U4CE	<p>Item 1: The results allow the conclusion that K1 and Q1 originate from the same adhesive tape roll. Item 2: It is possible that K2 and Q2 originate from the same adhesive tape roll. Item 3: The results exclude the same origin of K3 and Q3.</p>
LHQ8F8	<p>1: The adhesive tape in Item Q1 agreed with the adhesive tape originated from the adhesive tape roll represented by Item K1 with regard to the examined characteristics. One end of the adhesive tape in Item Q1 physically match with one end of the adhesive tape roll represented by Item K1. 2: The adhesive tape in Item Q2 agreed with the adhesive tape originated from the adhesive tape roll represented by Item K2 with regard to the examined characteristics. No end of the adhesive tape in</p>

TABLE 3

WebCode	Conclusions
	Item Q2 physically match with the ends of the adhesive tape roll represented by Item K2. 3: The adhesive tape in Item Q3 was different from the adhesive tape originated from the adhesive tape roll represented by Item K3.
LXEKRE	Items K1 and Q1 formed a physical match and it is conclusively established that items K1 and Q1 were once joined to form a single piece of tape. No physical match exists between items K2 and Q2; however, they were consistent in color, texture, and chemical composition. Item K2 and item Q2 could have originated from the same source of tape or from another tape with the same color, texture, and chemical properties. Items K3 and Q3 could not have originated from the same source of tape due to differences in surface texture, physical construction, color, and chemical composition.
MXD7KC	In my opinion, the findings provide conclusive support for the proposition that K1 and Q1 originated from the same roll of tape. In my opinion, the findings provide strong support for the proposition that K2 and Q2 originated from the same roll of tape as opposed to not. In my opinion, the findings provide conclusive support for the proposition that K3 and Q3 DID NOT originate from the same roll of tape.
MZ2FUD	1. Sufficient agreement of individual characteristics were observed between the end of Exhibit 001.001 (known piece of office tape) and the end of Exhibit 001.002 (questioned piece of office tape) to conclude that Exhibits 001.001 and 001.002 were once physically connected. As a result of these findings, no further comparisons of the physical, chemical, or elemental characteristics were conducted between Exhibits 001.001 and 001.002. 2. Comparative examinations of Exhibit 002.001 (known piece of masking tape) with Exhibit 002.002 (questioned piece of masking tape) disclosed them to be consistent in their physical, chemical, and elemental characteristics. As a result of these findings, the questioned piece of masking tape (Exhibit 002.002) could have originated from the known piece of masking tape (Exhibit 002.001), or another source with the same characteristics. A tape association is not a means of positive identification and the number of possible sources for a specific tape is unknown. 3. Comparative examinations of Exhibit 003.001 (known piece of duct tape) and Exhibit 003.002 (questioned piece of duct tape) disclosed them to be inconsistent in their gross physical characteristics. As a result of these findings, the questioned piece of tape (Exhibit 003.001) could not have originated from the same source as the known piece of tape (Exhibit 003.002).
N8HDZC	Items K1 and Q1 constitute a physical match and at one time formed a single object. Items K2 and Q2 do not constitute a physical match and did not at one time form a single object. Items K3 and Q3 do not constitute a physical match and did not at one time form a single object.
PYHDZB	The results very strongly support the proposition that the adhesive tape in Item Q1 is of the same type as the adhesive tape in Item K1. We are inconclusive whether the adhesive tape in Item Q1 could have originated from the adhesive tape roll represented by Item K1. The results very strongly support the proposition that the adhesive tape in Item Q2 is of the same type as the adhesive tape in Item K2. We are inconclusive whether the adhesive tape in Item Q2 could have originated from the adhesive tape roll represented by Item K2. The adhesive tape in Item Q3 is not of the same type as the adhesive tape in Item K3.
QEQP69	Item 1: The morphology and the width of K1 and Q1 is the same. There is a physical end match between samples K1 and Q1. The composition of the adhesive and backing of both tapes are indistinguishable with the techniques employed. Therefore, K1 and Q1 have the same origin. Item 2: The morphology and the width of K2 and Q2 is the same. There isn't a physical end match between samples K2 and Q2. The composition of the adhesive and backing of both tapes are indistinguishable with the techniques employed. Therefore, K2 and Q2 could have the same origin. Item 3: The morphology and the width of K3 and Q3 are different. There is not a physical end match between samples K3 and Q3. There are differences in the composition of the reinforcement fabric and the adhesive. According to these results, K3 and Q3 have different origins.
RKWKP9	Item 1: We found a physical match between the ends of Item Q1 and Item K1 – the layers and the backings of Item Q1 and Item K1 are indistinguishable – therefore the adhesive tape in Item Q1 originates from the adhesive tape roll represented by Item K1. Item2: We found no physical match

TABLE 3

WebCode	Conclusions
	between the ends of Item Q2 and Item K2 – but the layers and the backings of Item Q2 and Item K2 are indistinguishable – therefore the adhesive tape in Item Q2 could have originated from the adhesive tape roll represented by Item K2. Item3: The backings of the Item Q3 and Item K3 are optically (morphologically) distinguishable – therefore it's impossible that the adhesive tape in Item Q3 originates from the adhesive tape roll represented by Item K3.
TJAQ24	A unique physical fit was observed between the questioned tape Q1 (in Item 1) and the known tape K1 (in Item 1). Therefore Q1 is associated with K1. The questioned tape K2 (in Item 2) was similar in colour, layer sequence and chemical composition to the known tape K2 (in Item 2). Therefore tape Q2 can be associated with K2 or another type of tape displaying the same physical and chemical properties. The questioned tape Q3 (in Item 3) was physically different from the known tape K3 (in Item 3). Therefore the questioned tape Q3 cannot be associated with tape K3.
U2A4A6	Item K1 and Item Q1 constitute a physical match and were at one time joined to form a single object. Item K2 and Item Q2 display similar class characteristics; however, no physical match could be found between Item K2 and Item Q2. Item K3 and Item Q3 could not have originated from the same source due to differences in class characteristics and therefore could not have been joined together to form a physical match.
UG3VW7	Items #1 (Q1) and #1 (K1) constitute a physical match and at one time formed a single object. Similarities in class characteristics were noted between the unknown piece of tape in Item #2 (Q2) and the known piece of tape in Item #2 (K2); however, Items #2 (Q2) and #2 (K2) do not constitute a physical match. Item #3 (Q3) could not have come from Item #3 (K3).
UZY2N7	Items 1-1 and 1-2 (K1 and Q1) constitute a physical match and at one time formed a single object. Items 1-3 and 1-4 (K2 and Q2) have the same class characteristics; however, no individual characteristics or identifying features were noted. Items 1-5 and 1-6 (K3 and Q3) do not constitute a physical match and did not at one time form a single object.
WPACGW	The questioned adhesive tape in Item Q1 was found to be consistent in width, thickness, backing surface texture, colour and chemical composition of backing and adhesive to those of the known adhesive tape originated from the adhesive tape roll represented by Item K1. One end of the adhesive tape in Item Q1 physically matches with the end of the adhesive tape roll represented by Item K1. The questioned adhesive tape in Item Q2 was found to be consistent in width, thickness, backing surface texture, colour and chemical composition of backing and adhesive to those of the known adhesive tape originated from the adhesive tape roll represented by Item K2. Neither one end of the adhesive tape in Item Q2 physically matches with the end of the adhesive tape roll represented by Item K2. The questioned adhesive tape in Item Q3 was found to be consistent in width, thickness, colour and chemical composition of backing and adhesive to those of the known adhesive tape originated from the adhesive tape roll represented by Item K3. However, it was found that the backing surface texture in questioned Item Q3 was inconsistent with that of the known adhesive tape Item K3. Neither one end of the adhesive tape in Item Q3 physically matches with the end of the adhesive tape roll represented by Item K3. Based on the above findings, in my professional opinion, (i) the adhesive tape in Item Q1 could have originated from the adhesive roll represented by Item K1. (ii) the adhesive tape in Item Q2 could have originated from the adhesive roll represented by Item K2. (iii) the adhesive tape in Item Q3 could not have originated from the adhesive roll represented by Item K3.
WWRHD4	End of the adhesive tape in K1 item was physically matched with end of Q1. Other K2 and K3 tapes are not matched with Q2 and Q3, respectively. Chemical composition of K2 and Q2 are similar, but K3 is different from Q3 tape.
XA83B2	Through examination and comparative analysis carried out on the pieces of evidence, it was determined that: The end of the roll of adhesive tape K1 (known) and the end A of the piece of adhesive tape Q1 (unknown) are corresponding parts that physically match, indicating that at one point they formed a single object. The pieces of adhesive tape K2 (known) and adhesive tape Q2 (unknown) have physical (color, texture, width, appearance) and chemical (UV light, IR spectra, and gas chromatography) characteristics that are similar to each other. They do not present a physical match.

TABLE 3

WebCode	Conclusions
	The pieces of adhesive tape K3 (known) and adhesive tape Q3 (unknown) do not have similar physical characteristics (raised mark pattern) to each other.
XDWCK3	<p>EXAMINATION AND RESULTS: I started the examination of the submitted evidence items on February 18, 2021. CASE 1: I compared the known tape sample, item 001-K1, to the questioned tape sample, item 001-Q1. Both 001-K1 and 001-Q1 are sections of transparent tape of similar size and appearance. Both known tape sample and the questioned tape sample have one cut end and one torn end. I physically compared the torn end of the known tape to the torn end of the questioned tape using a stereo microscope. I found that these two tape ends fit together. This physical fit was sufficient to conclude that the questioned tape sample, item 001-Q1, and the known tape sample, item 001-K1, were once sequential parts of a same section of tape. CASE 2: I compared the known tape sample, item 001-K2, to the questioned tape sample, item 001-Q2. I used stereo microscopy, polarized light microscopy, infrared microspectrophotometry, scanning electron microscopy with energy dispersive spectrometry, and pyrolysis gas chromatography mass spectrometry in this comparison. Both known tape sample, item 001-K2, and the questioned tape sample, item 001-Q2, are sections of masking tape of similar size and appearance. I compared the cut and torn ends of these tapes to each other to determine if they physically fit together. The ends do not fit together and therefore are not sequential pieces of tape from the same roll. I compared the known tape sample, item 001-K2, to the question tape sample, item 001-Q2, to determine if they could have come from a different section of the same roll or from a similarly manufactured masking tape. I found that these two tape sections are indistinguishable in physical features, such as size, color, and construction and similar in microscopical properties. They are also similar in chemical properties. These two tape samples, items 001-K2 and 001-Q2, could have come from the same roll of masking tape or another similarly manufactured masking tape. CASE 3: I compared the known tape sample, item 001-K3, to the questioned tape sample, item 001-Q3. I used a stereo microscope in this comparison. Both the known sample of tape and the questioned sample of tape are duct tape. They differ in the texture of the backing material and the structure of the scrim fabric used to hold the adhesive portion of the tape. These differences are significant and therefore, I concluded that the questioned tape sample, item 001-Q3, did not come from the same roll of duct tape as the known tape sample, item 001-K3. CONCLUSION: The questioned tape sample, item 001-Q1, and the known tape sample, item 001-K1, were once sequential portions of the same length of tape. The question tape sample, item 001-Q2, and the known tape sample, item 001-Q2, could have come from the same roll of masking tape or another roll of masking tape with the same physical and chemical properties. The questioned tape sample, item 001-Q3, and the known tape sample, item 001-K3, did not come from the same roll of tape.</p>
XVR672	<p>Q1 and K1 were colourless transparent tapes. There was a totally physical match with each one end. The Carrier film and the adhesive layer cannot be distinguished by means of chemical analysis. Q1 and K1 match. Q2 and K2 were beige colored masking tapes. There was no difference in adhesive layer. The widths were equal. The tape Q2 could have probably originated from the tape roll K2. Q3 and K3 were grey gaffer tapes, which have different in adhesive layer and fibers. The widths of both samples were equal. There was no physical match with the end of the tape roll and there was a difference in the surfaces. The tape Q3 could not have originated from the tape roll K3.</p>
Z3KWRZ	<p>Q1 correspondence to K1 from item 1. Q2 correspondence to K2 from item 2. Q3 doesn't correspondence to K3 from item 3.</p>
Z7LWRW	<p>On the basis of the samples received and the examinations and analysis conducted, I have formed the following opinions: Several points of fit and correspondence were found between questioned tape 1 and known tape 1. These results provide unequivocal support for the proposition that questioned tape 1 and known tape 1 once formed a single length of tape. I am unable to exclude the proposition that questioned tape 2 and known tape 2 could both share a common origin. I am also unable to exclude the proposition that another roll of the same type of tape from the same manufacturer could also be a source of questioned tape 2. I am able to exclude known tape 3 as being a source of questioned tape 3.</p>

Additional Comments

TABLE 4

WebCode	Additional Comments
9XZWPQ	This test covered almost all situations that are seen during tape examination. It was a really well made test. Challenging, but fair.
D2M6ZM	SEM analysis was not performed on any of the items because the instrument is currently not operational.
D99XCM	Only Items Q1 and K1 were examined/analyzed as part of this proficiency test. Items Q2 and K2 were not examined/analyzed as they consist of masking-type tape, and the analysis of paper-backed tapes falls outside the scope of services provided by our laboratory. Items Q3 and K3 were examined/analyzed by another scientist at our laboratory, with the results being submitted in a separate submission.
JWADCG	No analysis performed on K1, Q1, K2, Q2 (not opened or examined), therefore no conclusions rendered.
L7U4CE	The physical match comparison is done by a separate group in our lab and would normally result in a separate report regarding the physical match. In this case the physical match was verified by this other group and the reports were combined.
PYHDZB	When evaluating/interpreting the result(s) of forensic examinations, we express our conclusions using a scale that reflects our level of certainty. The scale ranges from +4 through zero to -4, where we know +4 as the strongest conclusion up against common origin. At 0 we cannot draw any conclusion, and at -4 we are certain that the items compared do not have a common origin.
Z3KWRZ	Item 3: There are small differences between the adhesives Q3 and K3 and fabric structure (distance between the fabrics).

-End of Report-
(Appendix may follow)

Collaborative Testing Services ~ Forensic Testing Program

Test No. 21-5471: Adhesive Tape Analysis

DATA MUST BE SUBMITTED BY **June 14, 2021, 11:59 p.m.** TO BE INCLUDED IN THE REPORT

Participant Code: U1234A

WebCode: 7R4XNQ

The Accreditation Release section can be accessed by using the "Continue to Final Submission" button above. This information can be entered at any time prior to submitting to CTS.

Scenario:

In three unrelated cases, adhesive tape material was collected and submitted for analysis. Each Item (1-3) below represents a separate, independent case.

A Hole Punch located at one end of the silicone release paper housing a known item indicates the end of tape which was removed from the roll and is not intended for physical end match analysis.

Items Submitted (Sample Pack TAPE):

Item 1- (K1, Q1): A known and a questioned sample from Case 1

Item 2- (K2, Q2): A known and a questioned sample from Case 2

Item 3- (K3, Q3): A known and a questioned sample from Case 3

Item 1:

1.1) Could the adhesive tape in Item Q1 have originated from the adhesive tape roll represented by Item K1?

- Yes
- No
- Inconclusive

1.2) Was a physical match comparison performed?

- Yes
- No
- N/A

1.3) If a Physical match comparison was performed, does either end of the adhesive tape in Item Q1 physically match with the end of the adhesive tape roll represented by Item K1?

- Yes
- No
- Inconclusive

1.4) Indicate the procedure(s) used to examine the submitted items:

Please check all that apply.

Microscopic Exams:	<input type="checkbox"/> Stereo	<input type="checkbox"/> Comparison
	<input type="checkbox"/> Polarized Light	
<input type="checkbox"/> Macroscopic Exam	<input type="checkbox"/> Fluorescence	<input type="checkbox"/> FTIR
<input type="checkbox"/> XRD	<input type="checkbox"/> XRS/XRF	<input type="checkbox"/> SEM/EDX
<input type="checkbox"/> LA-ICP-MS	<input type="checkbox"/> Pyrolysis GC	
Other (specify): <input style="width: 50px;" type="text"/>		

Item 2:

2.1) Could the adhesive tape in Item Q2 have originated from the adhesive tape roll represented by Item K2?

- Yes
- No
- Inconclusive

2.2) Was a physical match comparison performed?

- Yes
- No
- N/A

2.3) If a Physical match comparison was performed, does either end of the adhesive tape in Item Q2 physically match with the end of the adhesive tape roll represented by Item K2?

- Yes
- No
- Inconclusive

2.4) Indicate the procedure(s) used to examine the submitted items:

Please check all that apply.

Microscopic Exams:	<input type="checkbox"/> Stereo	<input type="checkbox"/> Comparison
	<input type="checkbox"/> Polarized Light	
<input type="checkbox"/> Macroscopic Exam	<input type="checkbox"/> Fluorescence	<input type="checkbox"/> FTIR
<input type="checkbox"/> XRD	<input type="checkbox"/> XRS/XRF	<input type="checkbox"/> SEM/EDX
<input type="checkbox"/> LA-ICP-MS	<input type="checkbox"/> Pyrolysis GC	
Other (specify): <input style="width: 50px;" type="text"/>		

Item 3:

3.1) Could the adhesive tape in Item Q3 have originated from the adhesive tape roll represented by Item K3?

- Yes No Inconclusive

3.2) Was a physical match comparison performed?

- Yes No N/A

3.3) If a Physical match comparison was performed, does either end of the adhesive tape in Item Q3 physically match with the end of the adhesive tape roll represented by Item K3?

- Yes No Inconclusive

3.4) Indicate the procedure(s) used to examine the submitted items:

Please check all that apply.

Microscopic Exams:	<input type="checkbox"/> Stereo	<input type="checkbox"/> Comparison
	<input type="checkbox"/> Polarized Light	
<input type="checkbox"/> Macroscopic Exam	<input type="checkbox"/> Fluorescence	<input type="checkbox"/> FTIR
<input type="checkbox"/> XRD	<input type="checkbox"/> XRS/XRF	<input type="checkbox"/> SEM/EDX
<input type="checkbox"/> LA-ICP-MS	<input type="checkbox"/> Pyrolysis GC	
Other (specify): <input type="text"/>		

Please note: Any additional formatting applied in the free form space below will not transfer to the Summary Report and may cause your information to be illegible. This includes additional spacing and returns that present your responses in lists and tabular formats.

4.) What would be the wording of the Conclusions in your report?

5.) Additional Comments

RELEASE OF DATA TO ACCREDITATION BODIES

The Accreditation Release is accessed by pressing the "Continue to Final Submission" button online and can be completed at any time prior to submission to CTS.

CTS submits external proficiency test data directly to ASCLD/LAB, ANAB, and/or A2LA. Please select one of the following statements to ensure your data is handled appropriately.

- This participant's data is intended for submission to ASCLD/LAB, ANAB, and/or A2LA. (Accreditation Release section below must be completed.)
- This participant's data is **not** intended for submission to ASCLD/LAB, ANAB, and/or A2LA.

Have the laboratory's designated individual complete the following steps **only if your laboratory is accredited in this testing/calibration discipline** by one or more of the following Accreditation Bodies.

Step 1: Provide the applicable Accreditation Certificate Number(s) for your laboratory.

ANAB Certificate No.
(Include ASCLD/LAB Certificate here)

A2LA Certificate No.

Step 2: Complete the Laboratory Identifying Information in its entirety.

Authorized Contact Person and Title

Laboratory Name

Location (City/State)