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Figure 31 is a plot displaying the frequency with which each melting temperature occurs. It is readily apparent that there are two distinct groupings of melting temperatures, however, there is no clear trend. It was determined that 32 % of all the layers measured had melting temperatures below 266 °C; this accounts for 39 % of the Likely Good, 33 % of the Likely Bad, and 27% of the known bad (Leaker, LBWBF, and BWBR).

K. Mechanical Property Analyses of the Kapton Seals

Modulus Test Results. Eight reference samples of FN131L material were tested to provide the expected secant modulus at 4 % strain that should be obtained for FN type Kapton Film using this approach (see Figure 32). For these reference samples, an average value of (0.789 ± 0.093) GPa was obtained (see Table 21).

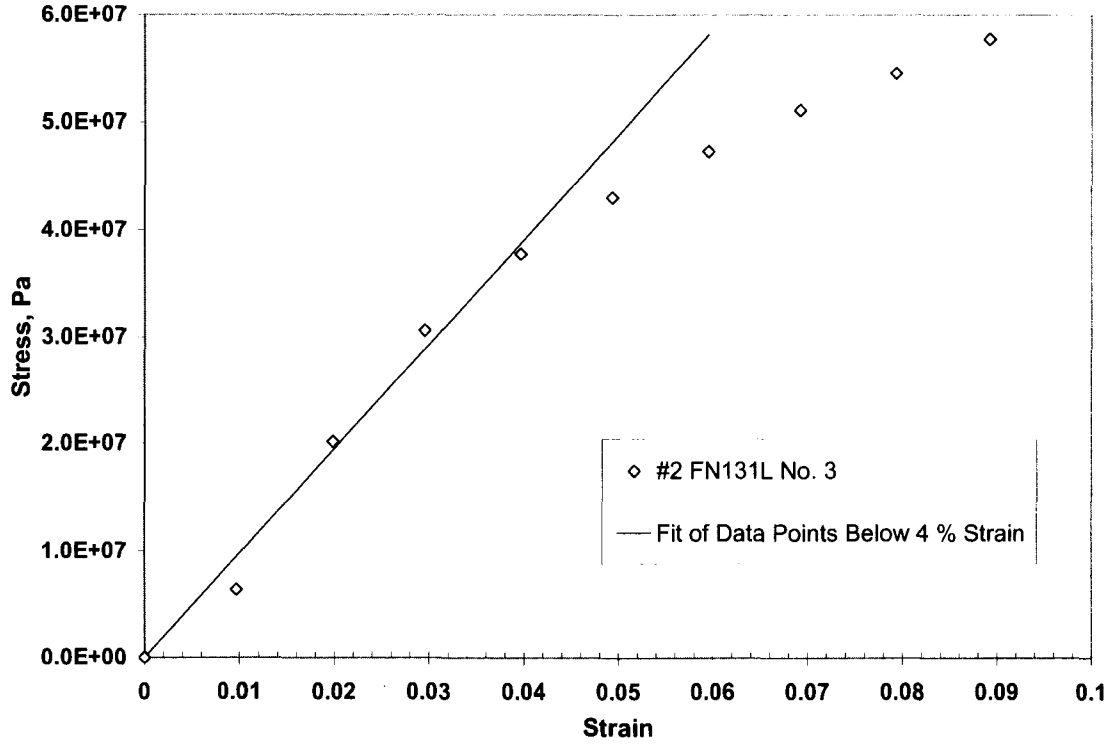


Figure 32. Typical stress-strain response of Type FN Kapton below 10 % strain.

Good and Bad samples were analyzed from the following categories: Likely Good, Leakers, and LBWBF. The average secant modulus values at 4 % strain for specimens in these categories were (0.823 ± 0.088) GPa, (0.839 ± 0.082) GPa, and (0.830 ± 0.078) GPa, respectively (see Table 21 and Table 22). Analysis of variance (ANOVA) analysis between the four categories indicated that the average modulus values of the Good and Bad samples were equivalent and that there was no degradation in the average moduli of these samples relative to the reference Kapton Film.

Table 21. 4 % Strain Modulus for As-Received Laminate Film and Likely Good Kapton Seals

Sample Name	4 % Strain Modulus, GPa			Average Modulus, GPa
FN131L				
3	0.977			
4	0.793			
5	0.827			
6	0.836			
7	0.741			
8	0.376 – discounted (not pre-tensioned properly)			
9	0.713			
10	0.684			
11	0.738			
				0.789 ± 0.093
Likely Good	Layer No. 1	Layer No. 2	Layer No. 3	
7		0.805		
1	0.706	0.104	0.921	
5			0.939	
10				
14	0.737	0.691	0.685	
15	0.724	0.759	0.772	
16	0.800	0.779	0.730	
18				
19	0.909	0.676	0.753	
20	0.770	0.875	0.797	
26	0.931	0.695	0.918	
27	0.878	0.871	0.856	
28	0.909	0.861	0.871	
29	0.944	0.737	0.852/0.917	
34				
36			0.837	
38	0.933	0.915	0.827	
40	0.878	0.839	0.779	
				0.823 ± 0.088

Table 22. 4 % Strain Modulus for Leaker and LBWBF Kapton Seals

Sample Name	4 % Strain Modulus, GPa			Average Modulus, GPa
	Layer No. 1	Layer No. 2	Layer No. 3	
Leaker				
3	0.810	0.587	0.761	
17	0.816	0.896	0.835	
49	0.812	0.876	0.856	
50	0.807	0.957	0.773	
52	0.813	0.834	0.808	
55	0.815	1.020	0.868	
56	0.925	0.871	0.937	
57	0.809	0.0788	0.858	
				0.839 ± 0.082
LBWBF				
4	0.740	0.689	0.849	
9	0.874	0.847	0.750	
45	0.874	0.764	0.778	
46				
48			0.806	
53	0.728	0.863	0.909	
59			0.927	
69				
76			0.882	
80	0.969	0.861		
				0.830 ± 0.078

Strain-to-Failure Results. From the stress-strain curves, the failure strain for each specimen is recorded (see Table 23 and Table 24). Using ANOVA analyses the failure strain of the LBWBF samples were found to be different from the Reference, Likely Good, and Leaker specimens with a p-value of 0.008. The Leaker specimens were statistically indistinguishable from the Likely Good and Reference specimens with a p-value of only 0.11, while the Likely Good and Reference specimens were indistinguishable with a p-value of 0.54.

The water content found in the Sample Name category for some of the specimens are reprinted from the Analytical Chemistry Division report. These data coupled with the failure strain data indicate to the author that water can compromise the failure strain of the Kapton films if the PTFE layer has been compromised.

Random variations were also observed in the stress-strain response of some of the Kapton films. For completeness, the stress strain curves from the specimens analyzed in this section are included in Attachment 1.

Table 23. Strain to Failure for As-Received Laminate and Likely Good Kapton Seals

Sample Name	% Strain-to-Failure			Average Failure Strain
FN131L				
3	191			
4	198			
5	186			
6	174			
7	183			
8	158 – discounted (not pre-tensioned properly)			
9	68			
10	158			
11	185			
				168 ± 42
Likely Good	Layer No. 1	Layer No. 2	Layer No. 3	
7		191		
1	195	151	128	
5			148	
10				
14	194	194	194	
15	196	193	196	
1.33% Water - 16	194	195	189	
18				
19	152	179	127	
20	123	168	158	
26	**<157**	108	117	
27	92	121	132	
28	189	186	130	
29	167	180	170	
34				
36			148	
38	**<160**	123	125	
40	**<117**	192	136	
				160 ± 32

Table 24. Strain to Failure for Leaker and LBWBF Kapton Seals

Sample Name	% Strain-to-Failure			Average Failure Strain
	Layer No. 1	Layer No. 2	Layer No. 3	
Leaker				
2.02 % Water - 3	149	175	126	
1.68 % Water - 17	137	139	135	
49	140	109	118	
50	40	170	68	
52	166	40	197	
55	186	**<153**	143	
0.98 % Water - 56	183	**<186**	159	
57	**<178**	**<161**	**<159**	
				142 ± 42
LBWBF				
4.2 % Water - 4	69	180	83	
9	153	193	**<175**	
1.91 % Water - 45	112	108	**<74**	
46				
1.91 % Water - 48			84	
53	102	131	122	
59			133	
69				
2.75 % Water - 76			165	
1.36 % Water - 80	84	**<170**		
				126 ± 40

Test Results on Gaskets. To determine the compressive stiffness, the RSA III instrument was equipped with two 12.5 mm parallel plates. Each gasket was placed between the places and deformed at a rate of 0.01 mm/s. Using this approach, eleven samples (6 - Likely Good and 5 – LBWBF) samples were compared to a control gasket taken from an unused speed control deactivation switch (SCDS). Four of the eleven gaskets were found to have the same compressive stiffness as the control (see Figure 33), whereas, the remaining seven gaskets were found to be stiffer than the control gasket (see Figure 34). The composition in each gasket population was evenly split between Likely Good and LBWBF gaskets.

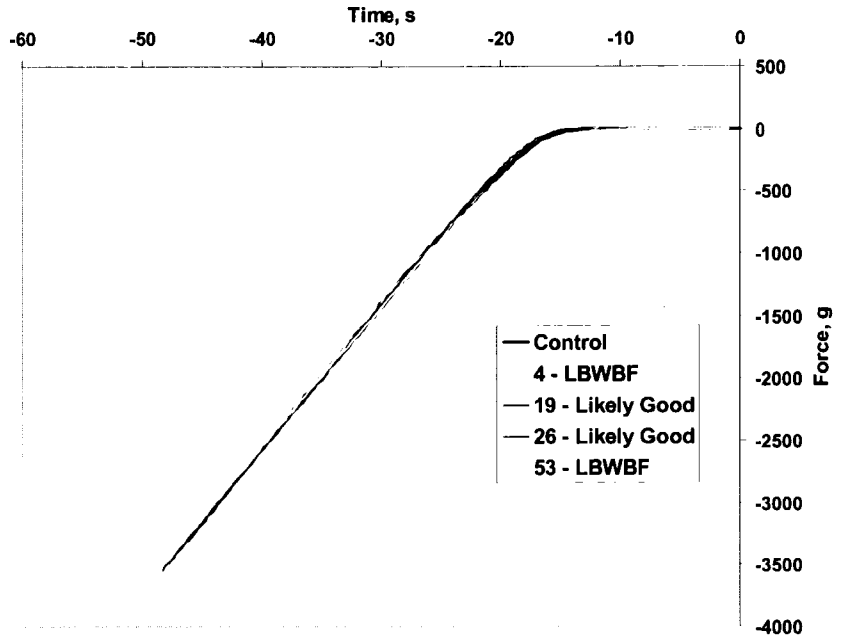


Figure 33. Compressive Response of Gaskets from SCDS No. 4, 19, 26, and 53 relative to control gasket taken from an unused SCDS.

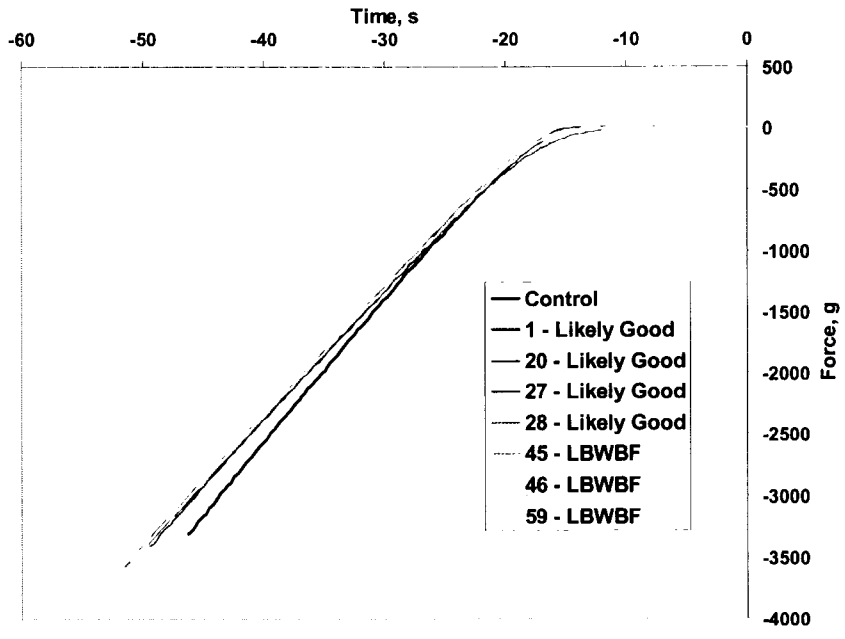


Figure 34. Compressive Response of Gaskets from SCDS No. 1, 20, 27, 28, 45, 46, and 59 relative to control gasket taken from an unused SCDS.

V. Summary

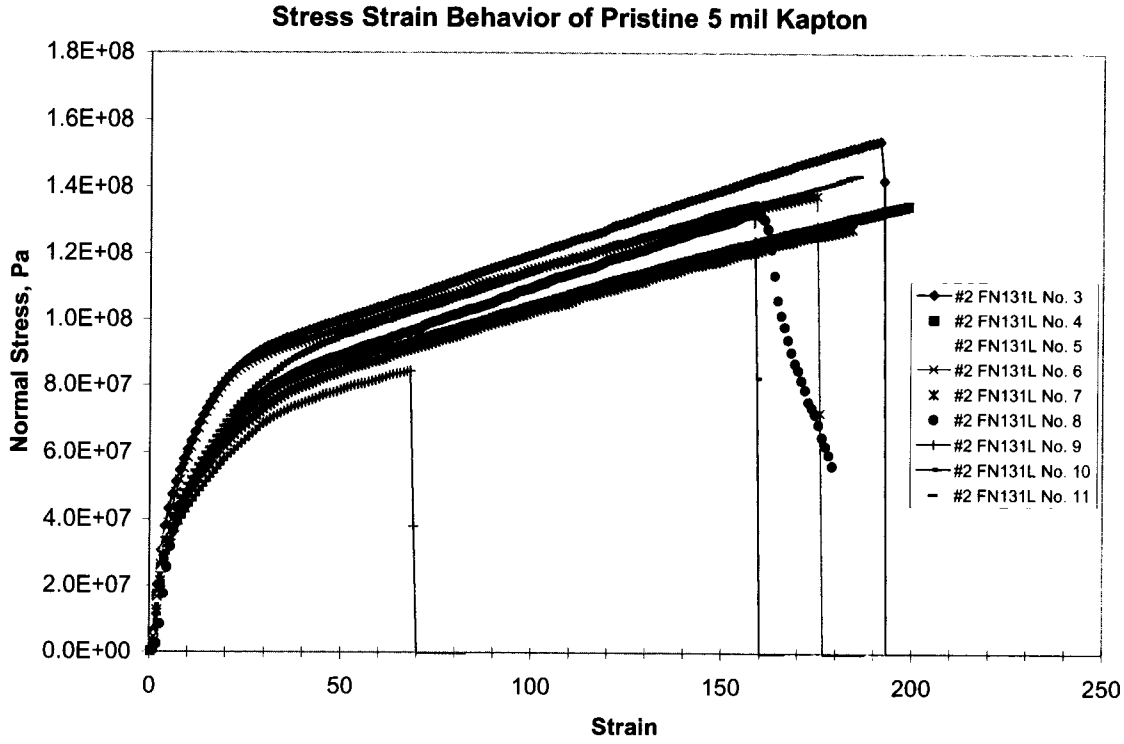
Based on the measurements performed in this report, only a few trends could be identified. The mechanical and thermal properties of the seals from the LBWBF and BWBF are apparently different from those of the Likely Good, Likely Bad, and Leaker, suggesting damage caused from burning, as would be expected. No apparent correlation could be identified within the statistical significance of the measurements between any material property measured and SCDS failure. The only measurement that provided an apparent correlation with the failure rates of the SCDSs was that of the measurescope and the associated deformation rings described in Section IV.E. These results had been communicated to NHTSA previously, who is currently investigating this further.

VI. References

[1] R. DeIasi and J. Russell, *Journal of Applied Polymers Science* **15**, 2965-2974 (1971).
[2] J. Scheirs, in *Modern Fluoropolymers: High Performance Polymers for Diverse Applications*, J. Scheirs, Ed., John Wiley & Sons Ltd: New York (1997) Chapter 1, p 1.

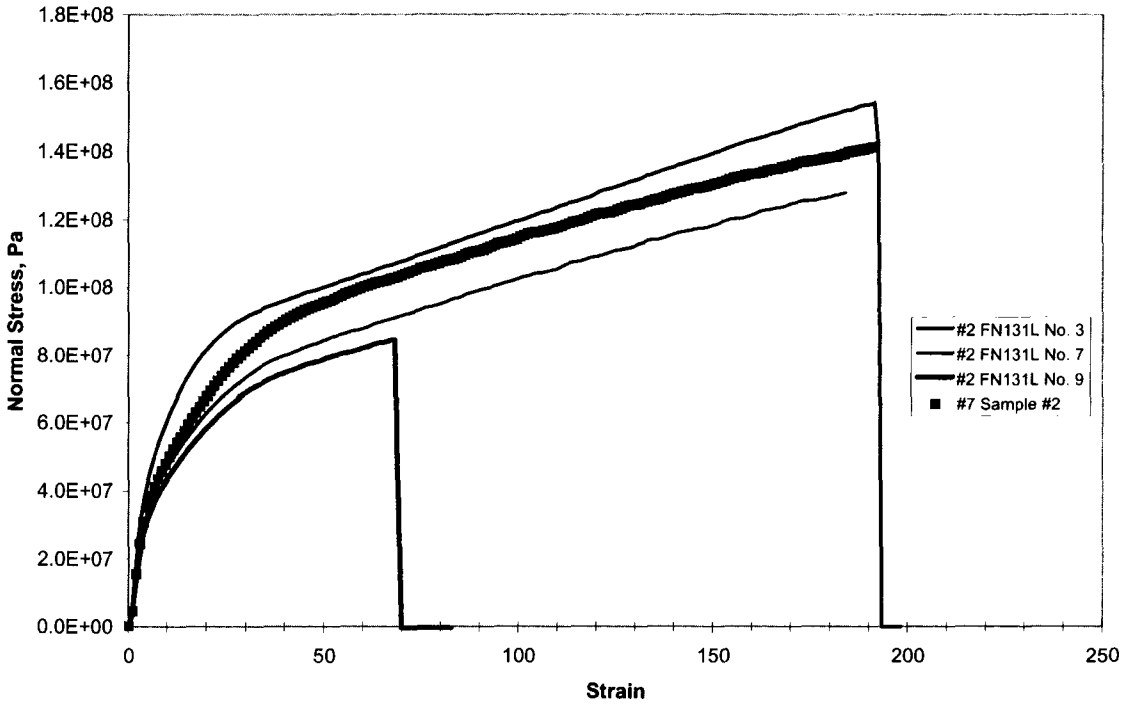
Attachment 1

Stress-Strain Behavior
of
Pristine Kapton Film

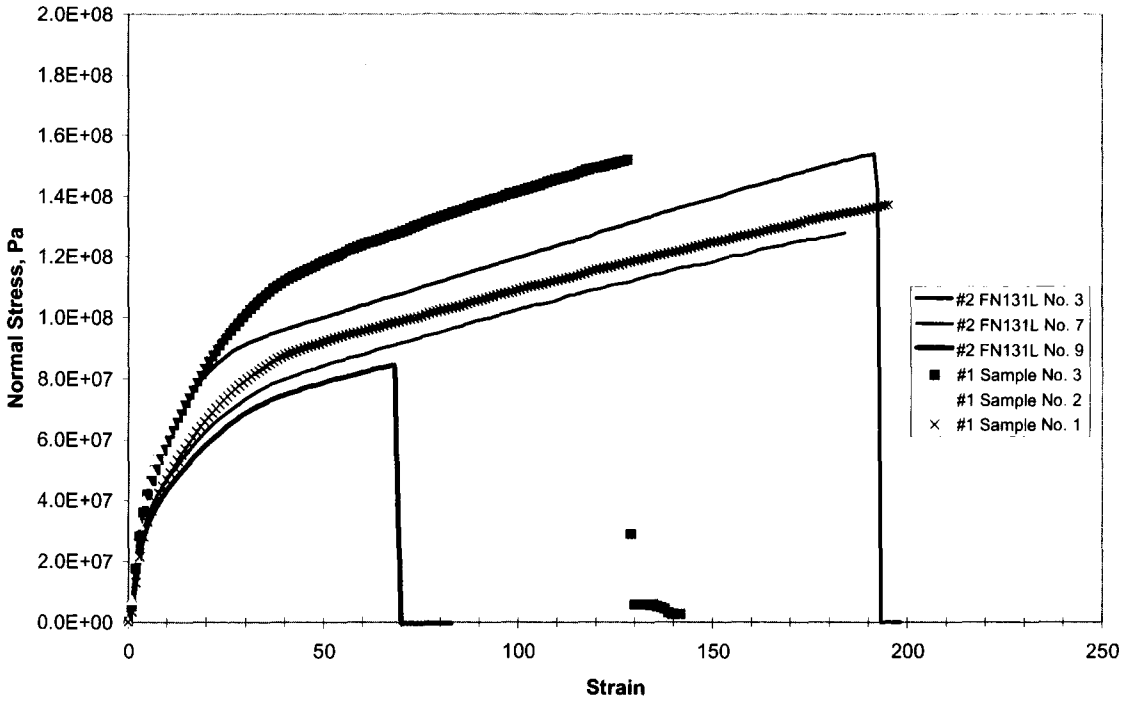

Stress Strain Behavior of Pristine 5 mil Kapton
Normal Stress, Pa
1.8E+08
1.6E+08
1.4E+08
1.2E+08
1.0E+08
8.0E+07
6.0E+07
4.0E+07
2.0E+07
0.0E+00
0
50
100
150
200
250
Strain
#2 FN131L No. 3
#2 FN131L No. 4
#2 FN131L No. 5
#2 FN131L No. 6
#2 FN131L No. 7
#2 FN131L No. 8
#2 FN131L No. 9
#2 FN131L No. 10
#2 FN131L No. 11

Stress-Strain Behavior
of
Likely Good Kapton Seals

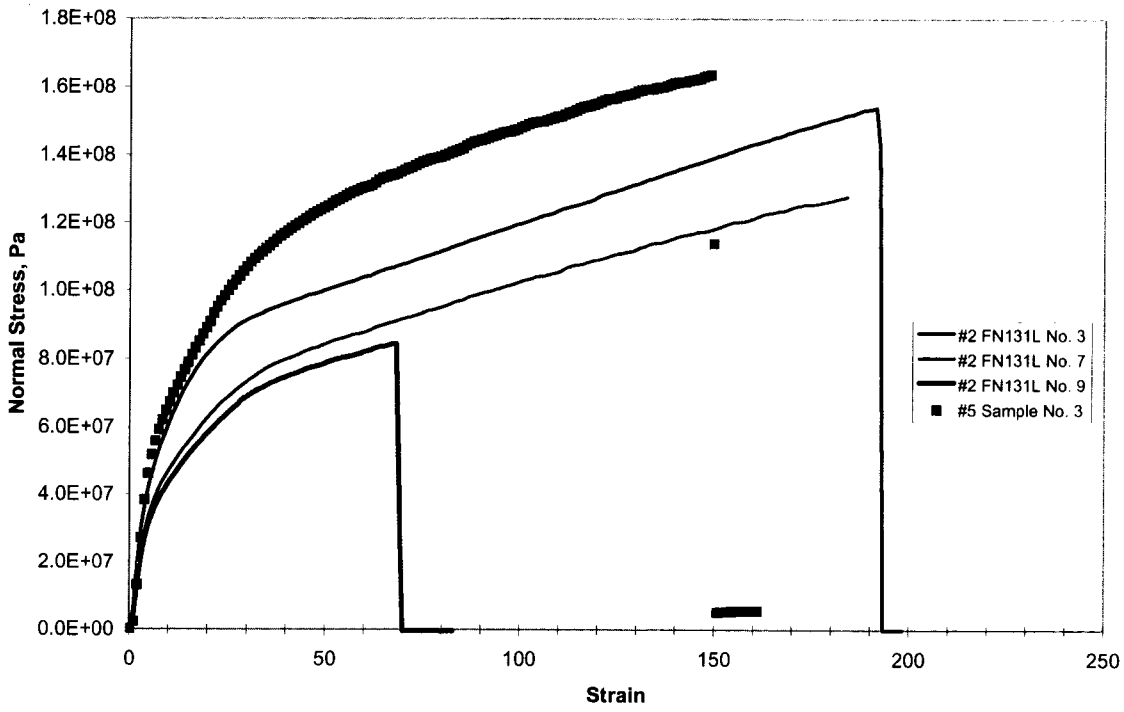
Stress Strain Behavior of #7 Kapton Films (Likely Good)



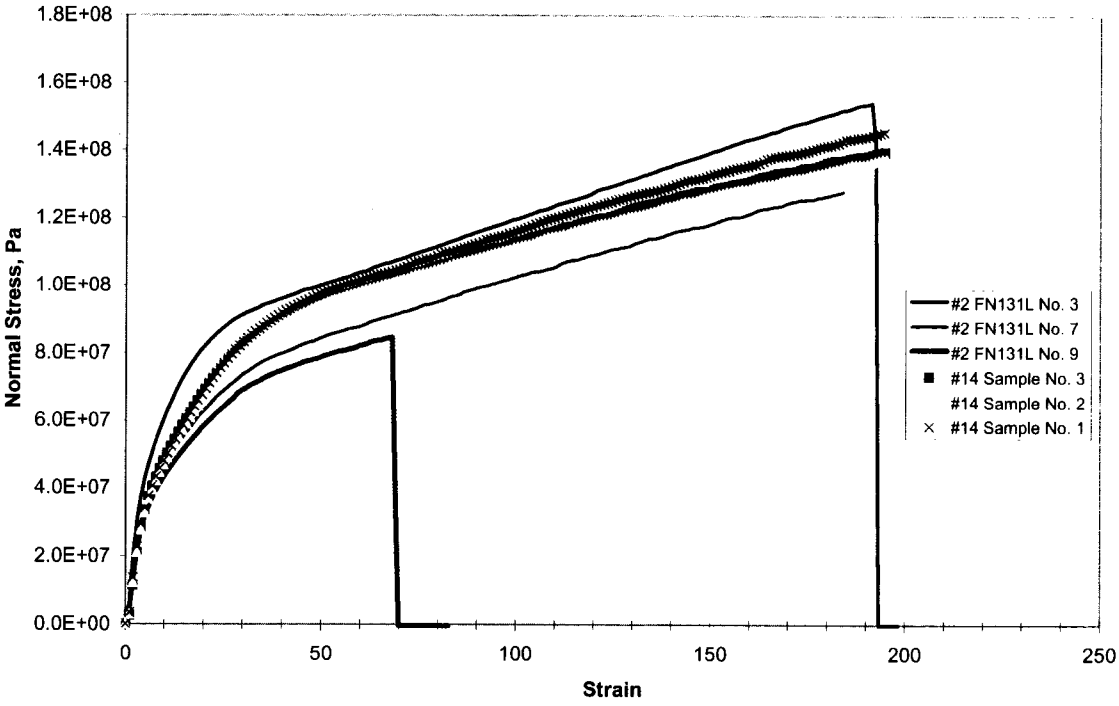
Stress Strain Behavior of #1 Kapton Films (Likely Good)



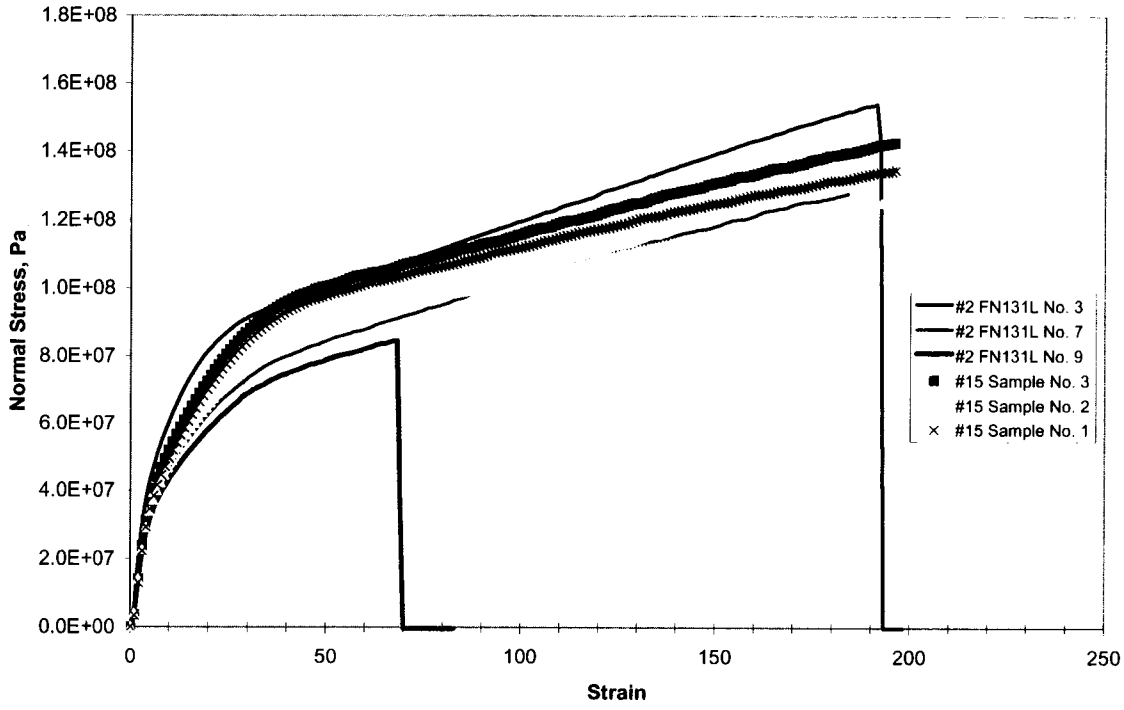
Stress Strain Behavior of #5 Kapton Films (Likely Good)



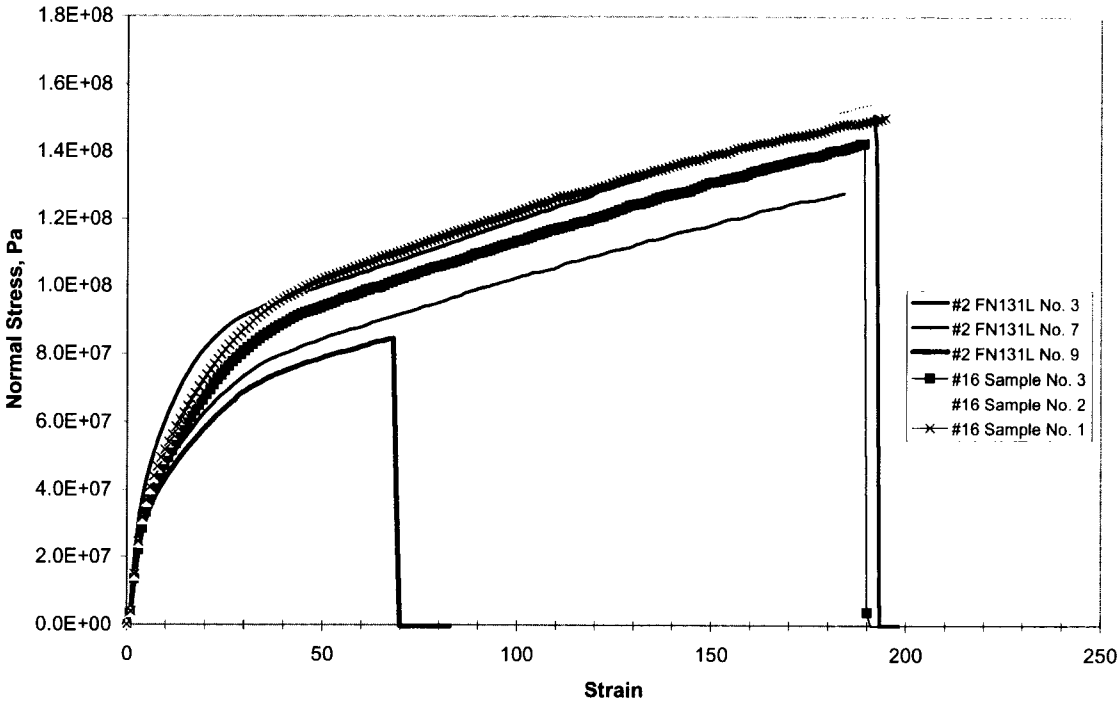
Stress Strain Behavior of #14 Kapton Films (Likely Good)

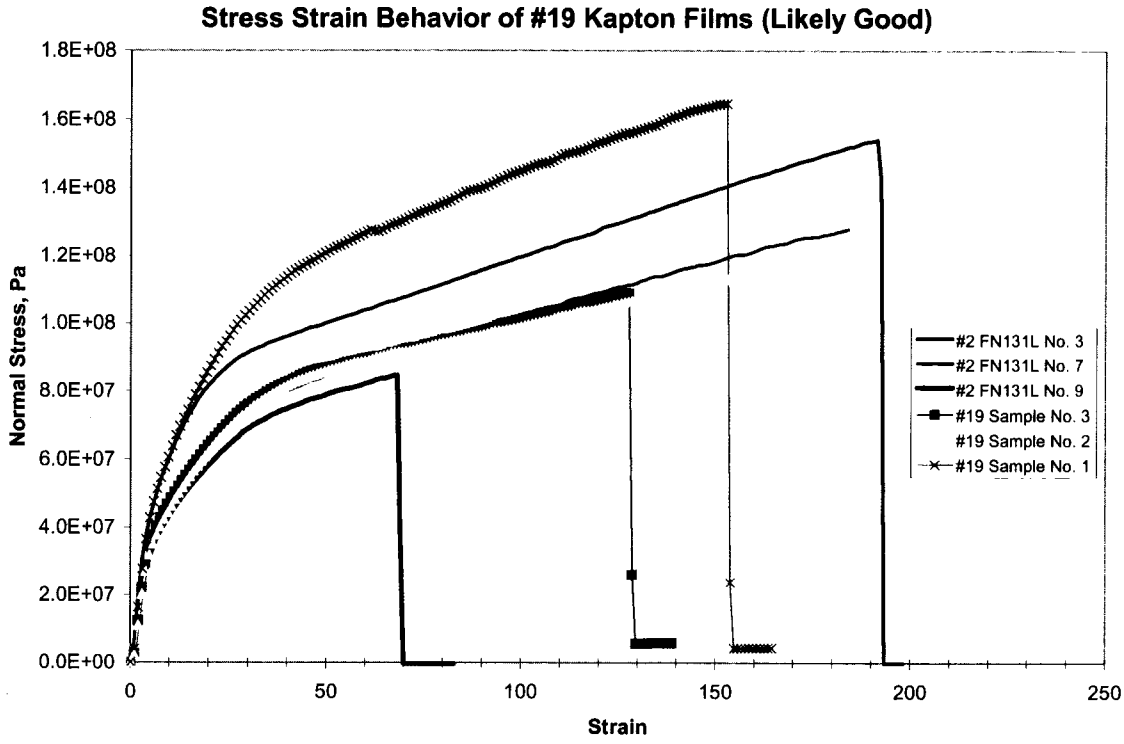


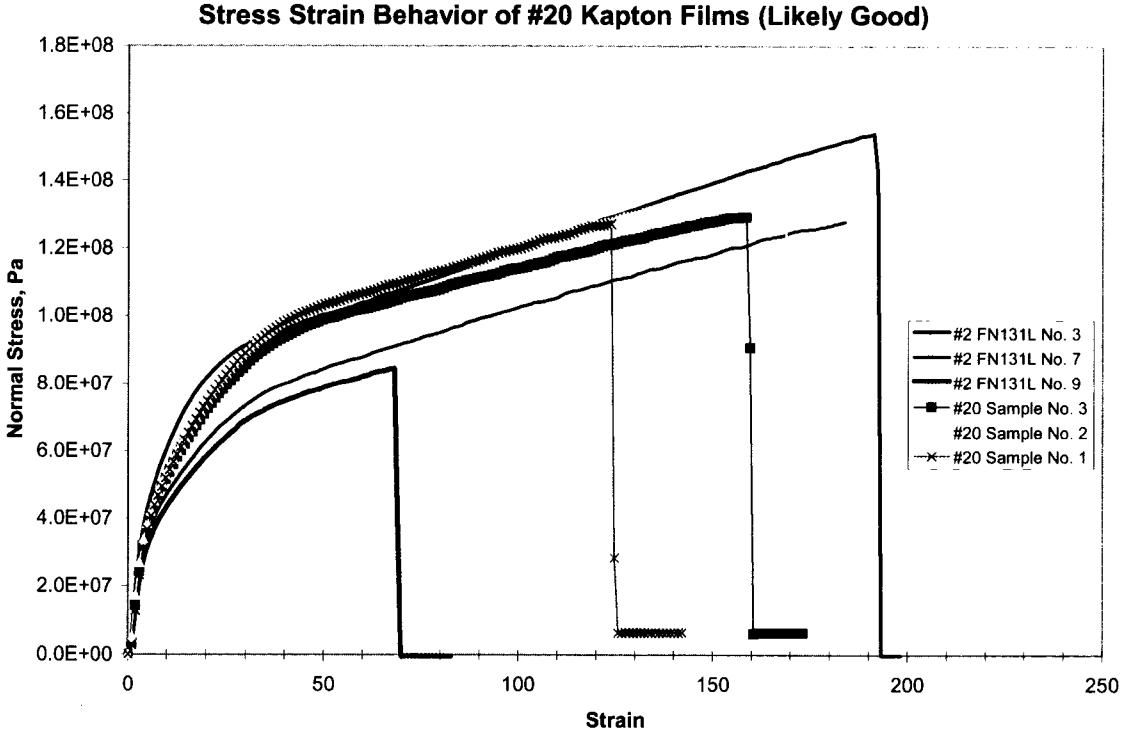
Stress Strain Behavior of #15 Kapton Films (Likely Good)

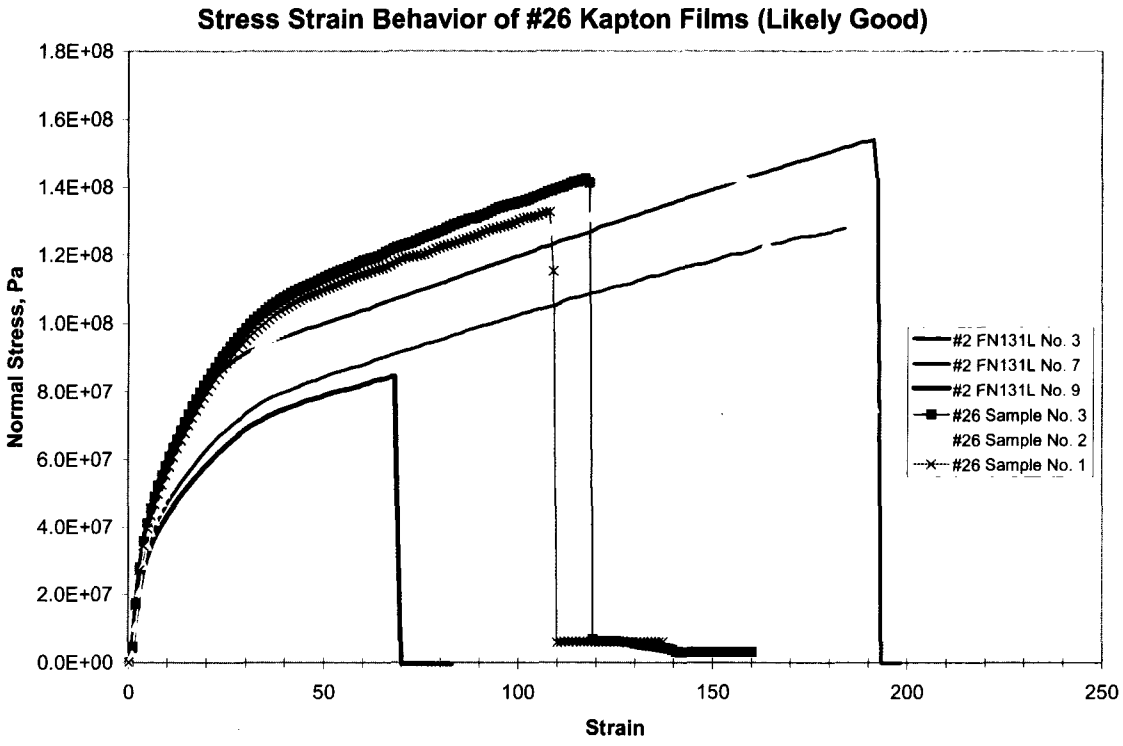


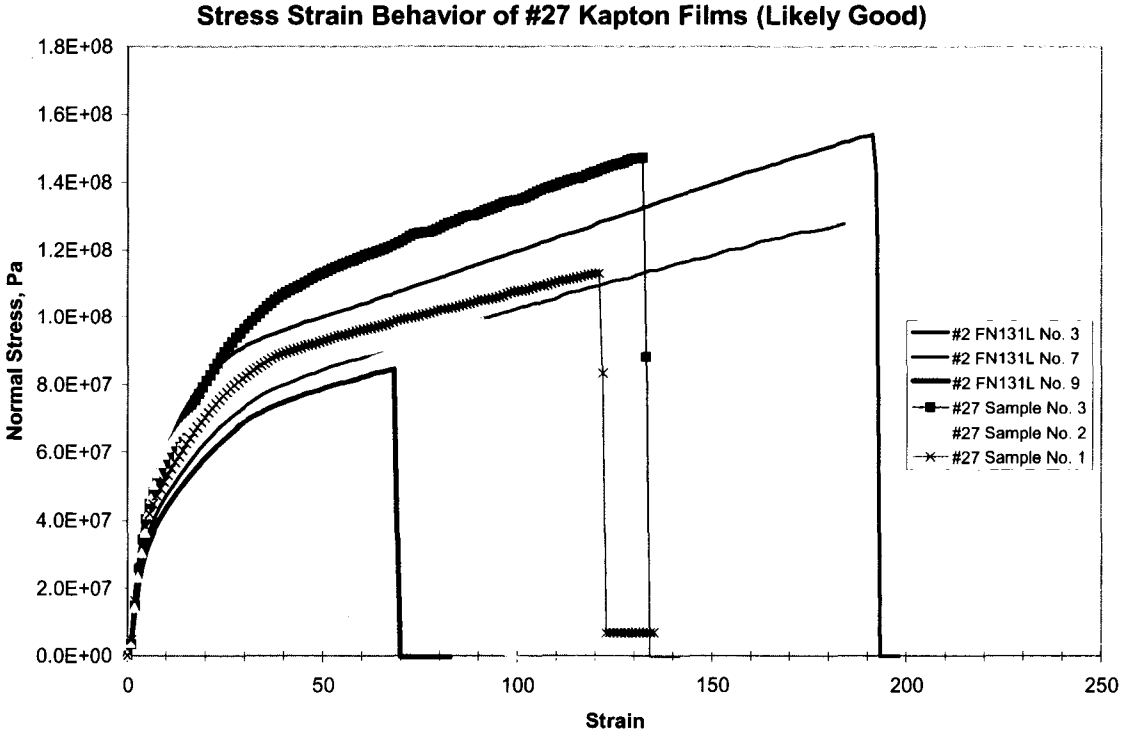
Stress Strain Behavior of #16 Kapton Films (Likely Good)

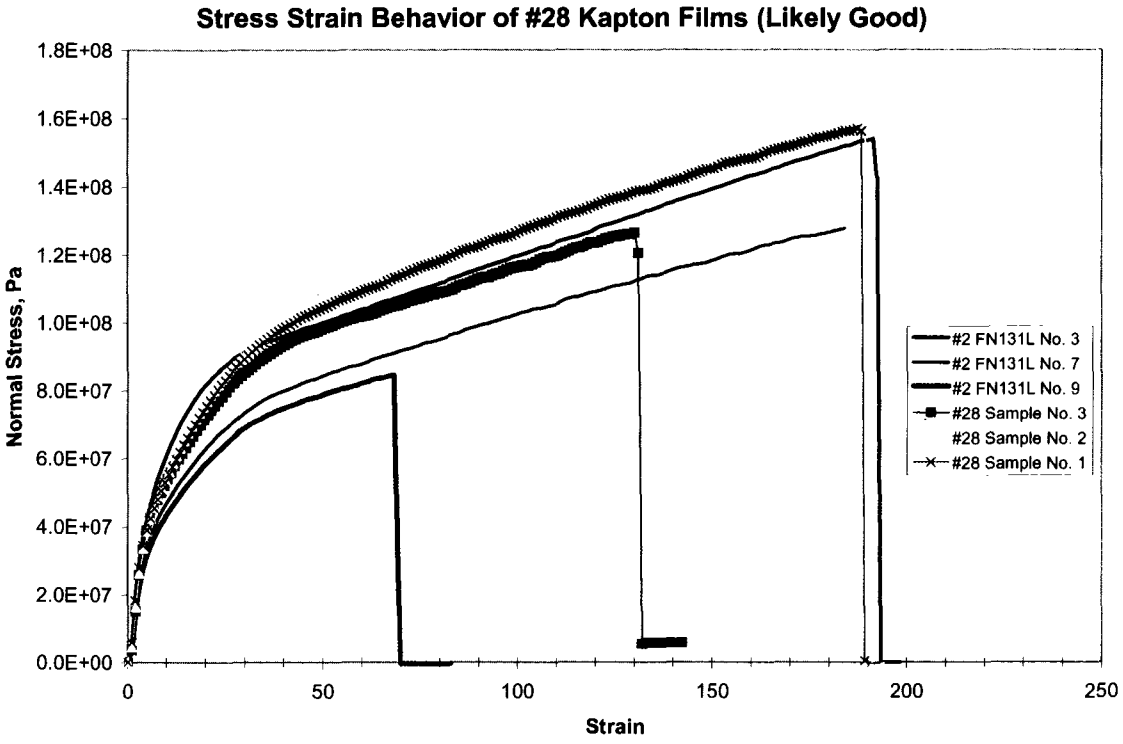


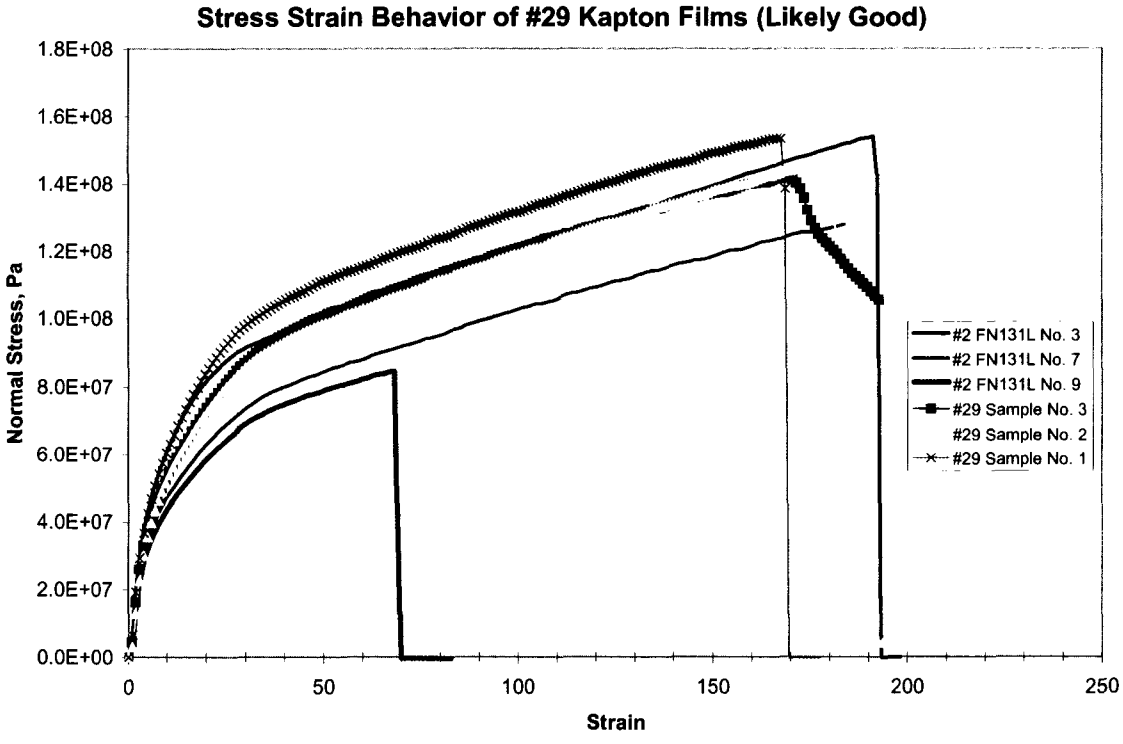

Stress Strain Behavior of #19 Kapton Films (Likely Good)
Normal Stress, Pa
1.8E+08
1.6E+08
1.4E+08
1.2E+08
1.0E+08
8.0E+07
6.0E+07
4.0E+07
2.0E+07
0.0E+00
0
50
100
150
200
250
Strain
#2 FN131L No. 3
#2 FN131L No. 7
#2 FN131L No. 9
#19 Sample No. 3
#19 Sample No. 2
#19 Sample No. 1

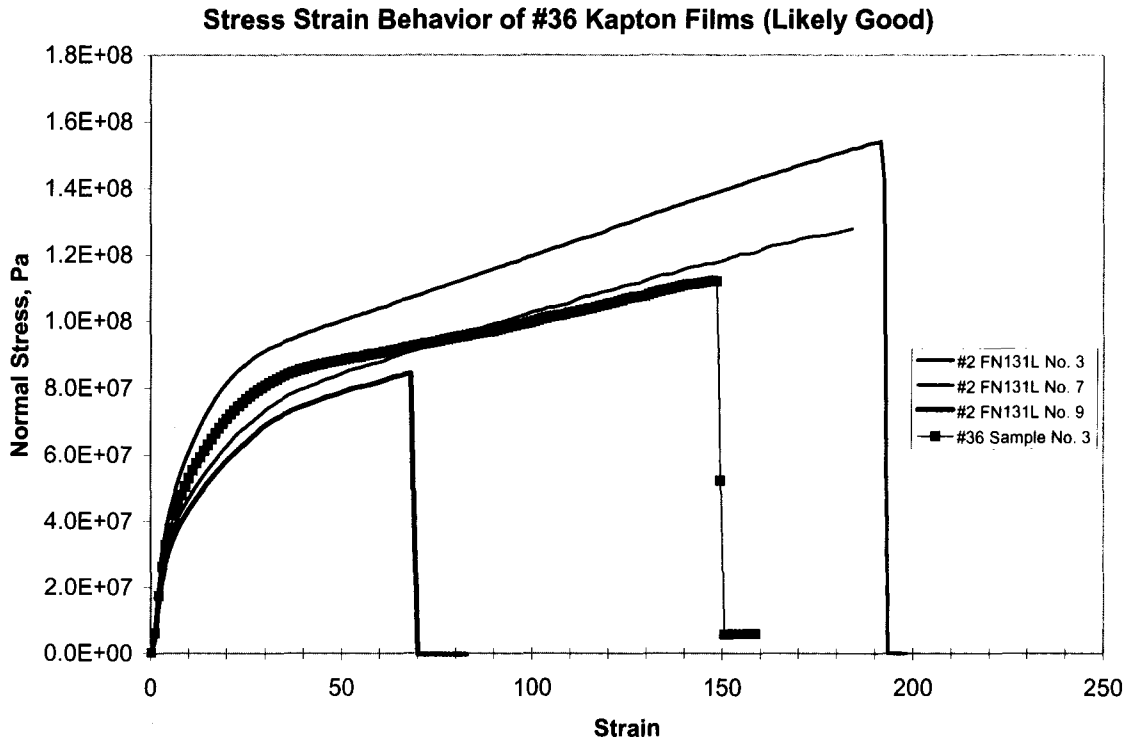

Stress Strain Behavior of #20 Kapton Films (Likely Good)
Normal Stress, Pa
1.8E+08
1.6E+08
1.4E+08
1.2E+08
1.0E+08
8.0E+07
6.0E+07
4.0E+07
2.0E+07
0.0E+00
0
50
100
150
200
250
Strain
#2 FN131L No. 3
#2 FN131L No. 7
#2 FN131L No. 9
#20 Sample No. 3
#20 Sample No. 2
#20 Sample No. 1

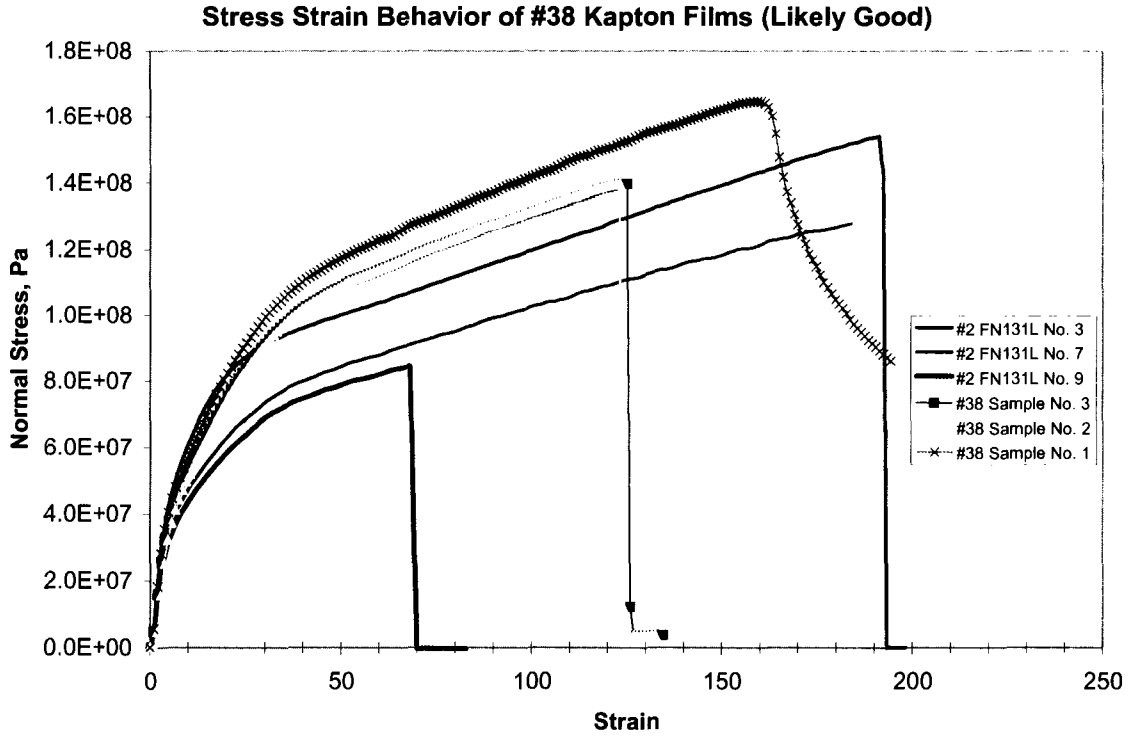

Stress Strain Behavior of #26 Kapton Films (Likely Good)
Normal Stress, Pa
1.8E+08
1.6E+08
1.4E+08
1.2E+08
1.0E+08
8.0E+07
6.0E+07
4.0E+07
2.0E+07
0.0E+00
0
50
100
150
200
250
Strain
#2 FN131L No. 3
#2 FN131L No. 7
#2 FN131L No. 9
#26 Sample No. 3
#26 Sample No. 2
#26 Sample No. 1

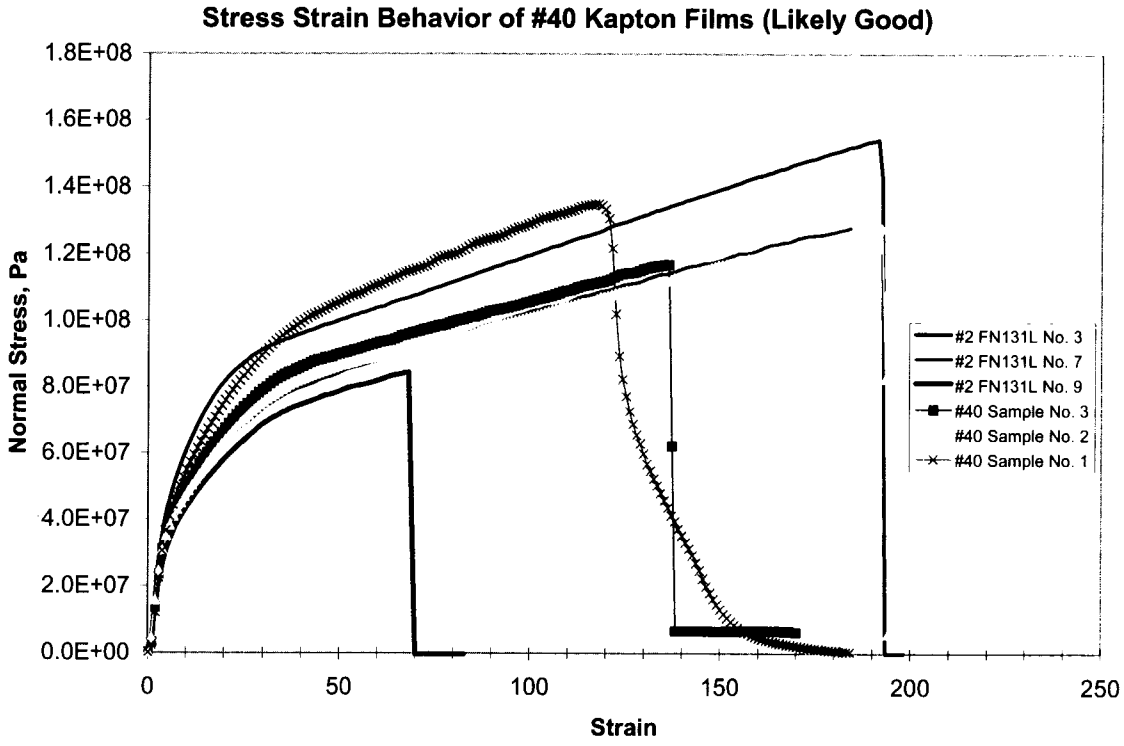

Stress Strain Behavior of #27 Kapton Films (Likely Good)
Normal Stress, Pa
1.8E+08
1.6E+08
1.4E+08
1.2E+08
1.0E+08
8.0E+07
6.0E+07
4.0E+07
2.0E+07
0.0E+00
0
50
100
150
200
250
Strain
#2 FN131L No. 3
#2 FN131L No. 7
#2 FN131L No. 9
#27 Sample No. 3
#27 Sample No. 2
#27 Sample No. 1


Stress Strain Behavior of #28 Kapton Films (Likely Good)
Normal Stress, Pa
1.8E+08
1.6E+08
1.4E+08
1.2E+08
1.0E+08
8.0E+07
6.0E+07
4.0E+07
2.0E+07
0.0E+00
0
50
100
150
200
250
Strain
#2 FN131L No. 3
#2 FN131L No. 7
#2 FN131L No. 9
#28 Sample No. 3
#28 Sample No. 2
#28 Sample No. 1


Stress Strain Behavior of #29 Kapton Films (Likely Good)
Normal Stress, Pa
1.8E+08
1.6E+08
1.4E+08
1.2E+08
1.0E+08
8.0E+07
6.0E+07
4.0E+07
2.0E+07
0.0E+00
0
50
100
150
200
250
Strain
#2 FN131L No. 3
#2 FN131L No. 7
#2 FN131L No. 9
#29 Sample No. 3
#29 Sample No. 2
#29 Sample No. 1

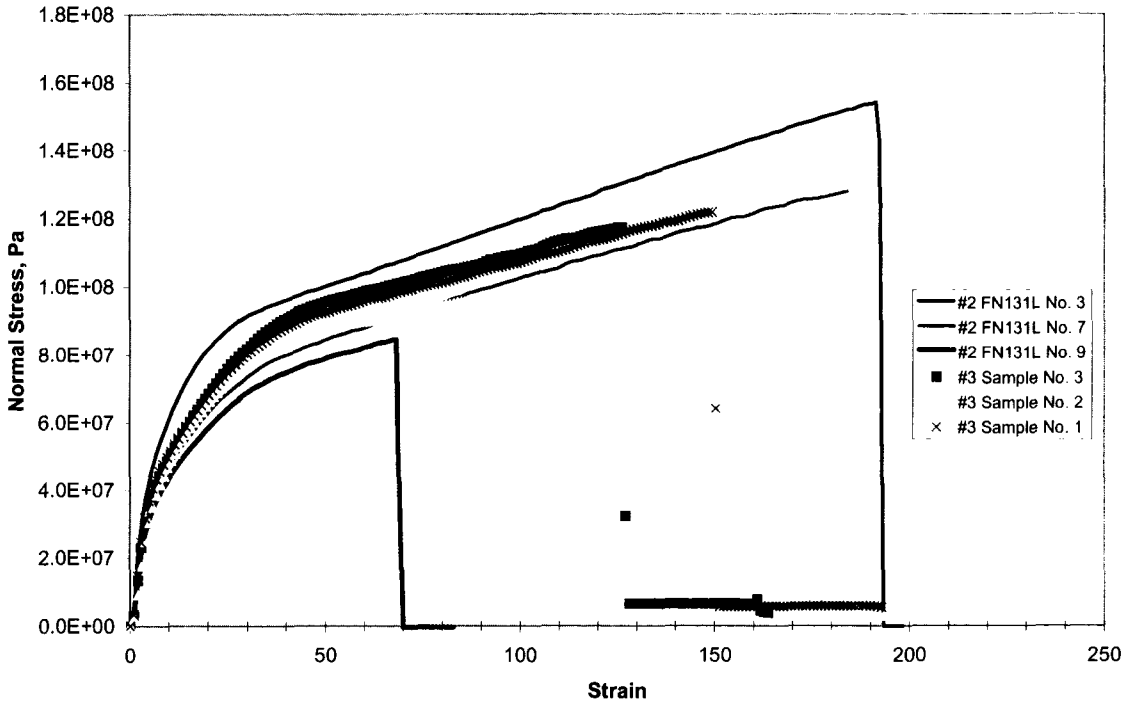

Stress Strain Behavior of #36 Kapton Films (Likely Good)
Normal Stress, Pa
1.8E+08
1.6E+08
1.4E+08
1.2E+08
1.0E+08
8.0E+07
6.0E+07
4.0E+07
2.0E+07
0.0E+00
0
50
100
150
200
250
Strain
#2 FN131L No. 3
#2 FN131L No. 7
#2 FN131L No. 9
#36 Sample No. 3


Stress Strain Behavior of #38 Kapton Films (Likely Good)
Normal Stress, Pa
1.8E+08
1.6E+08
1.4E+08
1.2E+08
1.0E+08
8.0E+07
6.0E+07
4.0E+07
2.0E+07
0.0E+00
0
50
100
150
200
250
Strain
#2 FN131L No. 3
#2 FN131L No. 7
#2 FN131L No. 9
#38 Sample No. 3
#38 Sample No. 2
#38 Sample No. 1

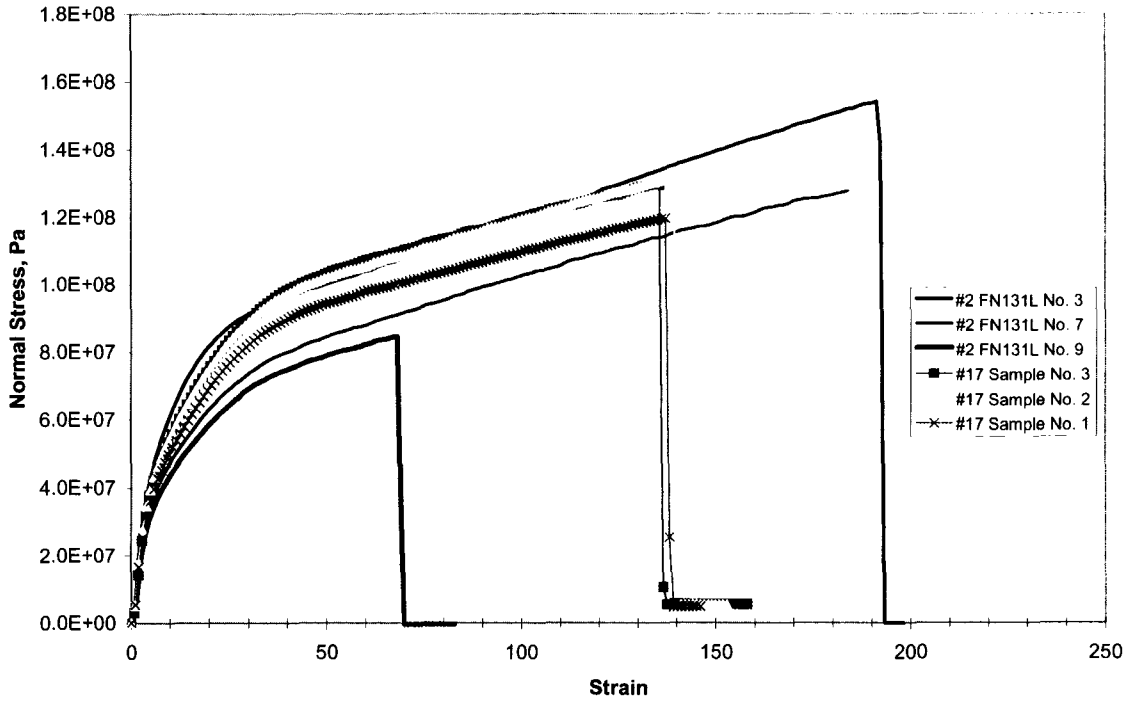

Stress Strain Behavior of #40 Kapton Films (Likely Good)
Normal Stress, Pa
1.8E+08
1.6E+08
1.4E+08
1.2E+08
1.0E+08
8.0E+07
6.0E+07
4.0E+07
2.0E+07
0.0E+00
0
50
100
150
200
250
Strain
#2 FN131L No. 3
#2 FN131L No. 7
#2 FN131L No. 9
#40 Sample No. 3
#40 Sample No. 2
#40 Sample No. 1

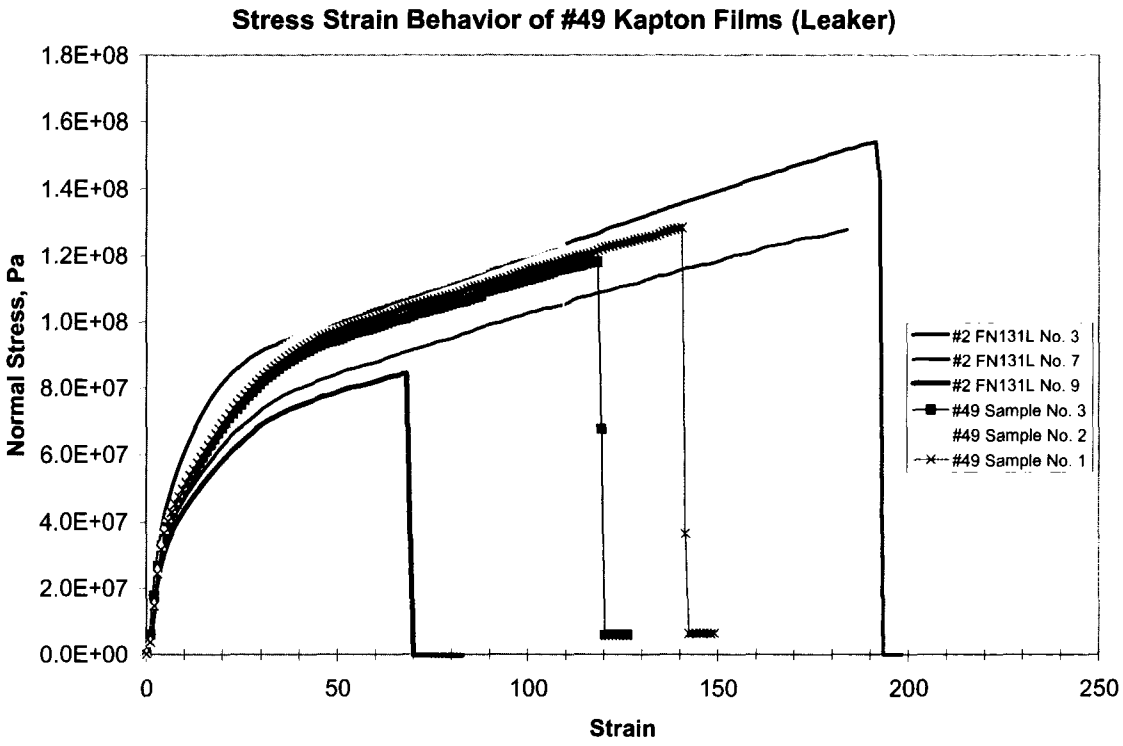
Stress-Strain Behavior
of
Leaker Kapton Seals

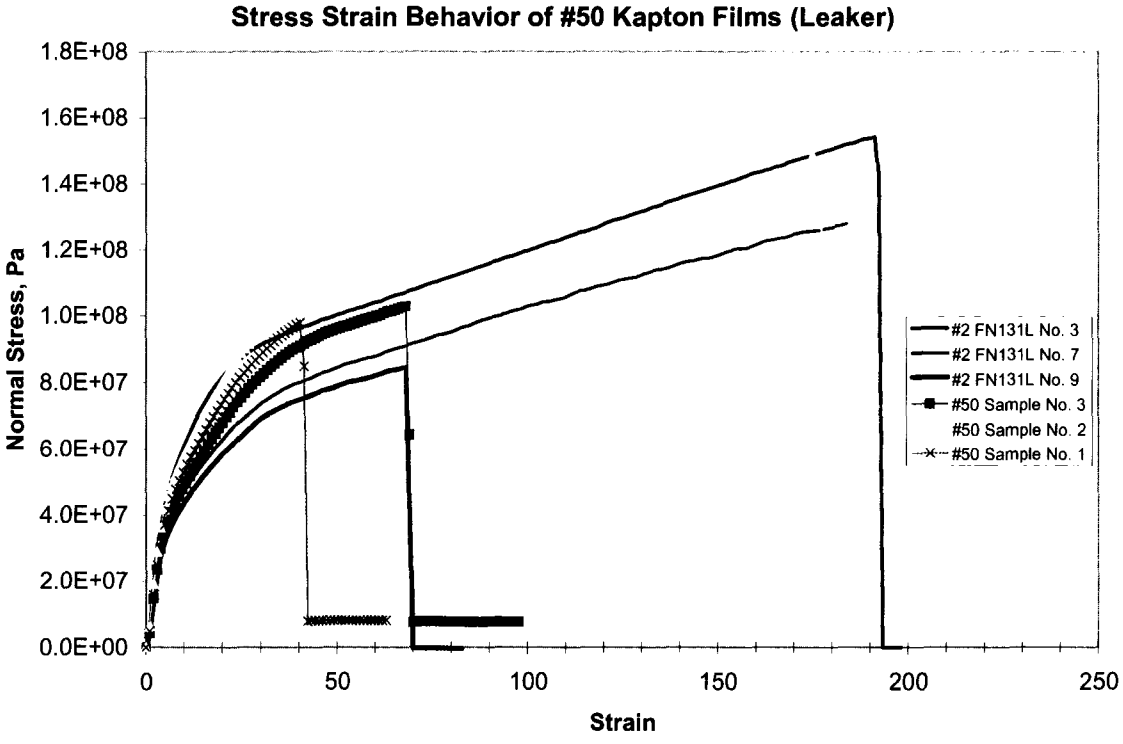
Stress Strain Behavior of #3 Kapton Films (Leaker)

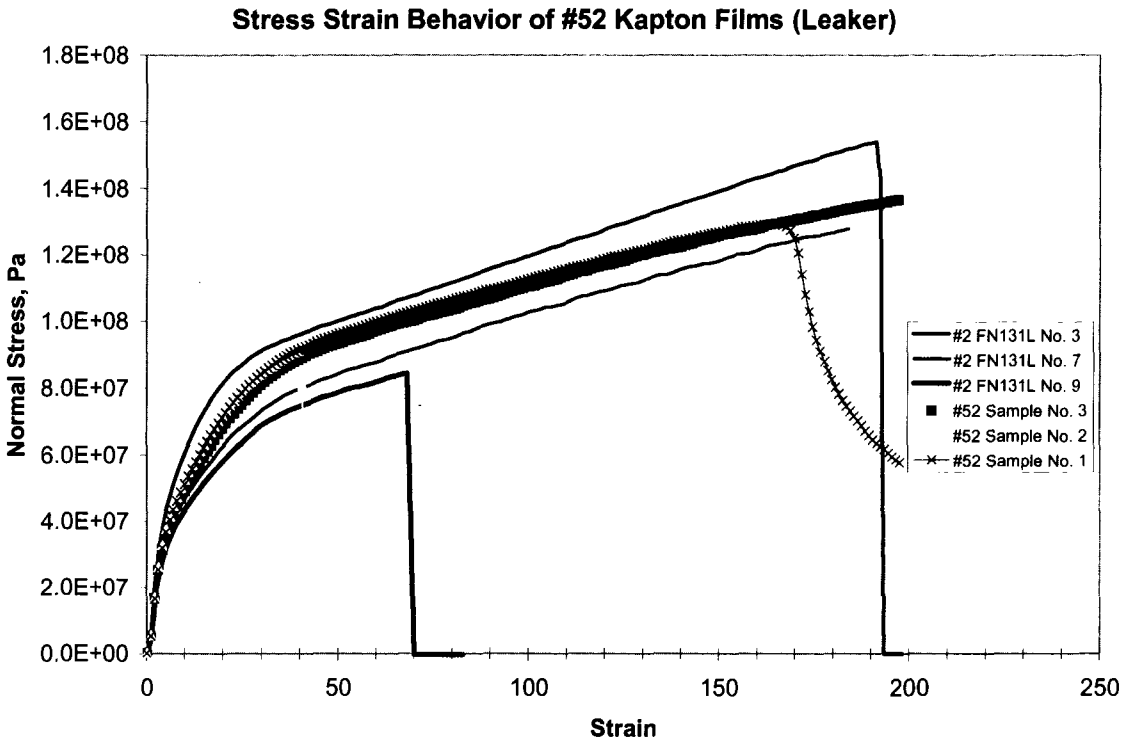


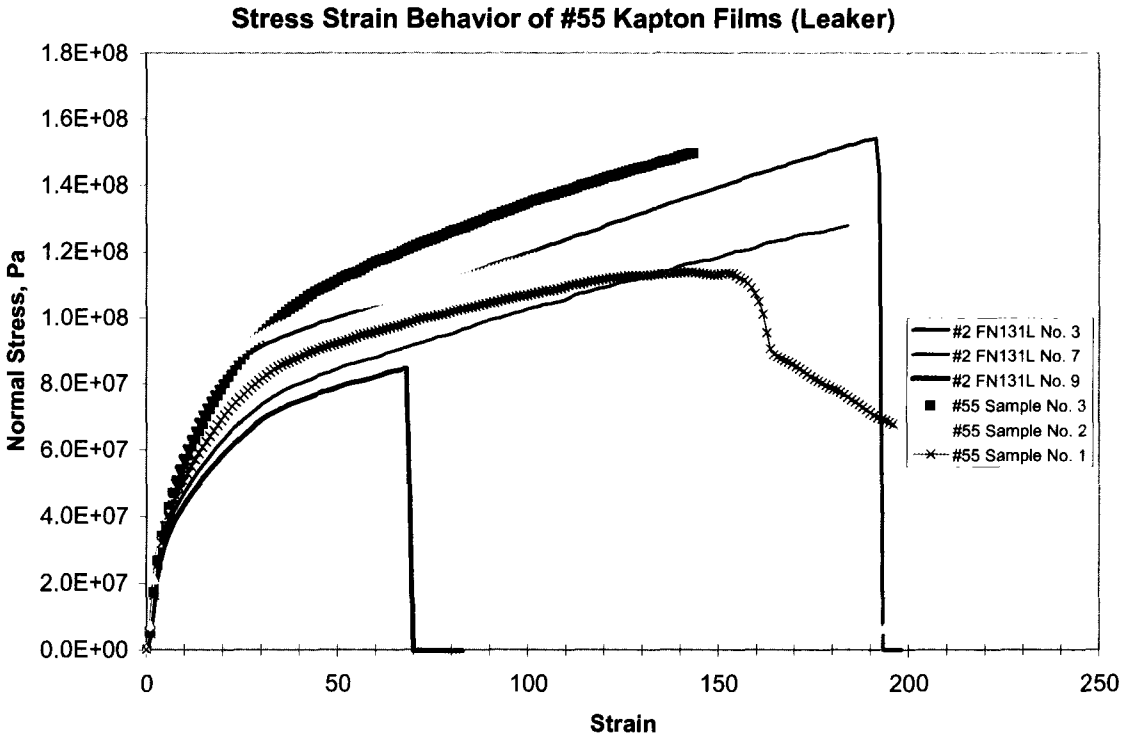
Stress Strain Behavior of #17 Kapton Films (Leaker)

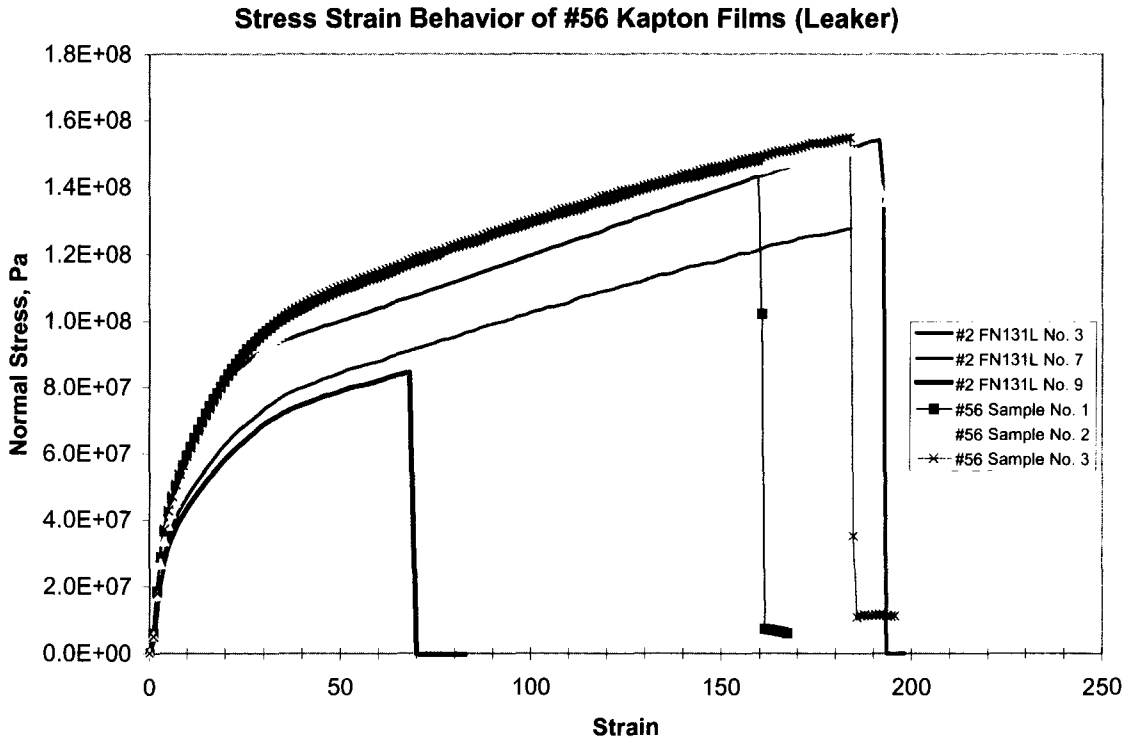


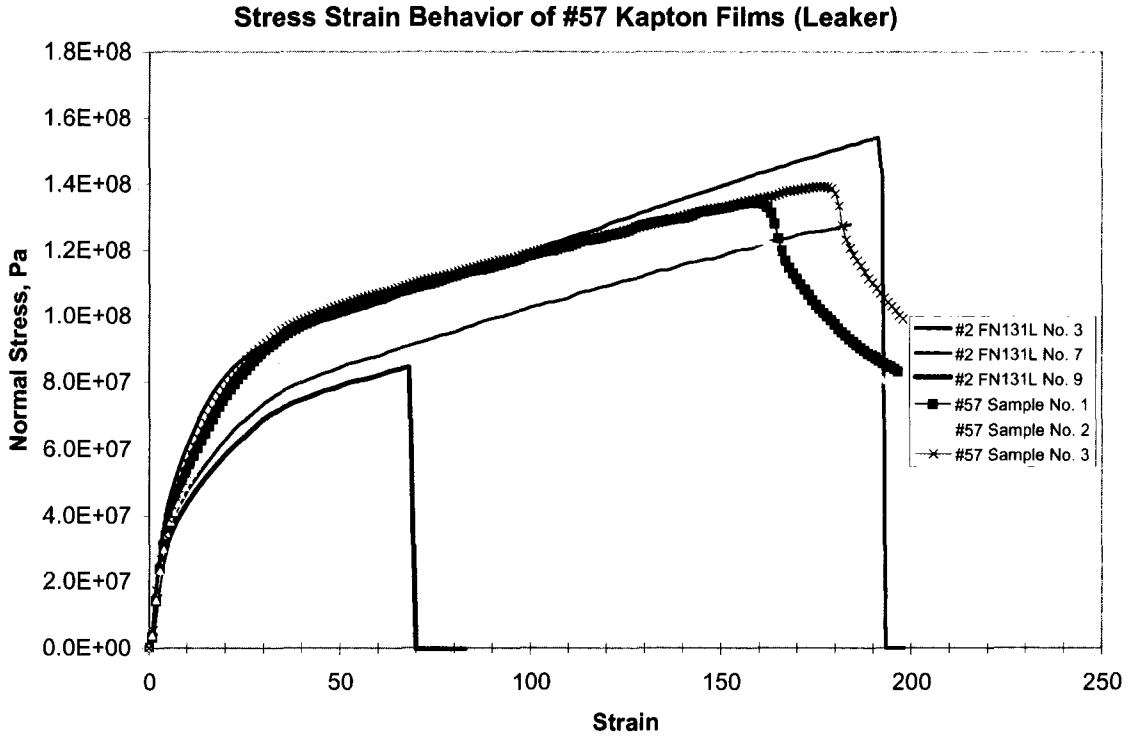

Stress Strain Behavior of #49 Kapton Films (Leaker)
Normal Stress, Pa
1.8E+08
1.6E+08
1.4E+08
1.2E+08
1.0E+08
8.0E+07
6.0E+07
4.0E+07
2.0E+07
0.0E+00
0
50
100
150
200
250
Strain
#2 FN131L No. 3
#2 FN131L No. 7
#2 FN131L No. 9
#49 Sample No. 3
#49 Sample No. 2
#49 Sample No. 1


Stress Strain Behavior of #50 Kapton Films (Leaker)
Normal Stress, Pa
1.8E+08
1.6E+08
1.4E+08
1.2E+08
1.0E+08
8.0E+07
6.0E+07
4.0E+07
2.0E+07
0.0E+00
0
50
100
150
200
250
Strain
#2 FN131L No. 3
#2 FN131L No. 7
#2 FN131L No. 9
#50 Sample No. 3
#50 Sample No. 2
#50 Sample No. 1


Stress Strain Behavior of #52 Kapton Films (Leaker)
Normal Stress, Pa
1.8E+08
1.6E+08
1.4E+08
1.2E+08
1.0E+08
8.0E+07
6.0E+07
4.0E+07
2.0E+07
0.0E+00
0
50
100
150
200
250
Strain
#2 FN131L No. 3
#2 FN131L No. 7
#2 FN131L No. 9
#52 Sample No. 3
#52 Sample No. 2
#52 Sample No. 1

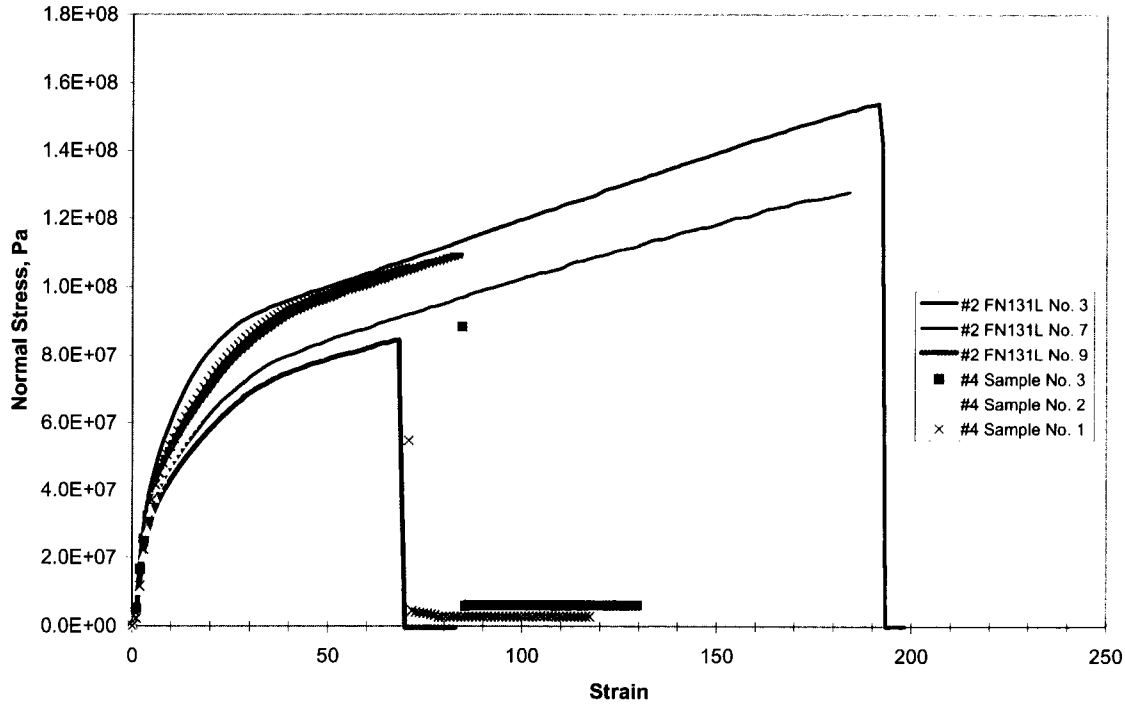

Stress Strain Behavior of #55 Kapton Films (Leaker)
Normal Stress, Pa
1.8E+08
1.6E+08
1.4E+08
1.2E+08
1.0E+08
8.0E+07
6.0E+07
4.0E+07
2.0E+07
0.0E+00
0
50
100
150
200
250
Strain
#2 FN131L No. 3
#2 FN131L No. 7
#2 FN131L No. 9
#55 Sample No. 3
#55 Sample No. 2
#55 Sample No. 1


Stress Strain Behavior of #56 Kapton Films (Leaker)
Normal Stress, Pa
1.8E+08
1.6E+08
1.4E+08
1.2E+08
1.0E+08
8.0E+07
6.0E+07
4.0E+07
2.0E+07
0.0E+00
0
50
100
150
200
250
Strain
#2 FN131L No. 3
#2 FN131L No. 7
#2 FN131L No. 9
#56 Sample No. 1
#56 Sample No. 2
#56 Sample No. 3

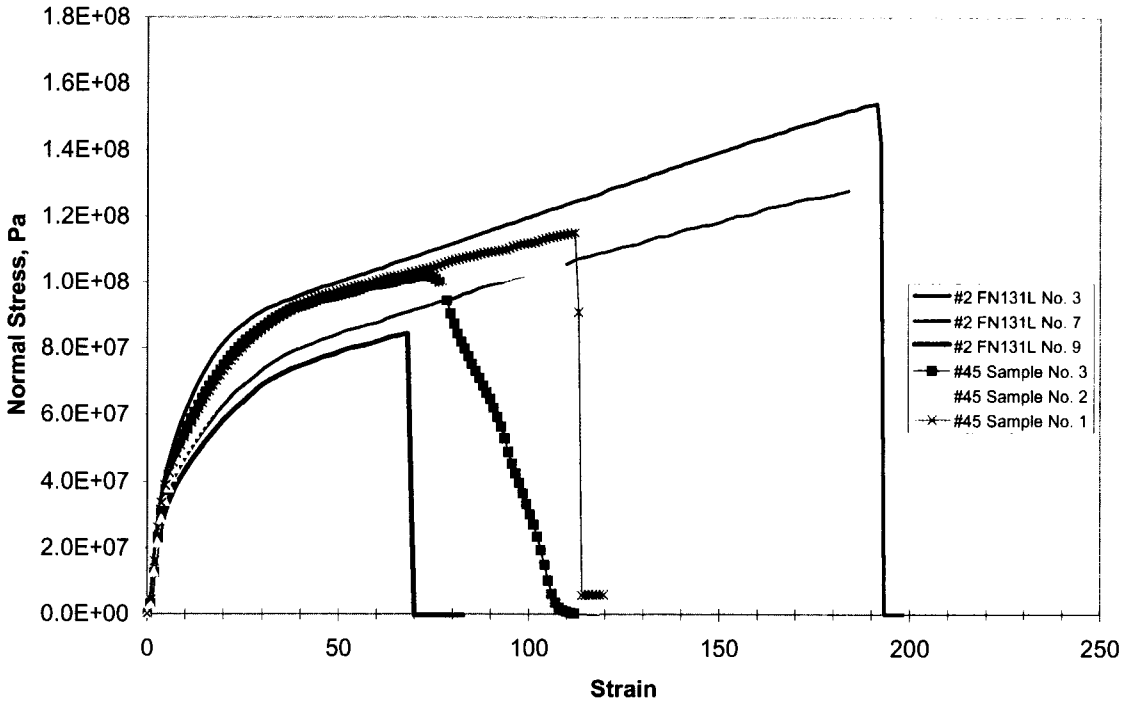

Stress Strain Behavior of #57 Kapton Films (Leaker)
Normal Stress, Pa
1.8E+08
1.6E+08
1.4E+08
1.2E+08
1.0E+08
8.0E+07
6.0E+07
4.0E+07
2.0E+07
0.0E+00
0
50
100
150
200
250
Strain
#2 FN131L No. 3
#2 FN131L No. 7
#2 FN131L No. 9
#57 Sample No. 1
#57 Sample No. 2
#57 Sample No. 3

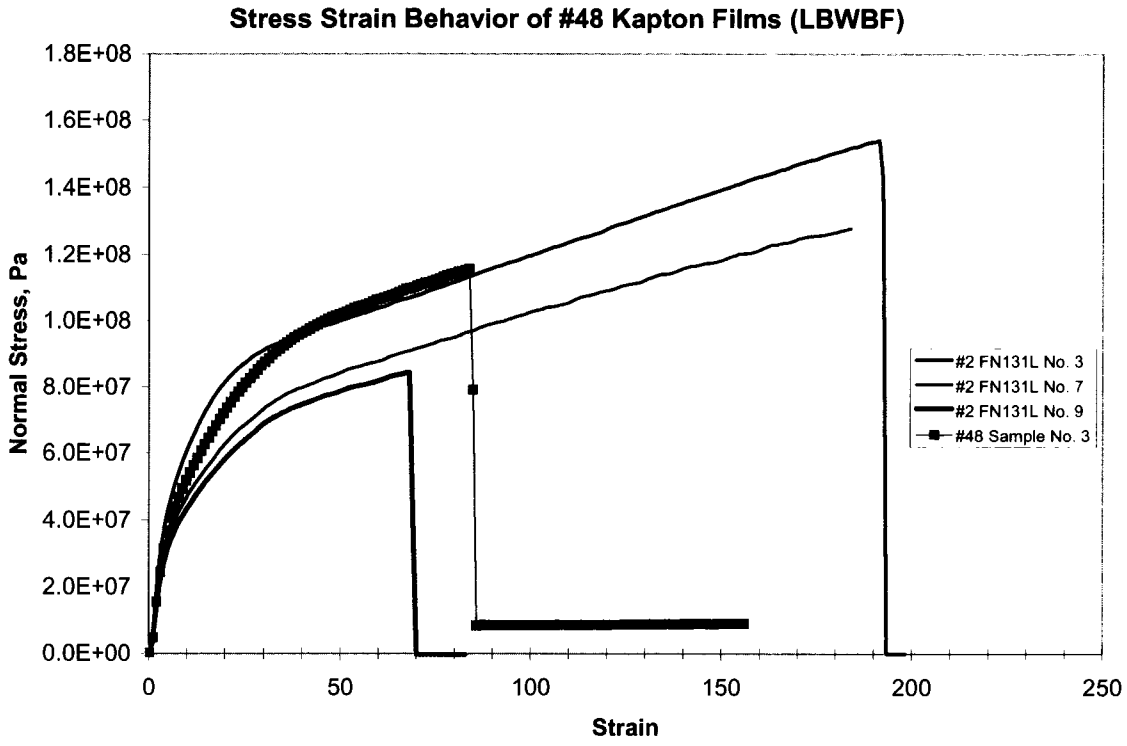
Stress-Strain Behavior
of
Light Burn with Brake Fluid (LBWBF)
Kapton Seals

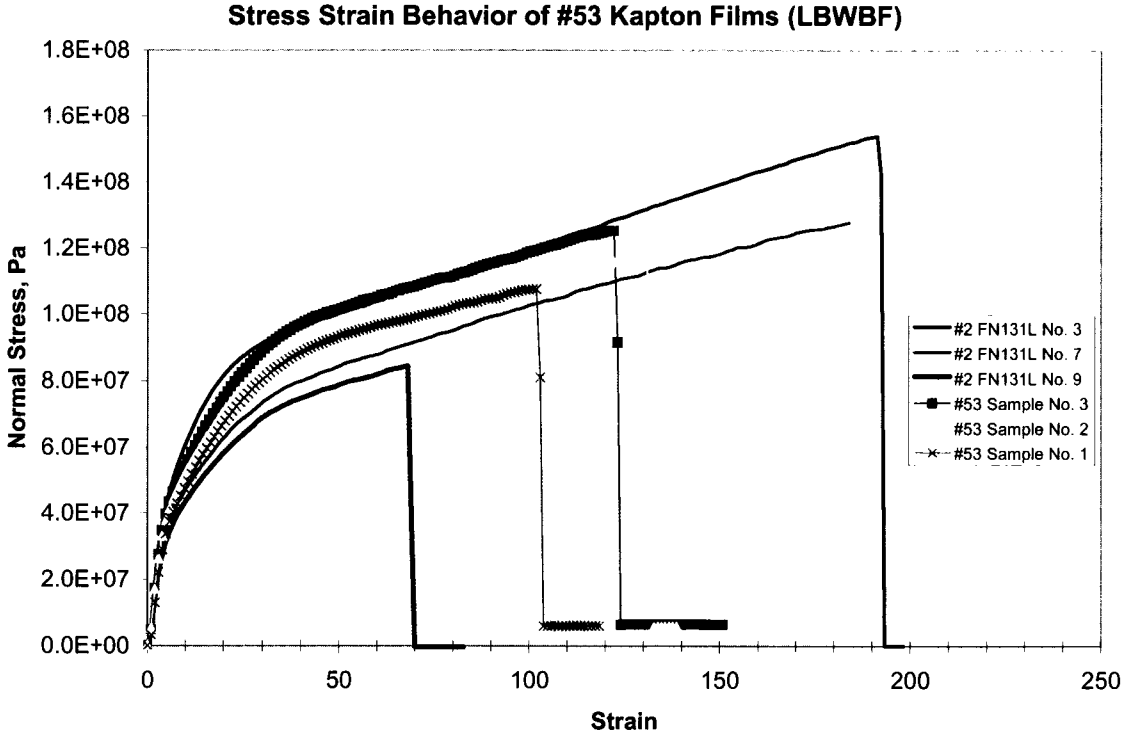
Stress Strain Behavior of #4 Kapton Films (LBWBF)

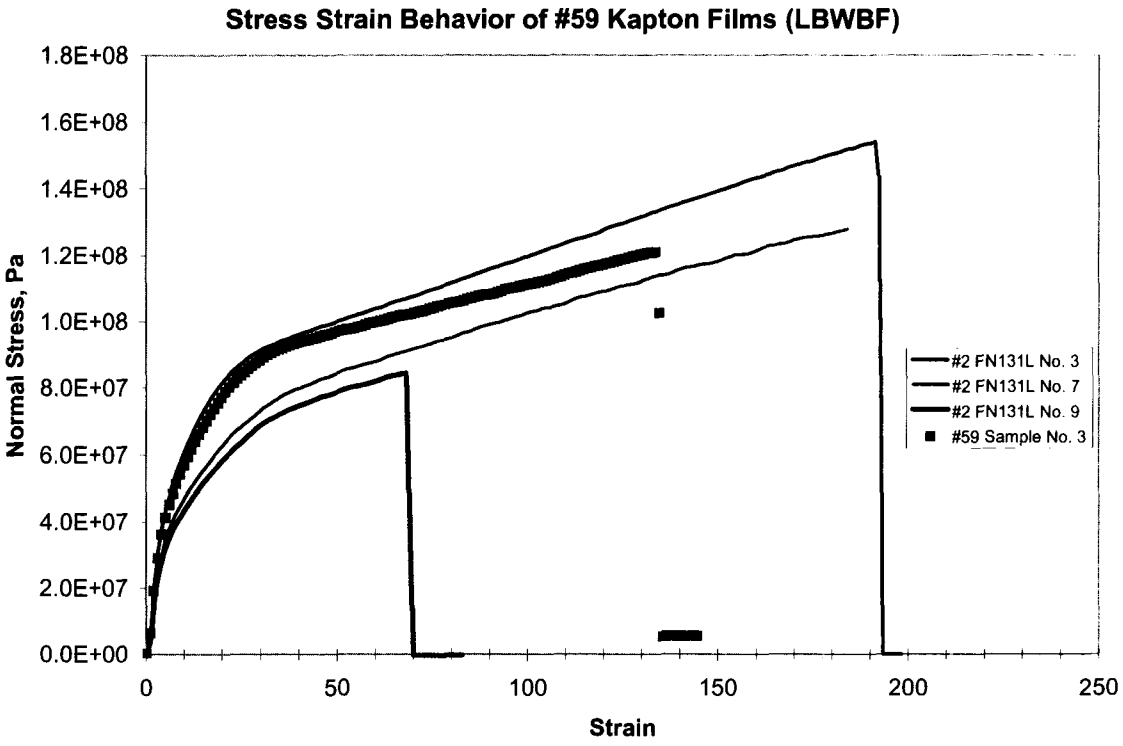


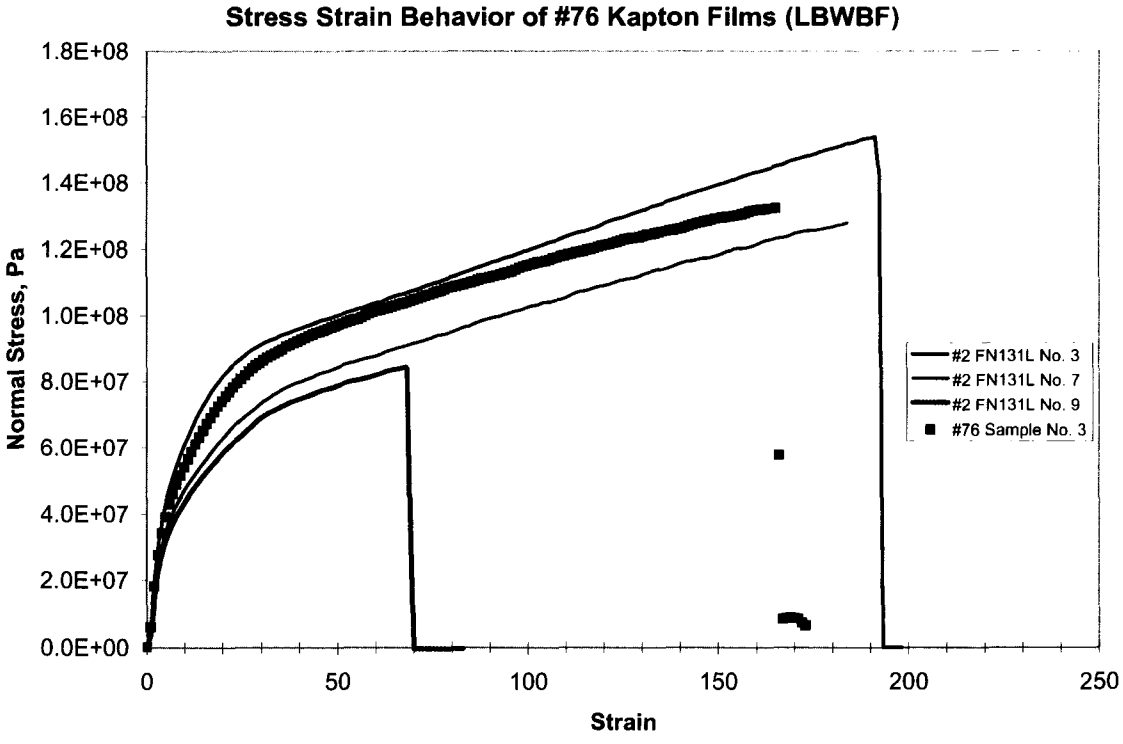
Stress Strain Behavior of #45 Kapton Films (LBWBF)

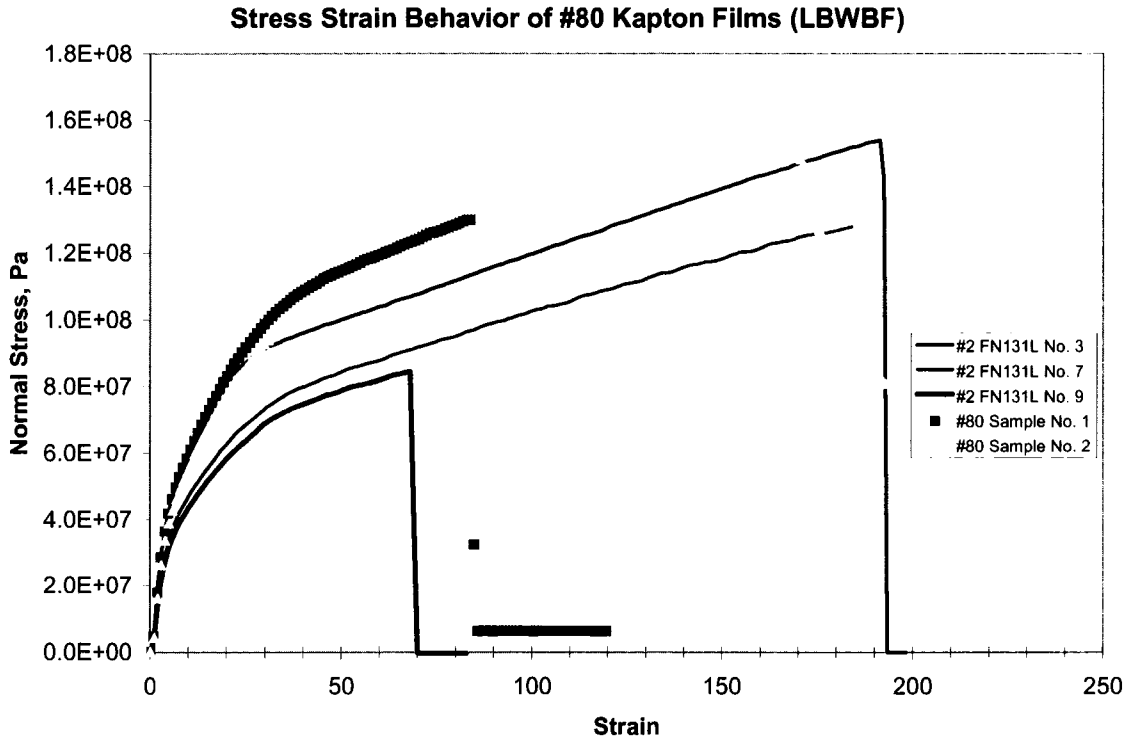



Stress Strain Behavior of #48 Kapton Films (LBWBF)
Normal Stress, Pa
1.8E+08
1.6E+08
1.4E+08
1.2E+08
1.0E+08
8.0E+07
6.0E+07
4.0E+07
2.0E+07
0.0E+00
0
50
100
150
200
250
Strain
#2 FN131L No. 3
#2 FN131L No. 7
#2 FN131L No. 9
#48 Sample No. 3


Stress Strain Behavior of #53 Kapton Films (LBWBF)
Normal Stress, Pa
1.8E+08
1.6E+08
1.4E+08
1.2E+08
1.0E+08
8.0E+07
6.0E+07
4.0E+07
2.0E+07
0.0E+00
0
50
100
150
200
250
Strain
#2 FN131L No. 3
#2 FN131L No. 7
#2 FN131L No. 9
#53 Sample No. 3
#53 Sample No. 2
#53 Sample No. 1


Stress Strain Behavior of #59 Kapton Films (LBWBF)
Normal Stress, Pa
1.8E+08
1.6E+08
1.4E+08
1.2E+08
1.0E+08
8.0E+07
6.0E+07
4.0E+07
2.0E+07
0.0E+00
0
50
100
150
200
250
Strain
#2 FN131L No. 3
#2 FN131L No. 7
#2 FN131L No. 9
#59 Sample No. 3

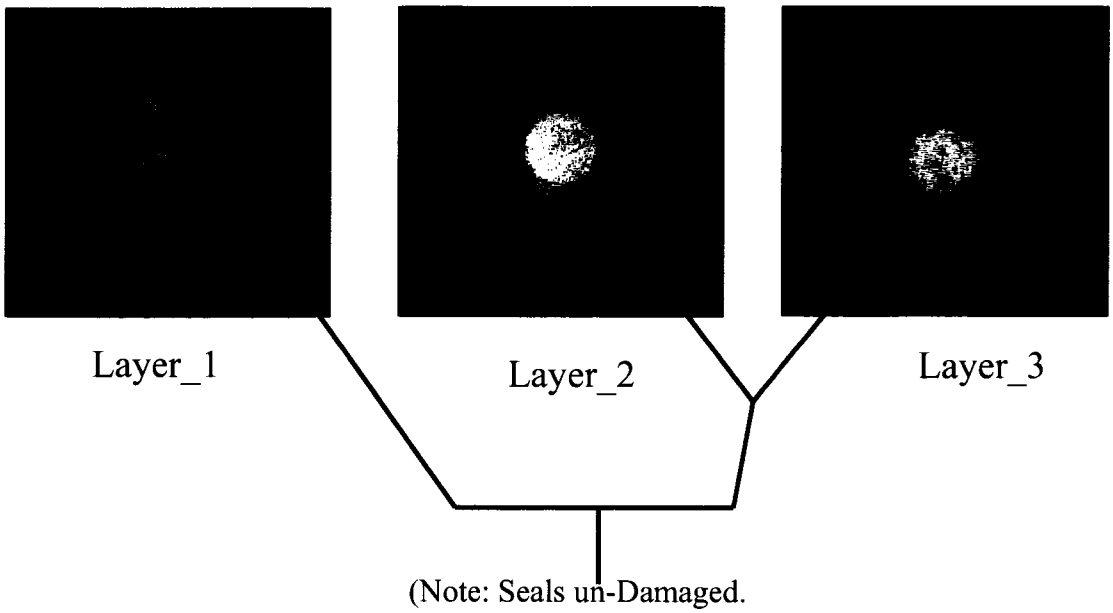

Stress Strain Behavior of #76 Kapton Films (LBWBF)
Normal Stress, Pa
1.8E+08
1.6E+08
1.4E+08
1.2E+08
1.0E+08
8.0E+07
6.0E+07
4.0E+07
2.0E+07
0.0E+00
0
50
100
150
200
250
Strain
#2 FN131L No. 3
#2 FN131L No. 7
#2 FN131L No. 9
#76 Sample No. 3


Stress Strain Behavior of #80 Kapton Films (LBWBF)
Normal Stress, Pa
1.8E+08
1.6E+08
1.4E+08
1.2E+08
1.0E+08
8.0E+07
6.0E+07
4.0E+07
2.0E+07
0.0E+00
0
50
100
150
200
250
Strain
#2 FN131L No. 3
#2 FN131L No. 7
#2 FN131L No. 9
#80 Sample No. 1
#80 Sample No. 2

Attachment 2

Likely Good

SCDS #07



Layer_1

Layer_2

Layer_3

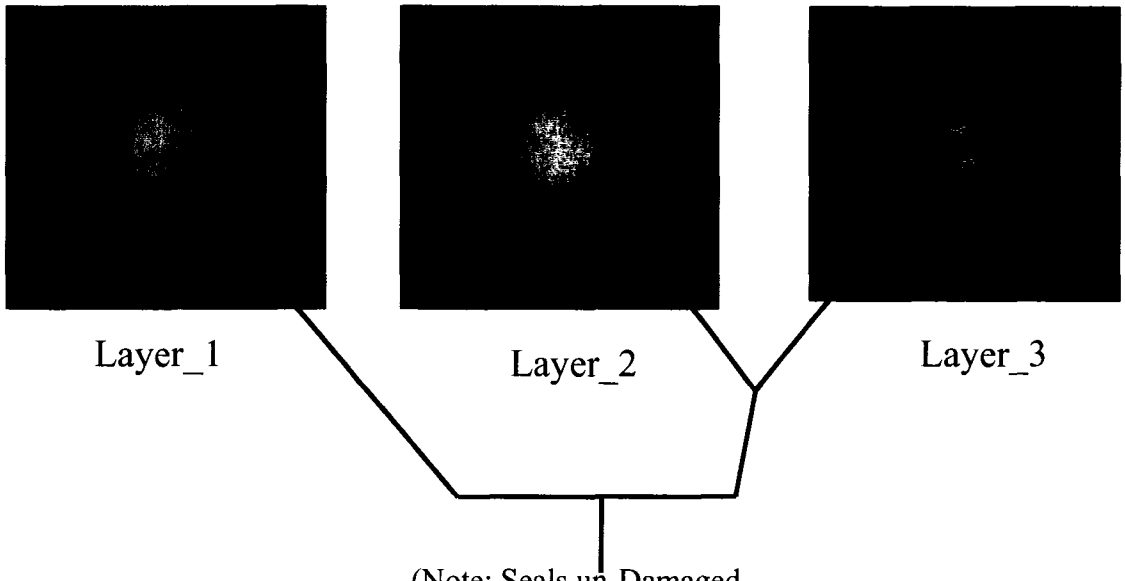
(Note: Seals un-Damaged.
Observe normal Seat Rings)

SCDS #01

Layer_1
(Note: Seal Damaged Through Normal
Wear. Observe Faint Circular Seat Ring)

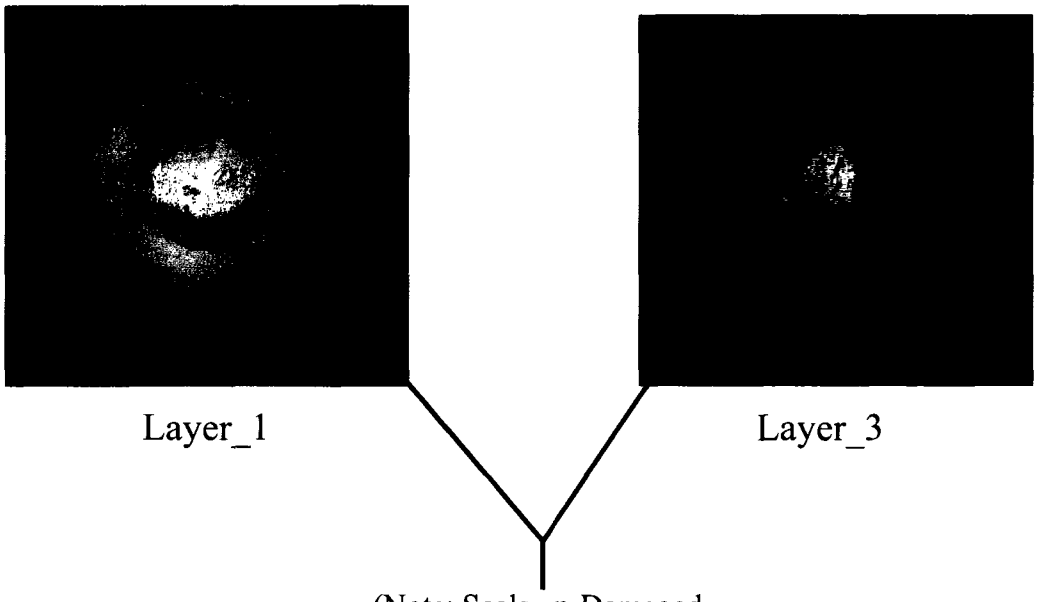
Layer_3
(Note: Seal un-Damaged.
Observe normal Seat Ring)

SCDS #05



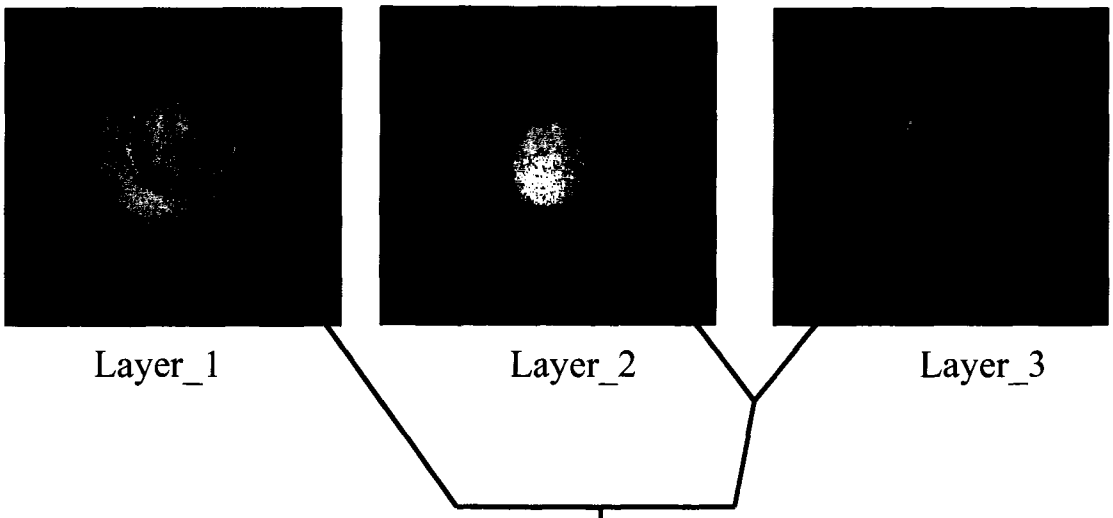
(Note: Seals un-Damaged.
Observe normal Seat Rings)

SCDS #10



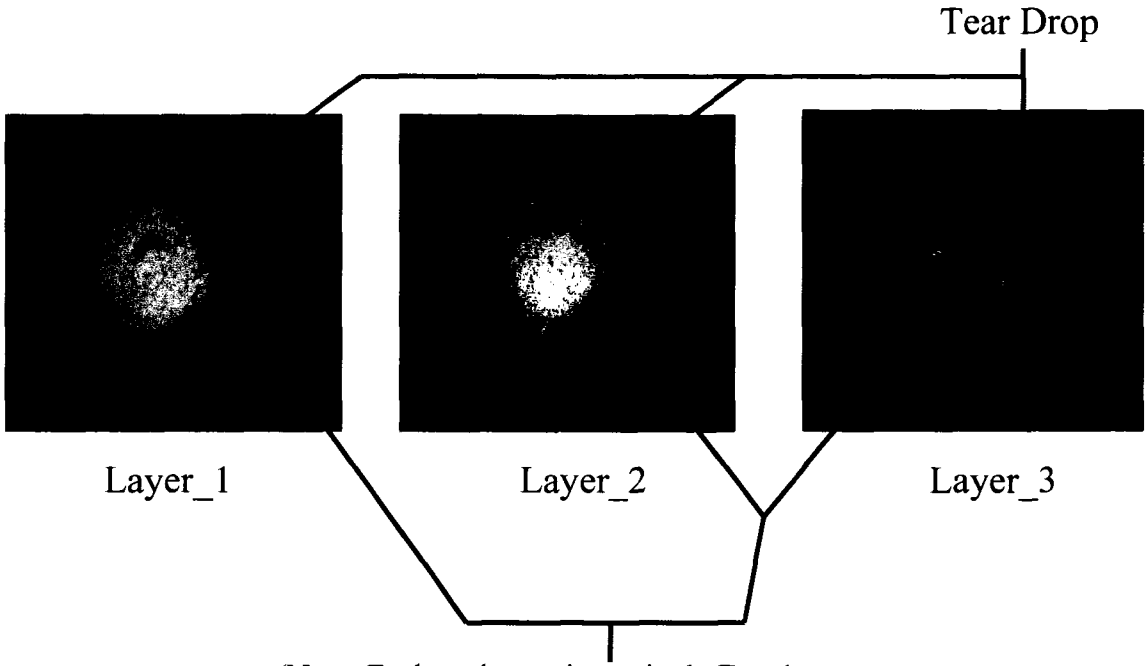
(Note: Seals un-Damaged.
Observe normal Seat Ring)

SCDS #14



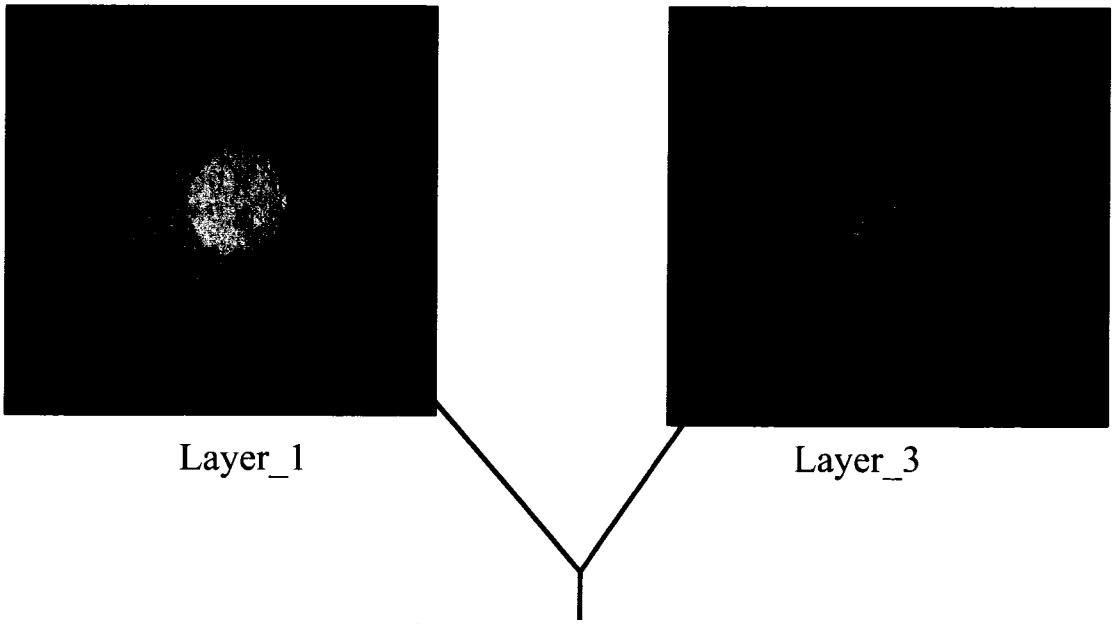
(Note: Seals un-Damaged.
Observe normal Seat Rings)

SCDS #15



(Note: Each seal contains a single Teardrop
Observe deviation from normal circular Seat Rings)

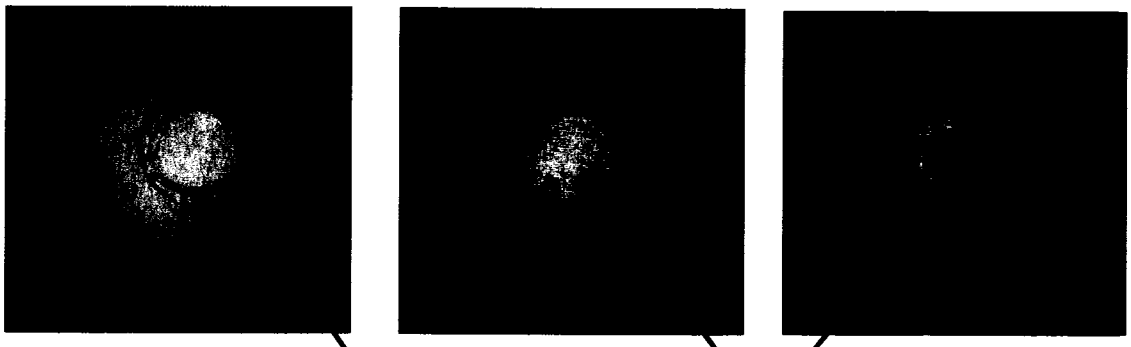
SCDS #16



Layer_1 Layer_3

(Note: Seals un-Damaged.
Observe normal Seat Ring)

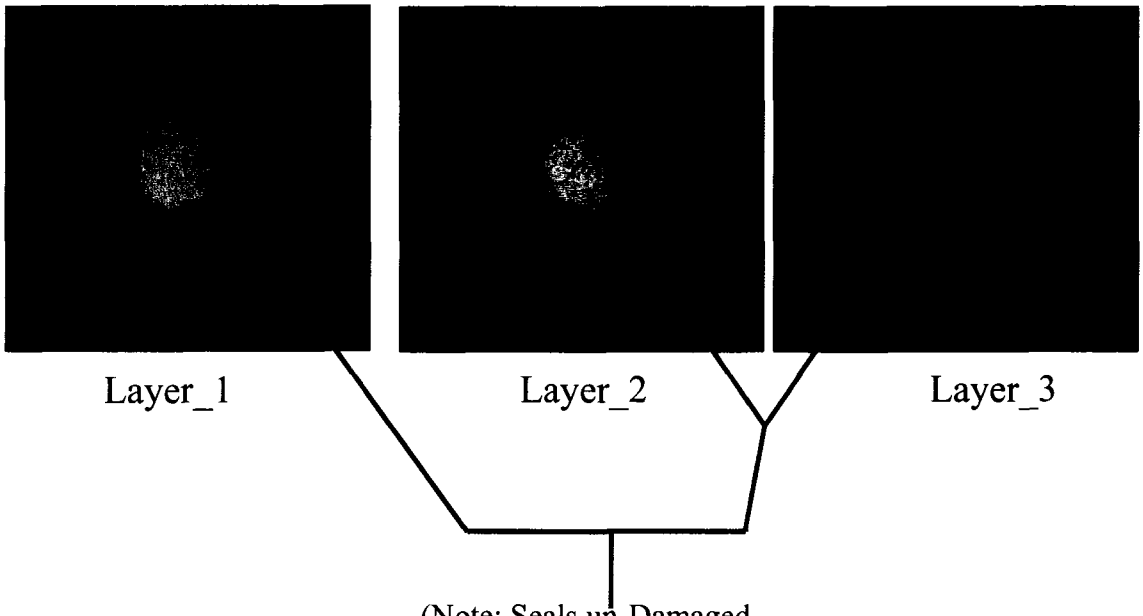
SCDS #18



Layer_1 Layer_2 Layer_3

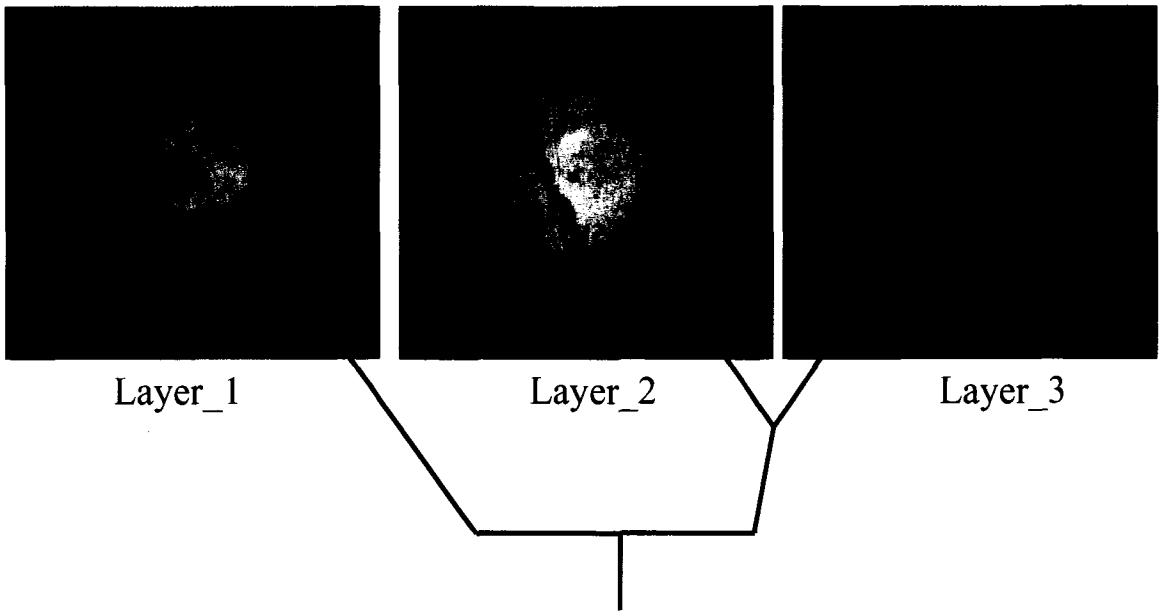
(Note: Seals un-Damaged.
Observe normal Seat Rings)

SCDS #19



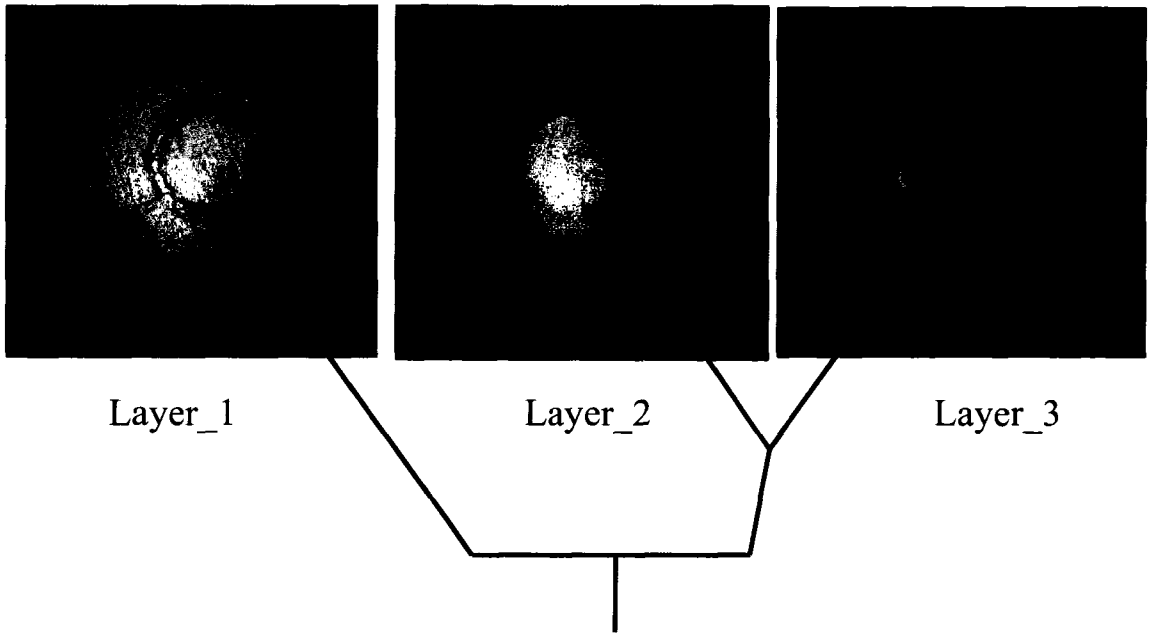
(Note: Seals un-Damaged.
Observe normal Seat Rings)

SCDS #20



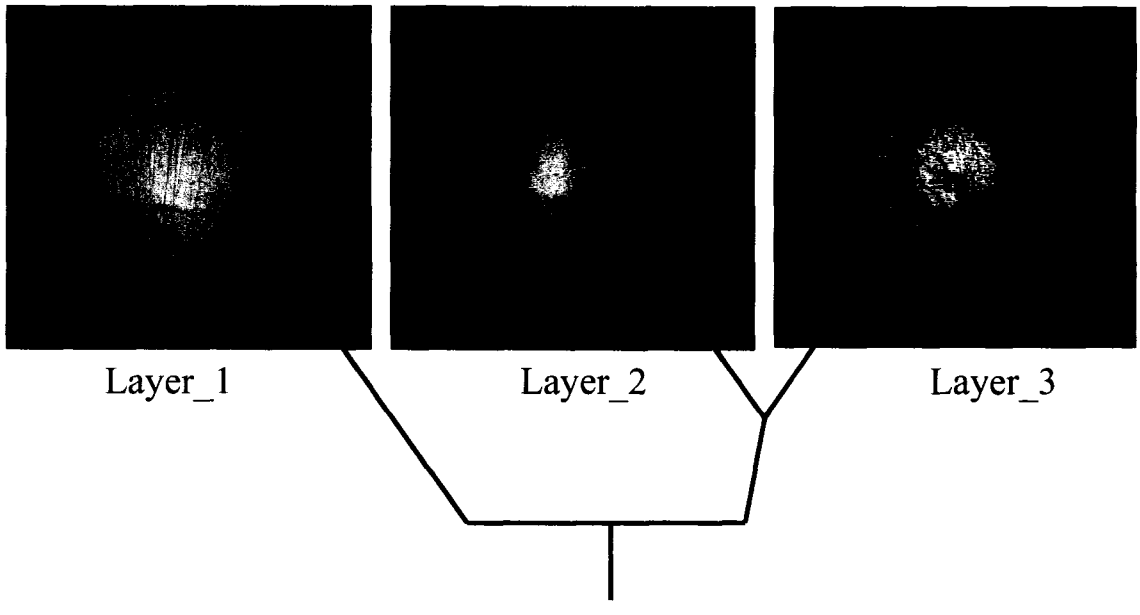
(Note: Layer_1 seal damaged through normal wear, Normal seat Ring barely visible. Normal Seat Rings observed on Layer_2 & Layer_3)

SCDS #26



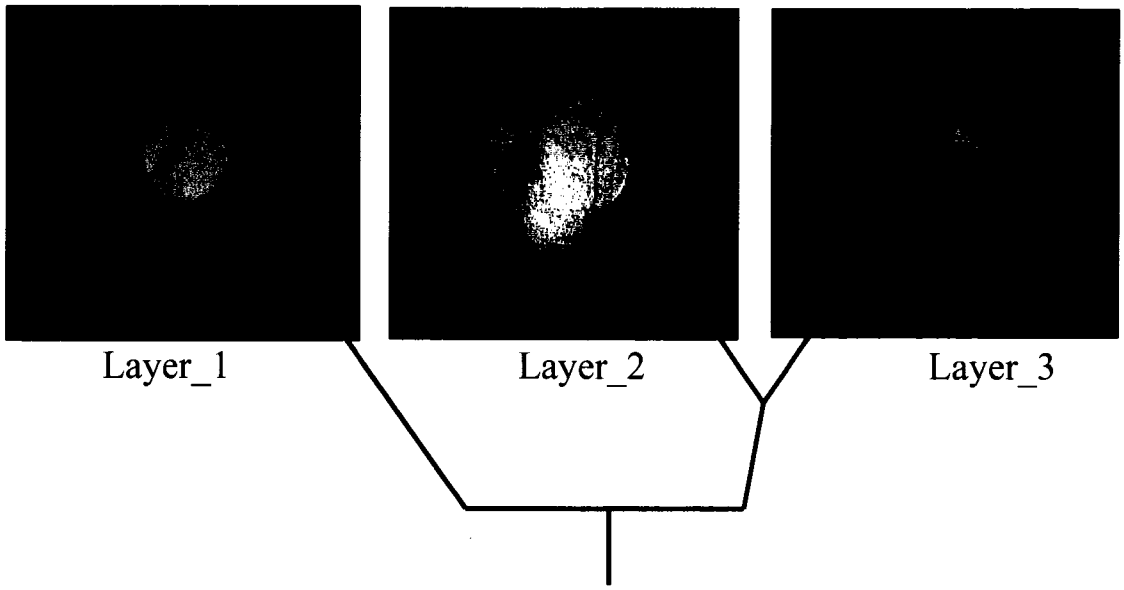
(Note: Layer_1 Normal seat Ring barely visible. Normal Seat Rings clearly observed on Layer_2 & Layer_3)

SCDS #27



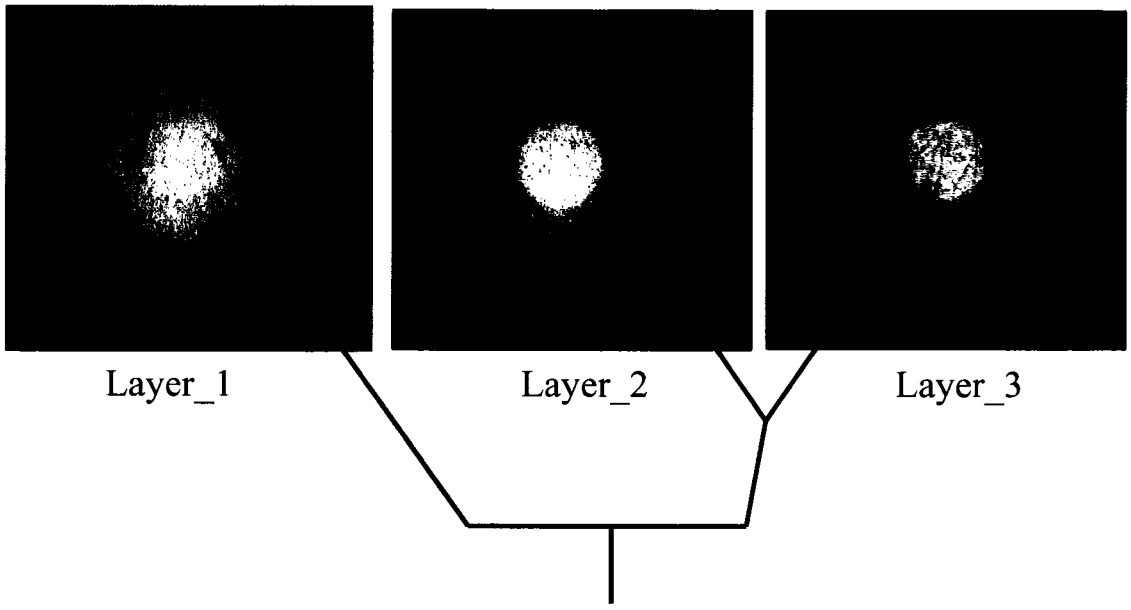
(Note: Normal Seat Rings clearly observed on all Layers)

SCDS #28



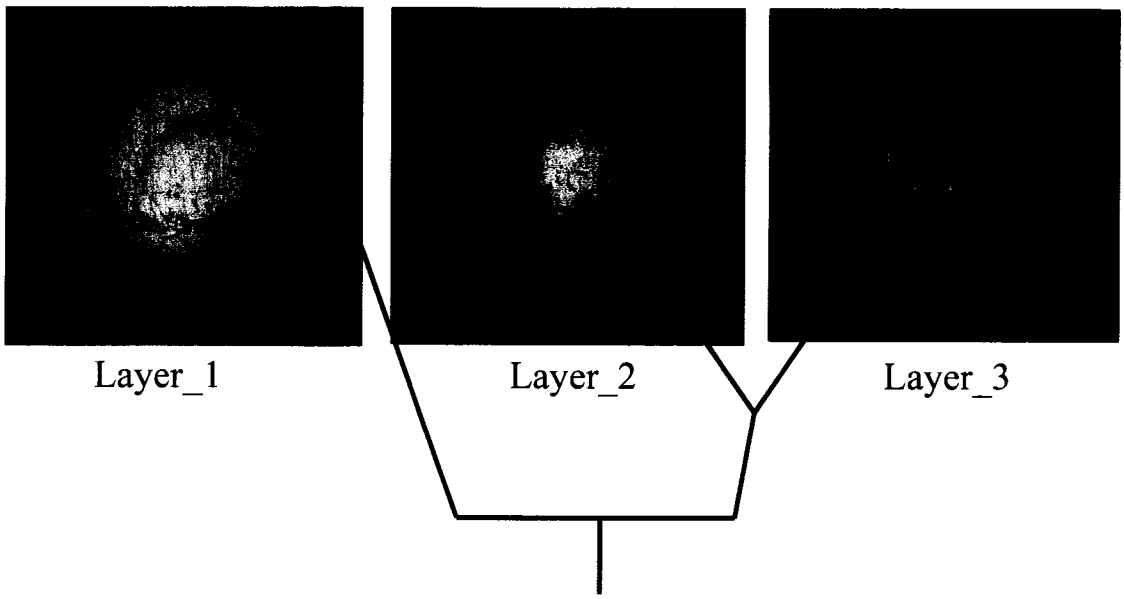
(Note: Normal Seat Rings clearly observed on Layer_1 & Layer_3)

SCDS #29



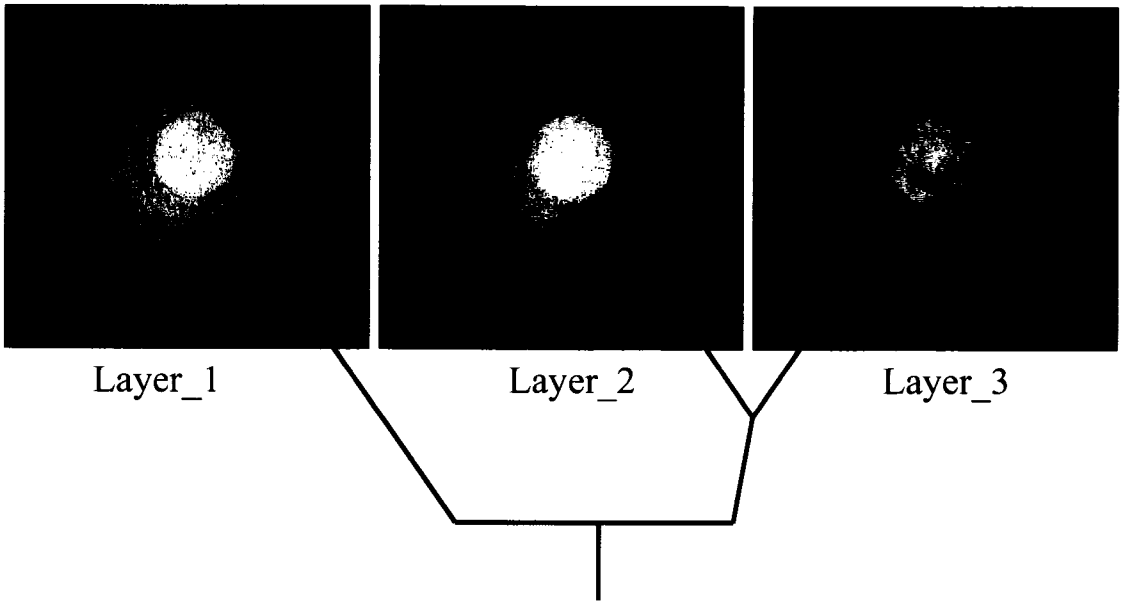
(Note: Normal Seat Rings clearly observed on all Layers)

SCDS #34



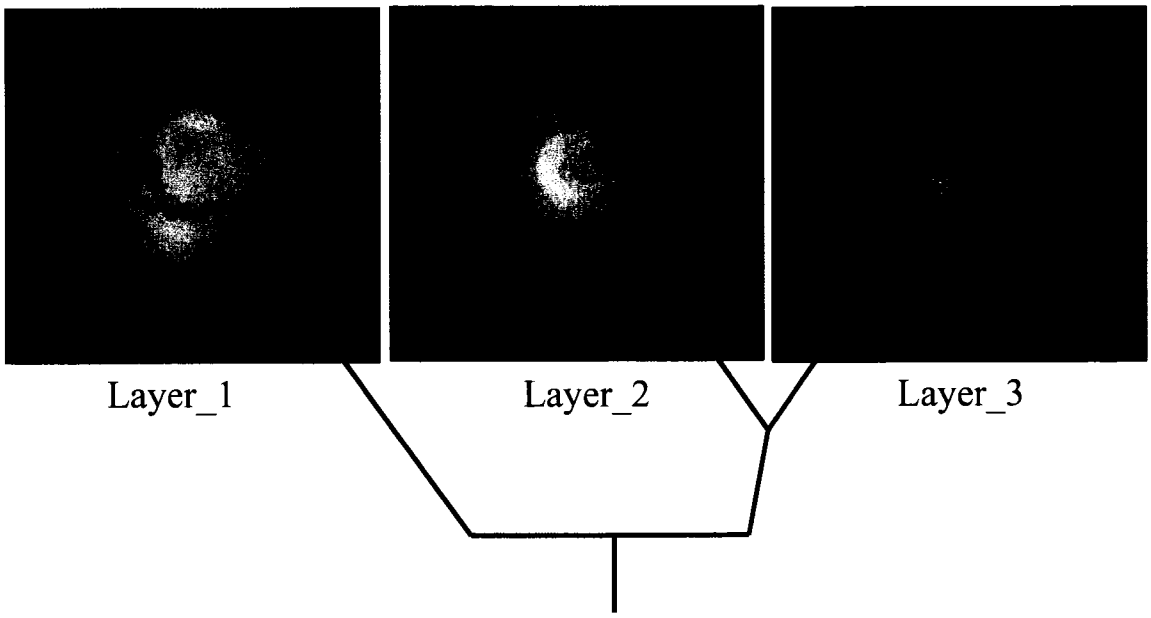
(Note: Normal Seat Rings clearly observed on Layer_2)

SCDS #36



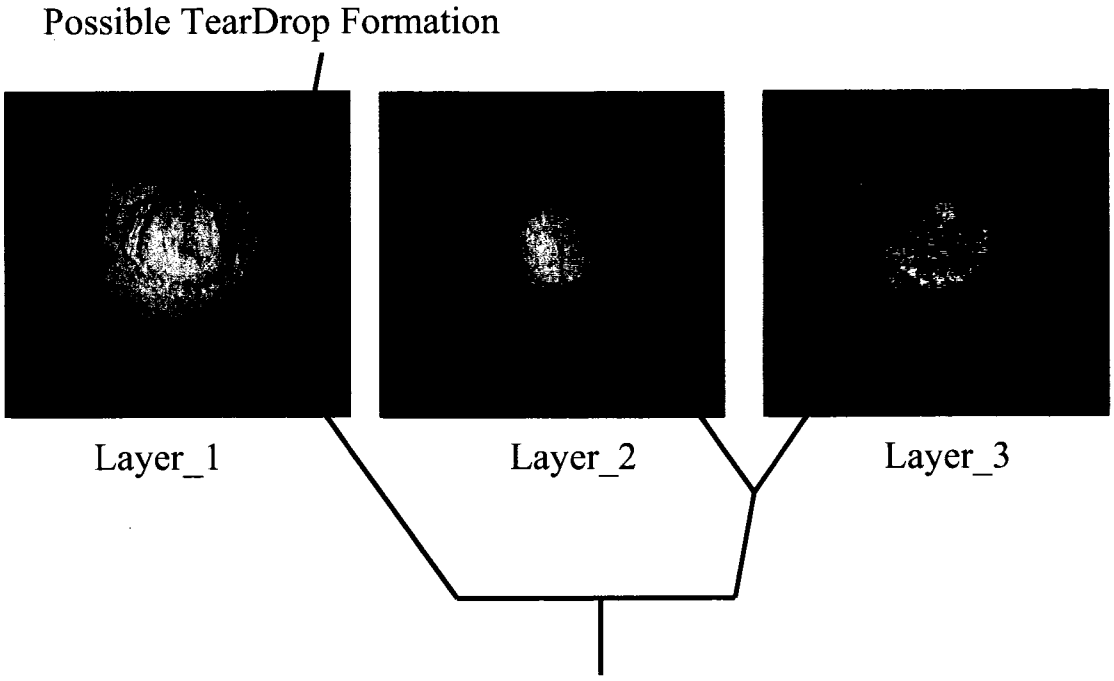
(Note: Normal Seat Rings clearly observed on all Layers. Layer_1 indicates some damage due to normal wear.... I particular debonding in seat region)

SCDS #38



(Note: Normal Seat Rings clearly observed on all Layers.)

SCDS #40



(Note: Normal Seat Rings clearly observed on all Layers.)

Leakers

SCDS #3

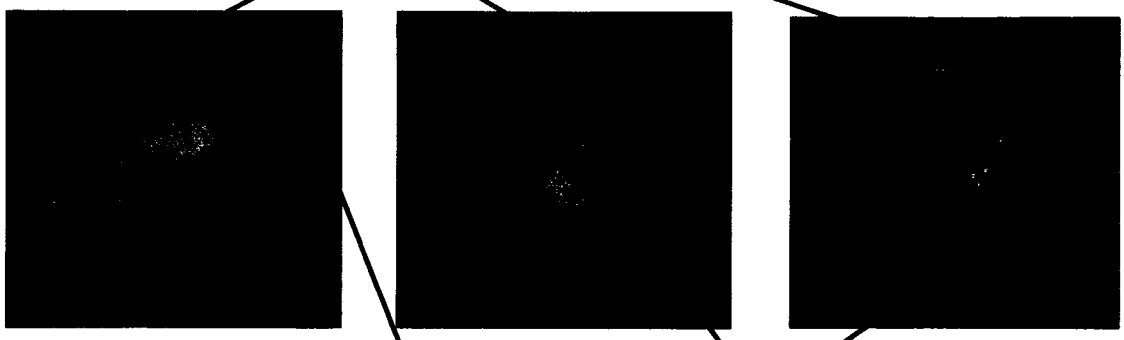
Double TearDrop Formation on all Layers

Layer_1 Layer_2 Layer_3

(Note: Normal Seat Rings distorted on all Layers.)

SCDS #17

TearDrop Formation on Layer_1 and Layer_2



Layer_1 Layer_2 Layer_3

(Note: Normal Seat Rings distorted on all Layers.)

SCDS #49

Double TearDrop Formation on all Layers

Layer_1 Layer_2 Layer_3

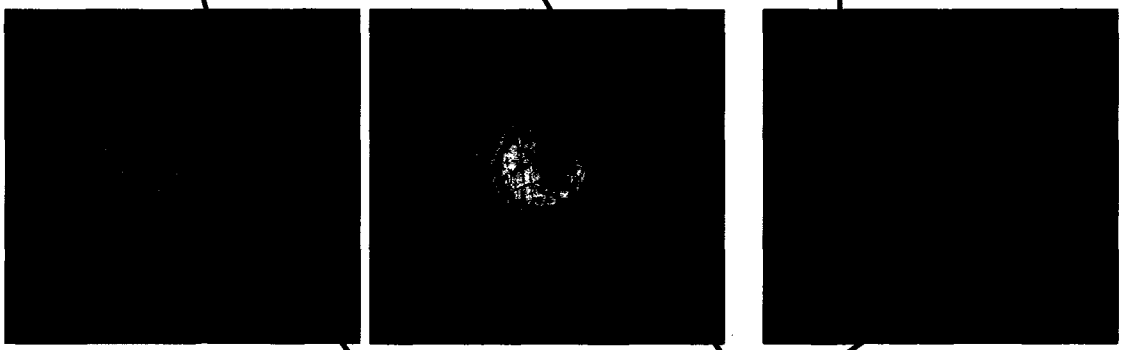
(Note: Normal Seat Rings absent or distorted on all Layers.)

SCDS #50

Quad TearDrop Formation on Layer_1

TearDrop on Layer_2

Possible Distortion on Layer_3????



Layer_1 Layer_2 Layer_3

(Note: Normal Seat Rings absent or Layer_1, distorted on Layer_2, and normal on Layer_3. Base Dry!!!!)

SCDS #52

Double TearDrop Formation on all Layers

Layer_1 Layer_2 Layer_3

(Note: Normal Seat Rings absent or distorted on all Layers.)

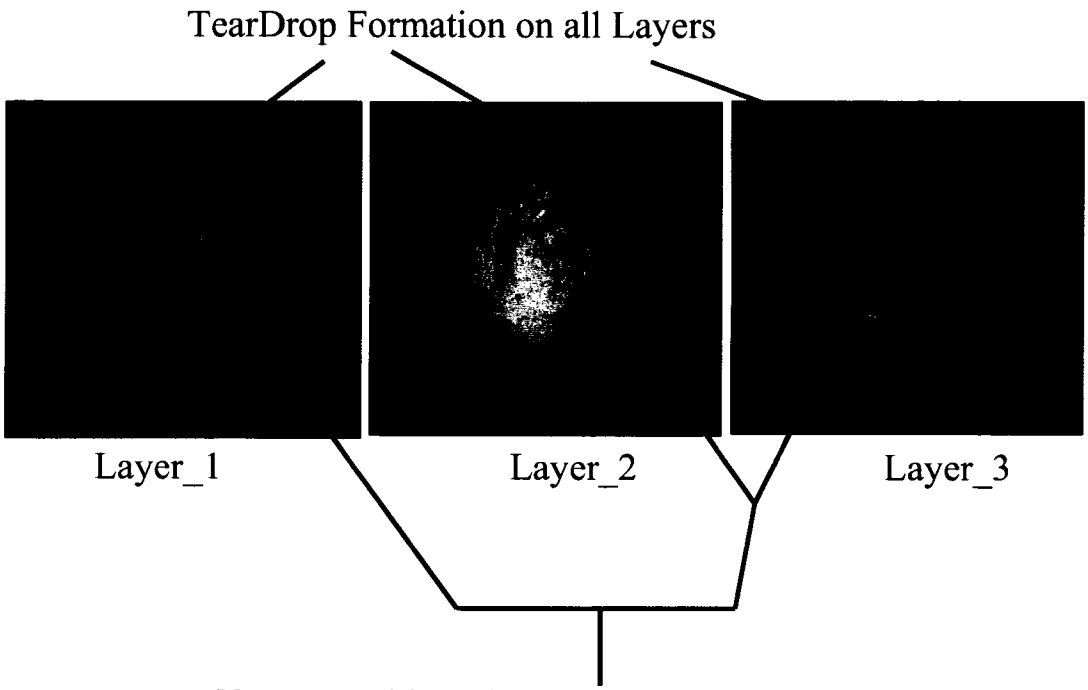
SCDS #55

Double TearDrop Formation on Layer_1 & Layer_2 and
Quad TearDrop on Layer_3

Layer_1 Layer_2 Layer_3

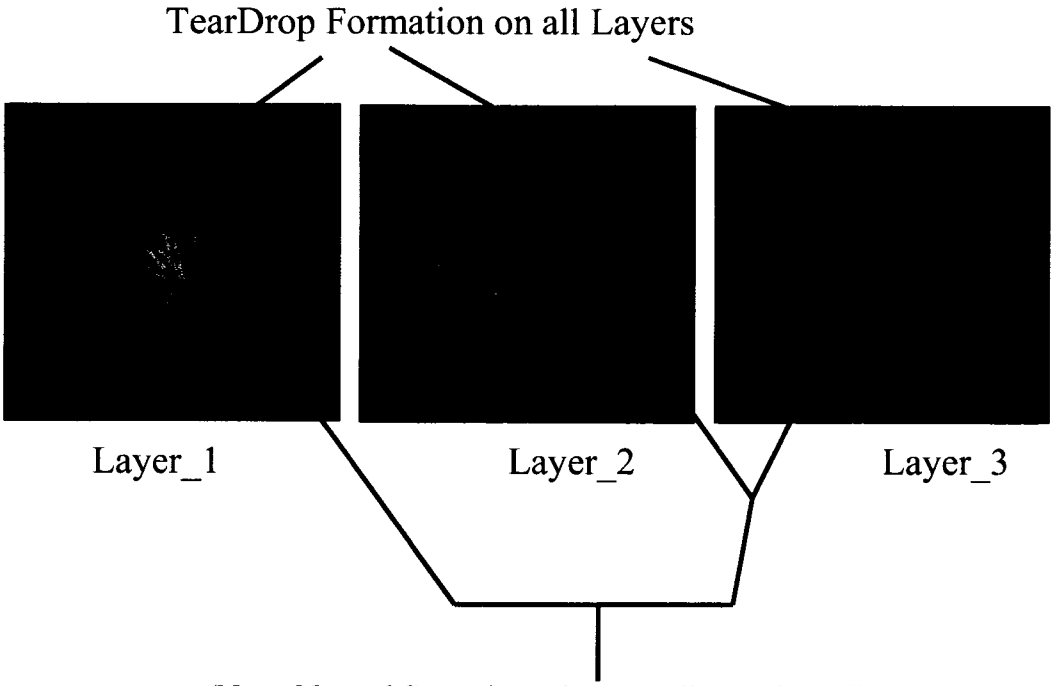
(Note: Normal Seat Rings absent or distorted on all Layers.)

SCDS #56



(Note: Normal Seat Rings absent or distorted on all Layers.)

SCDS #57

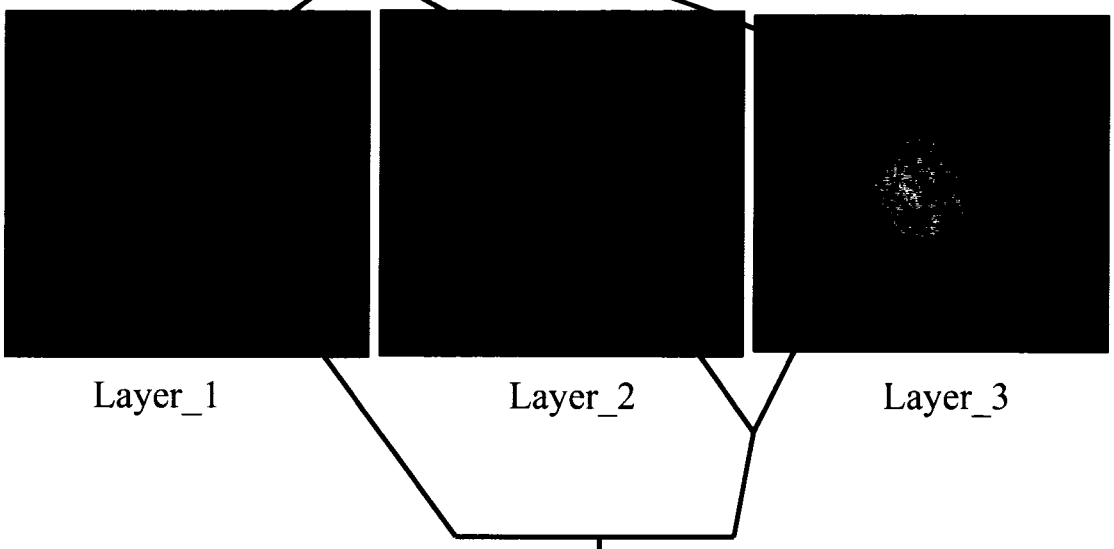


(Note: Normal Seat Rings absent or distorted on all Layers.)

Light Burn with Brake Fluid (LBWBF)

SCDS #4

Double TearDrop Formation on Layer_2 & Layer_3

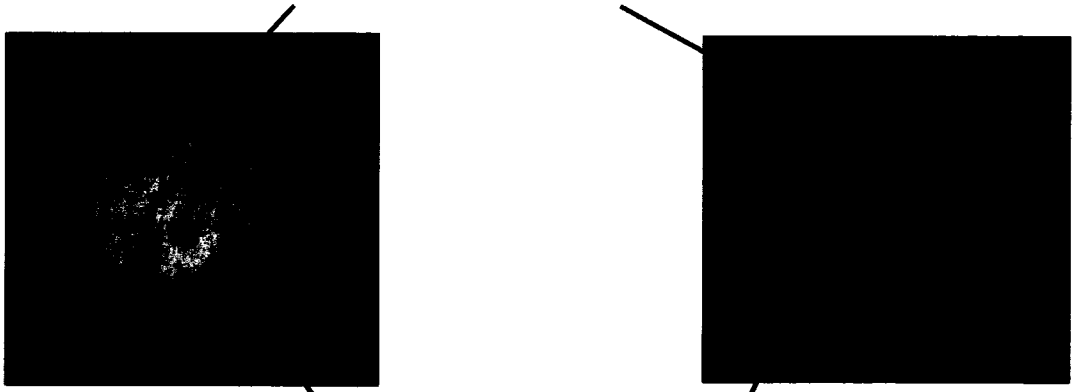


Layer_1 Layer_2 Layer_3

(Note: Normal Seat Rings distorted on all Layers.)

SCDS #9

TearDrop Formation on Layer_1 & Layer_3

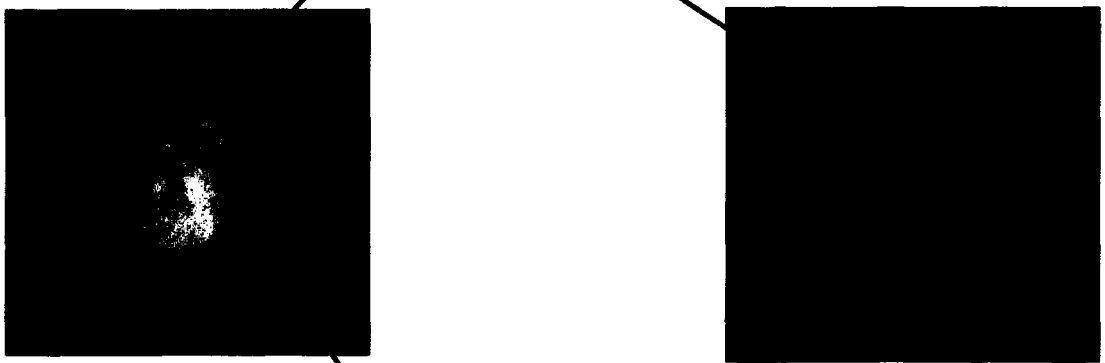


Layer_1 Layer_3

(Note: Normal Seat Rings distorted on all Layers.)

SCDS #45

TearDrop Formation on Layer_1 & Layer_3

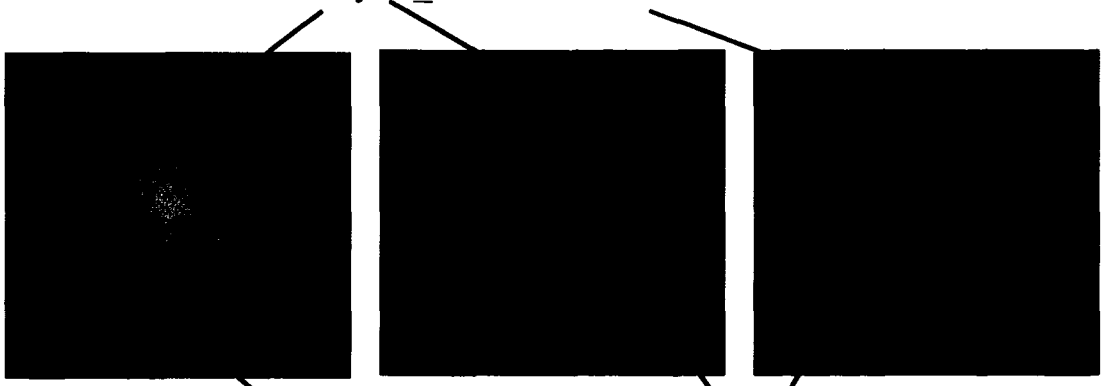


Layer_1 Layer_3

(Note: Normal Seat Rings distorted on all Layers.)

SCDS #46

5 Star TearDrop Formation on Layer_1 & Layer_2,
3 Star on Layer _3

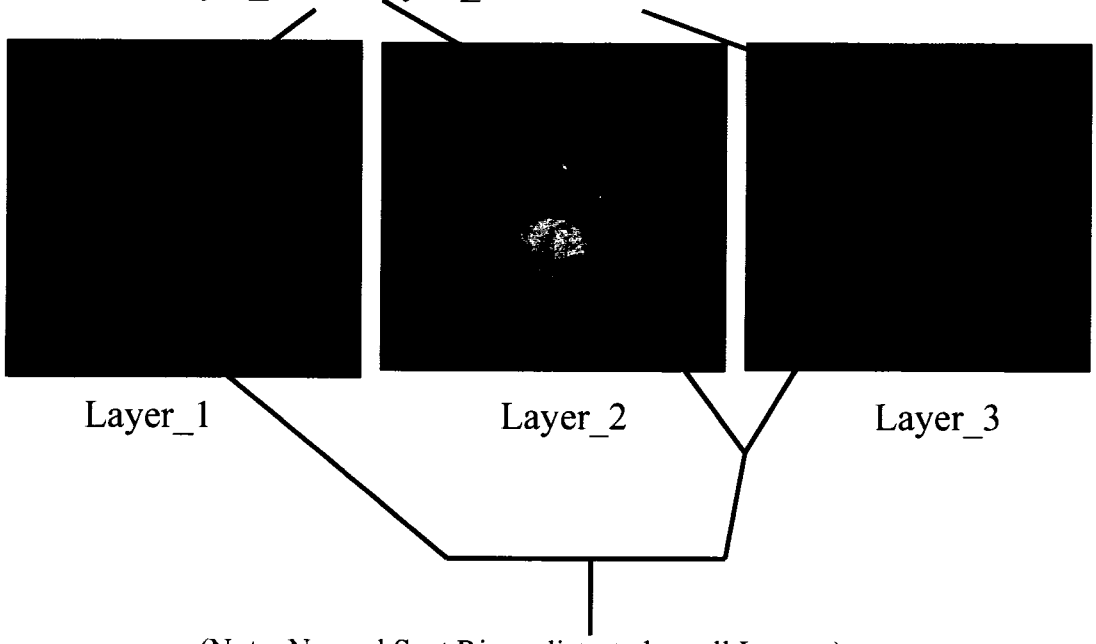


Layer_1 Layer_2 Layer_3

(Note: Normal Seat Rings distorted on all Layers.)

SCDS #48

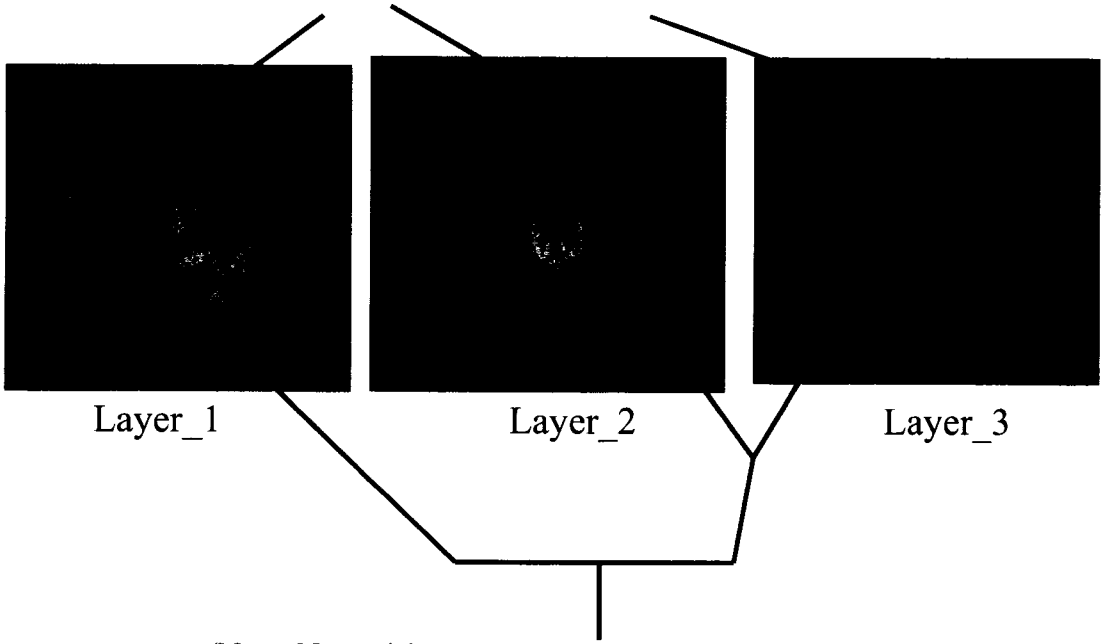
Quad TearDrop Formation on Layer_1; at least 1 TearDrop on Layer_2 and Layer _3



(Note: Normal Seat Rings distorted on all Layers.)

SCDS #53

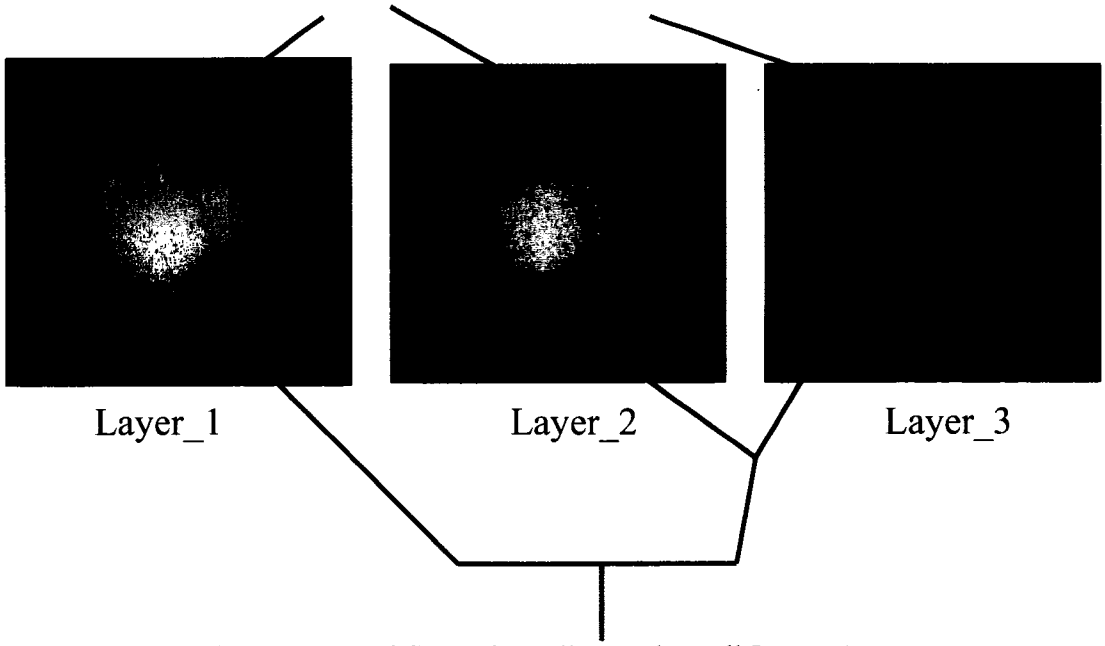
TearDrop Formation on Layer_1and Layer_2; Crack in Layer _3



(Note: Normal Seat Rings distorted on all Layers.)

SCDS #59

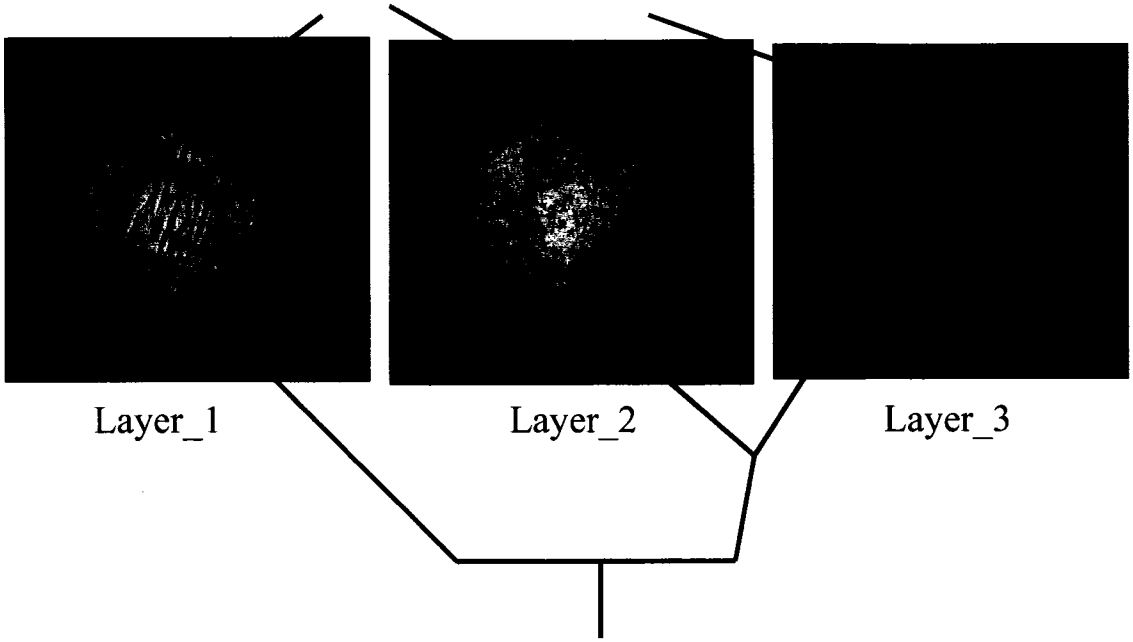
Double TearDrop Formation on all Layers



(Note: Normal Seat Rings distorted on all Layers.)

SCDS #69

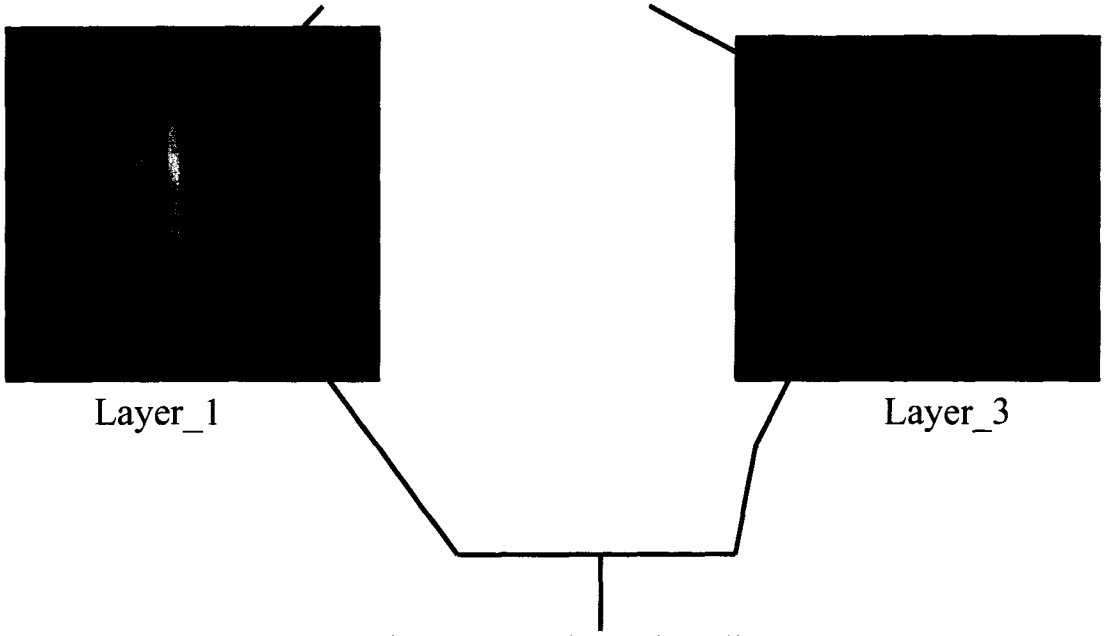
Double TearDrop Formation on all Layers



(Note: Normal Seat Rings distorted on all Layers.)

SCDS #76

TearDrop Formation on Layer_1 & Layer_3

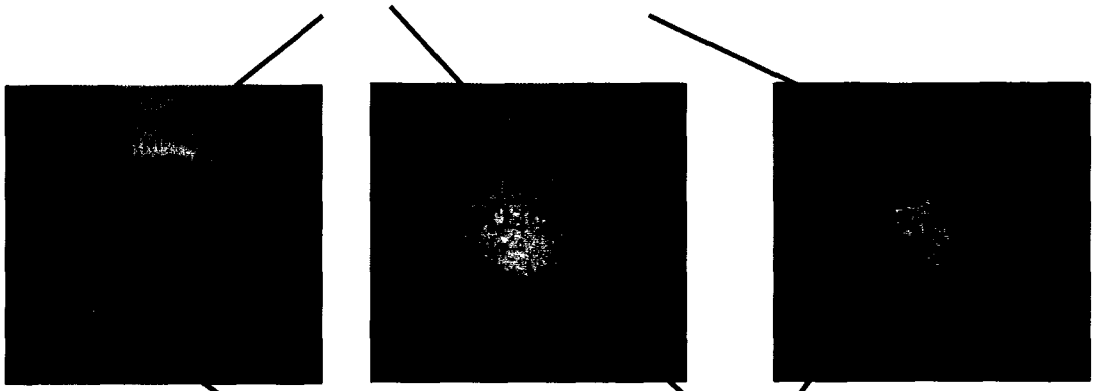


Layer_1 Layer_3

(Note: Normal Seat Rings distorted on all Layers.)

SCDS #80

Double TearDrop Formation on all Layers



Layer_1 Layer_2 Layer_3

(Note: Normal Seat Rings distorted on all Layers.)