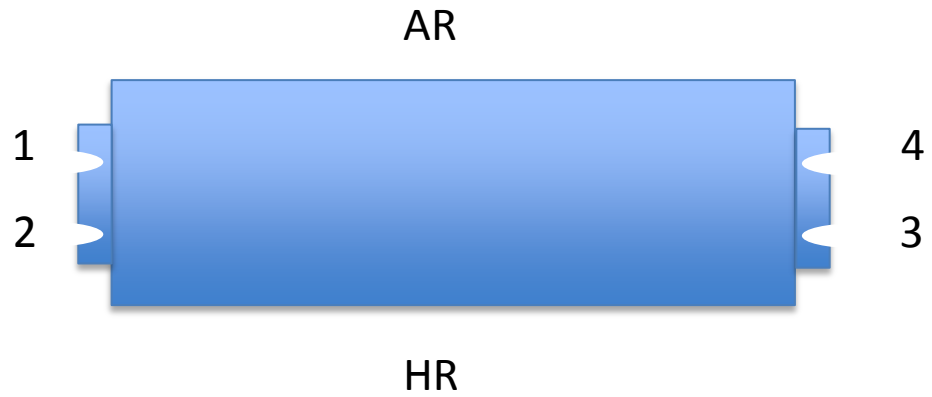


# Compared analysis of payload failures

Helios Vocca  
&  
Flavio Travasso

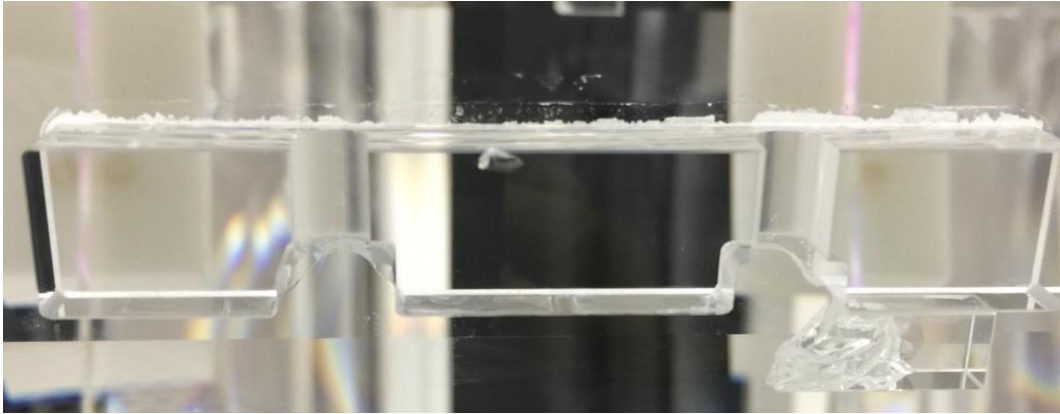
17/03/2016

# Mirror reference system



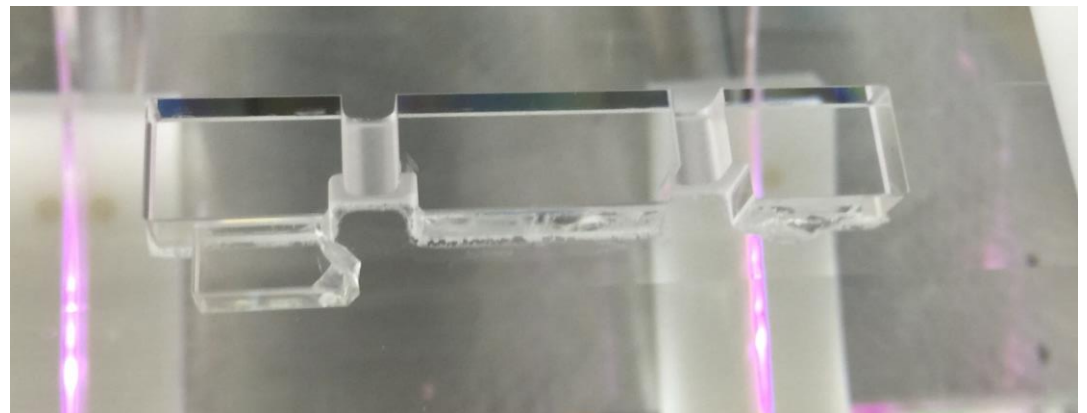
View from the top

# WI - Ears view after the crash



1

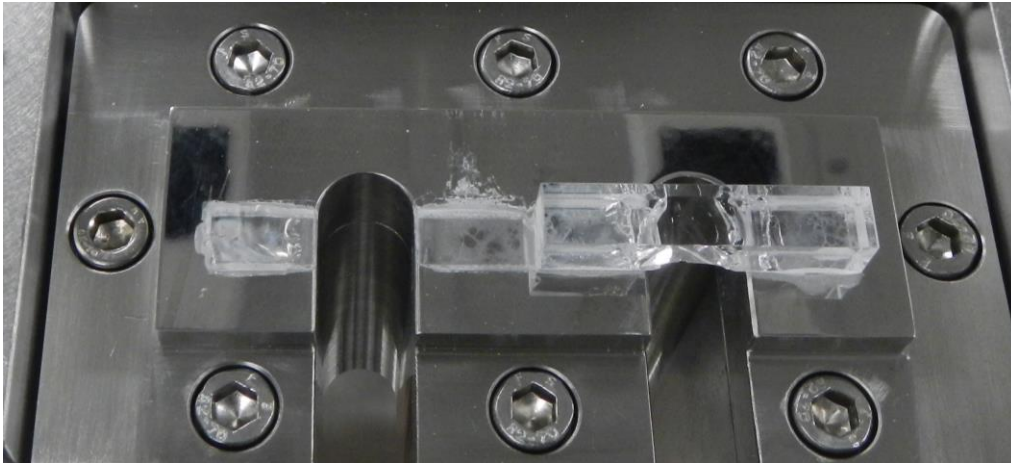
2



3

4

# WI - Marionetta view after the crash



1

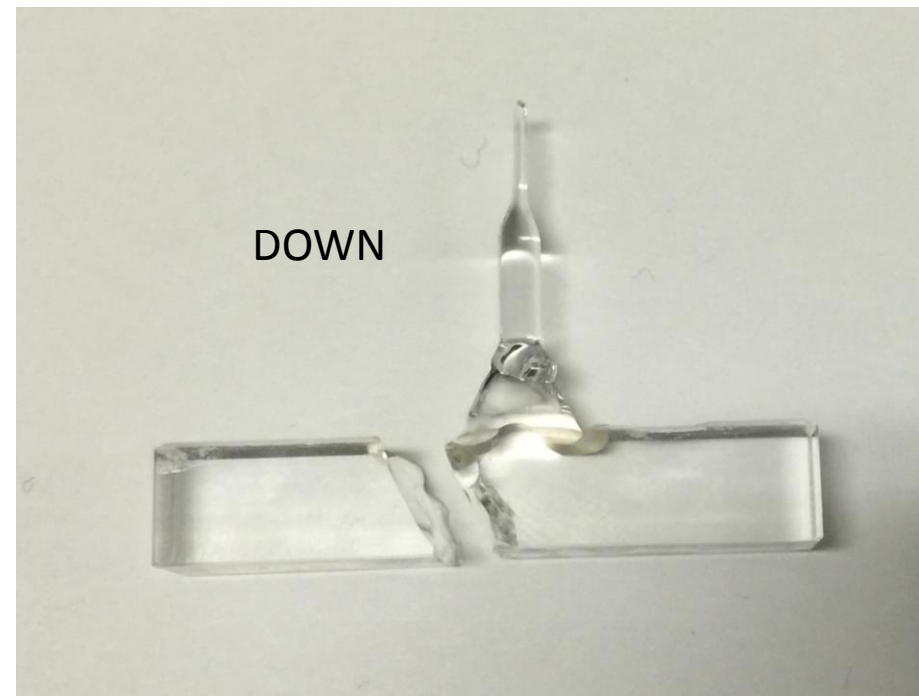
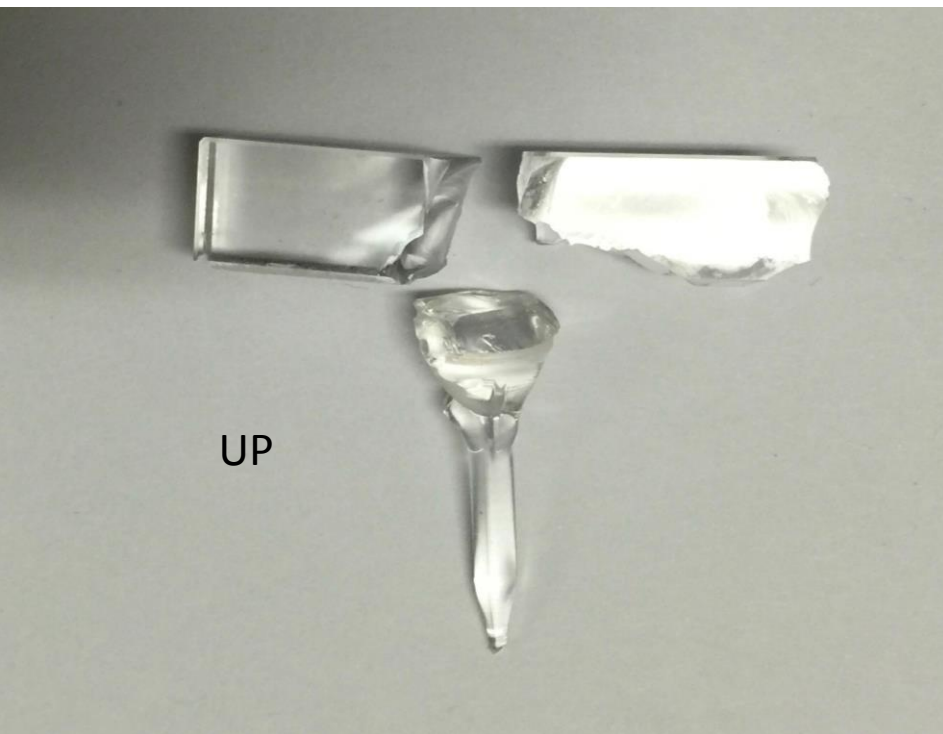
2



3

4

# WI - Anchors n°1



# WI - Anchors n°2

UP



DOWN



# WI - Anchors n°3



UP

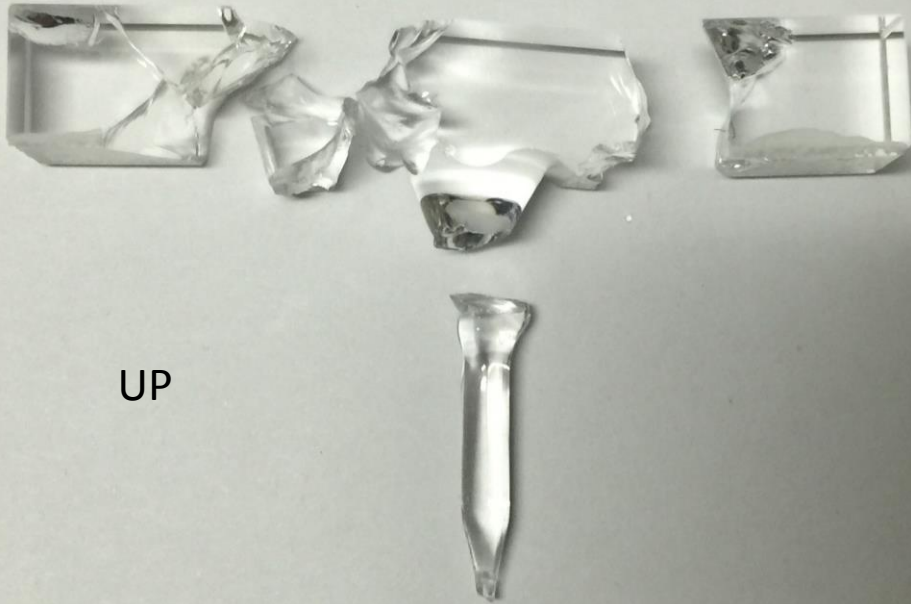


According to the data the crash begun from this fiber: it can be started from the lower cone (or at least from the upper welding...).

DOWN

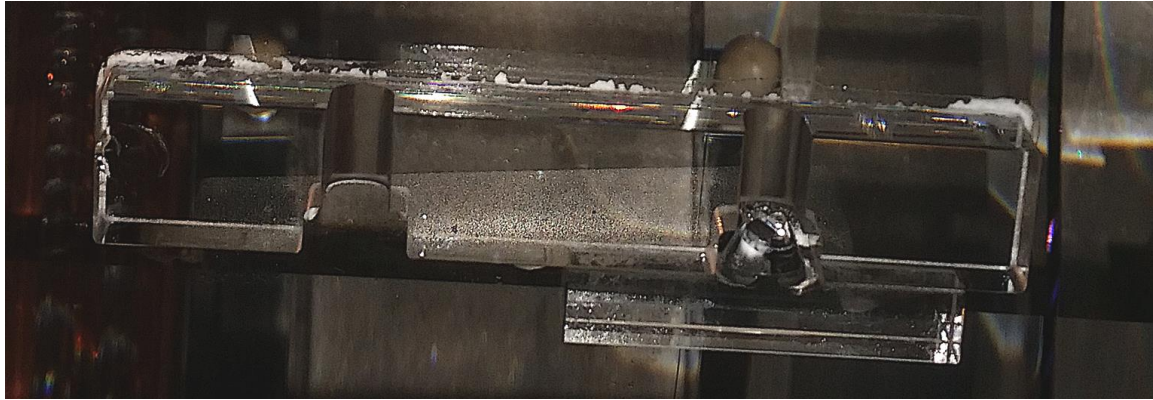


# WI - Anchors n°4



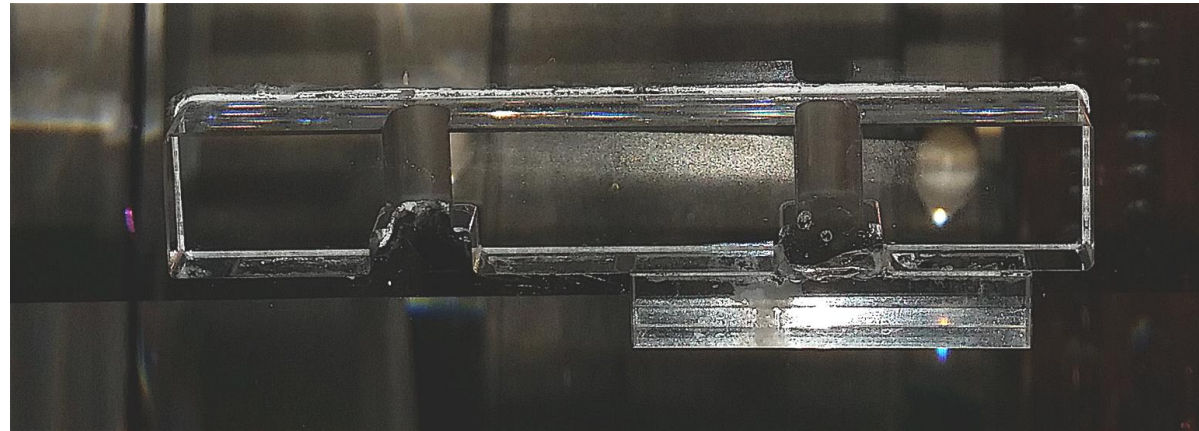


# NI - Ears view after the crash



1

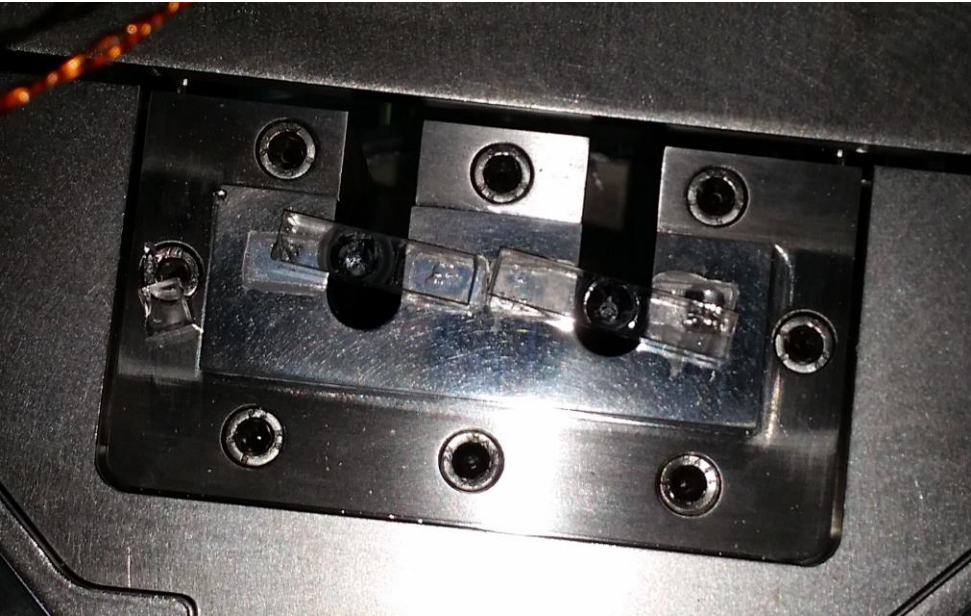
2



3

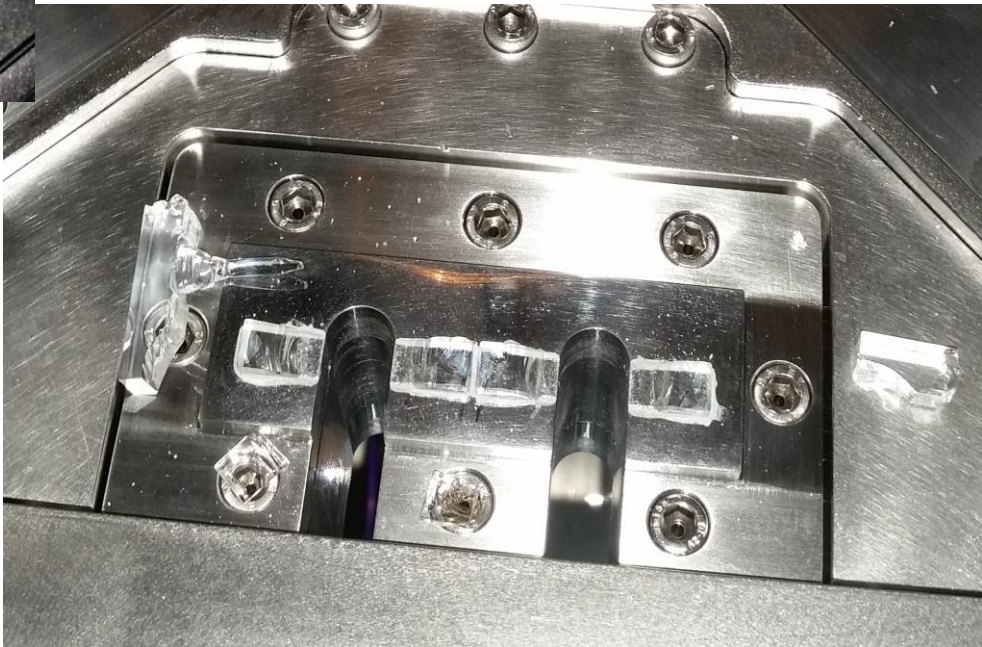
4

# NI - Marionetta view after the crash



1

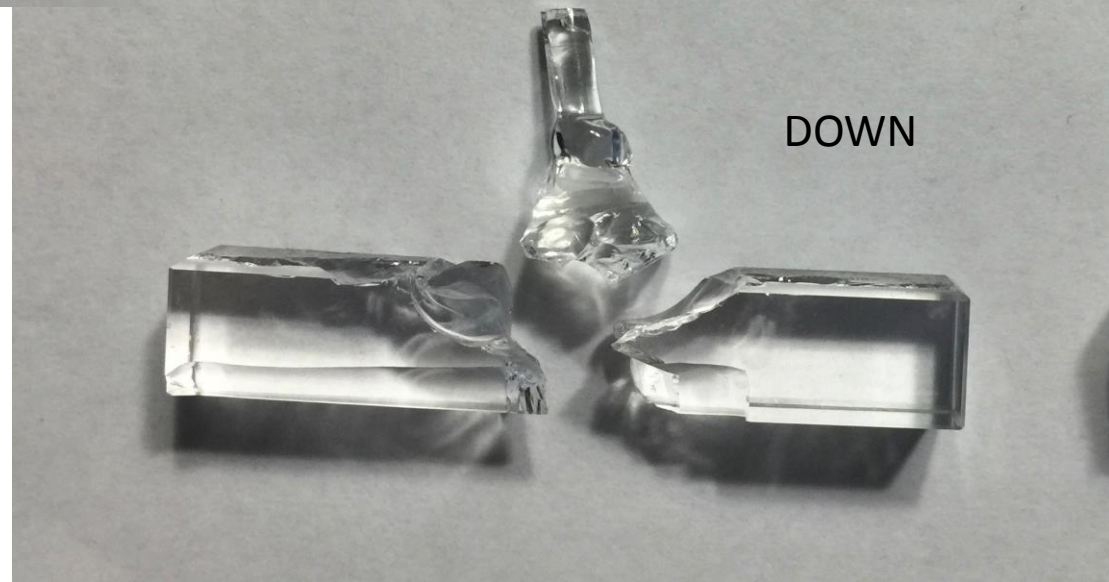
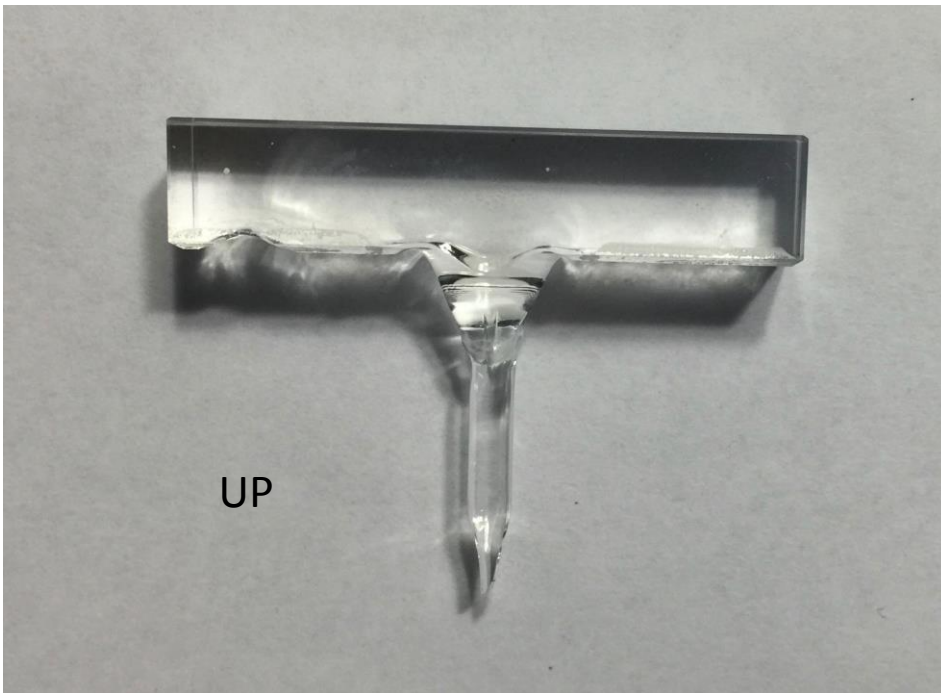
2



3

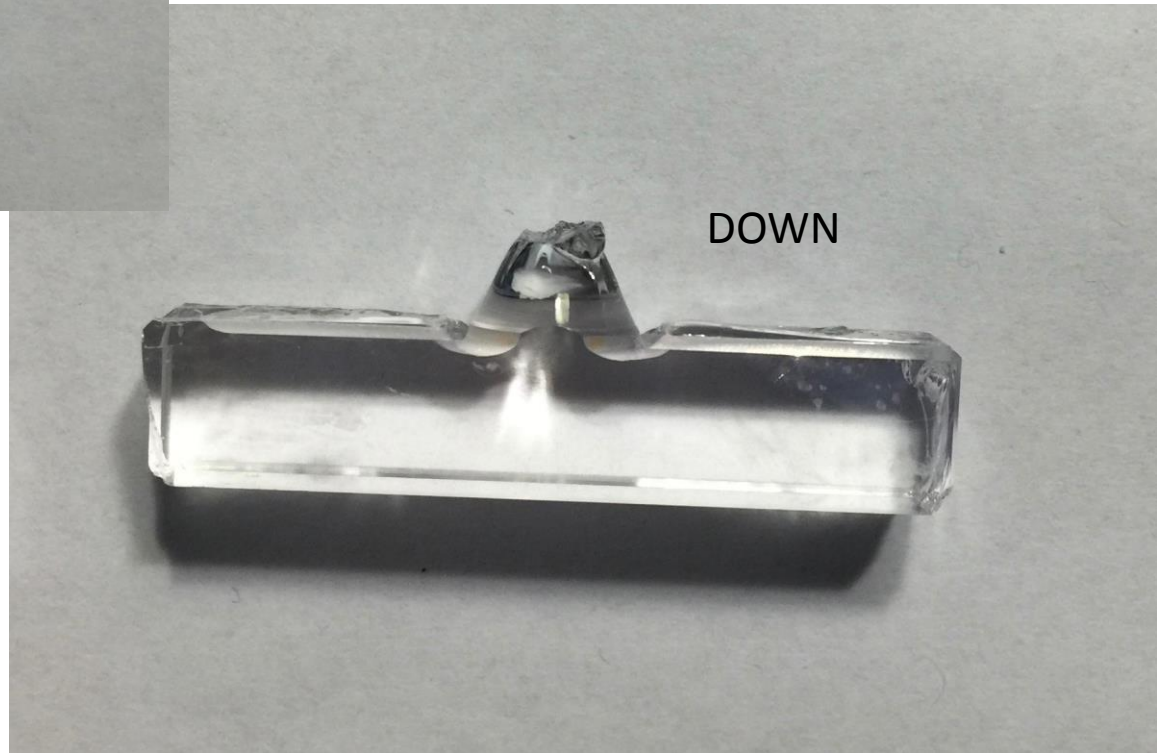
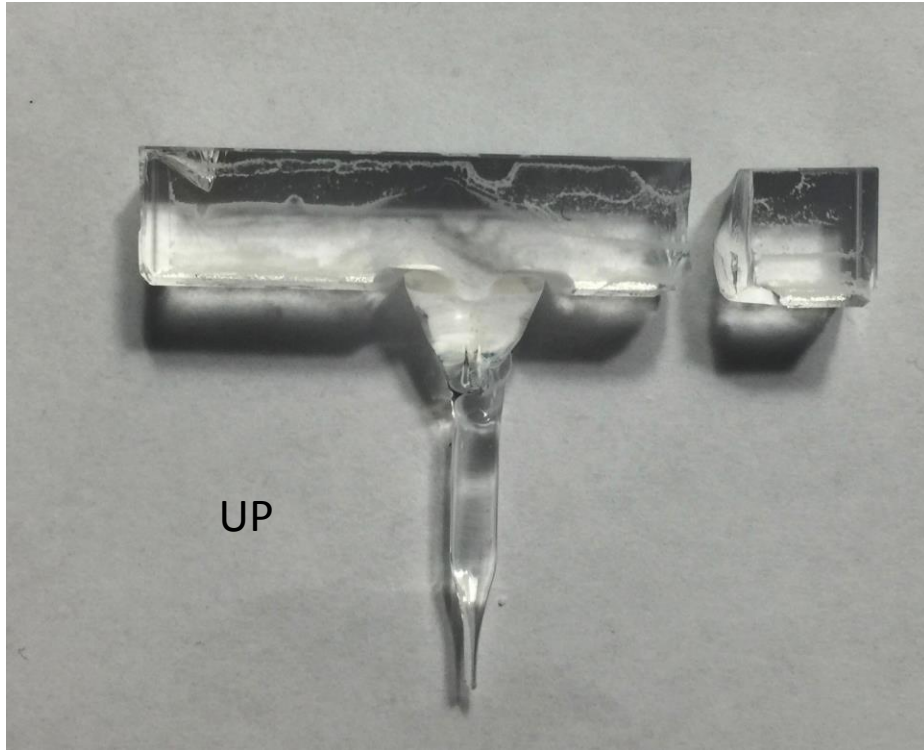
4

# NI - Anchors n°1

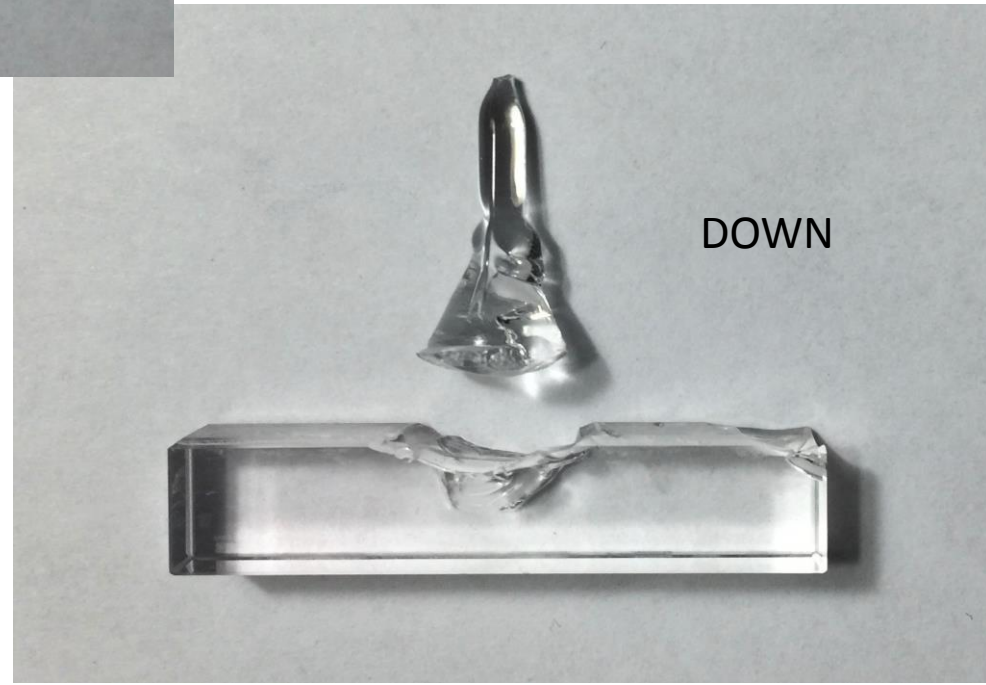
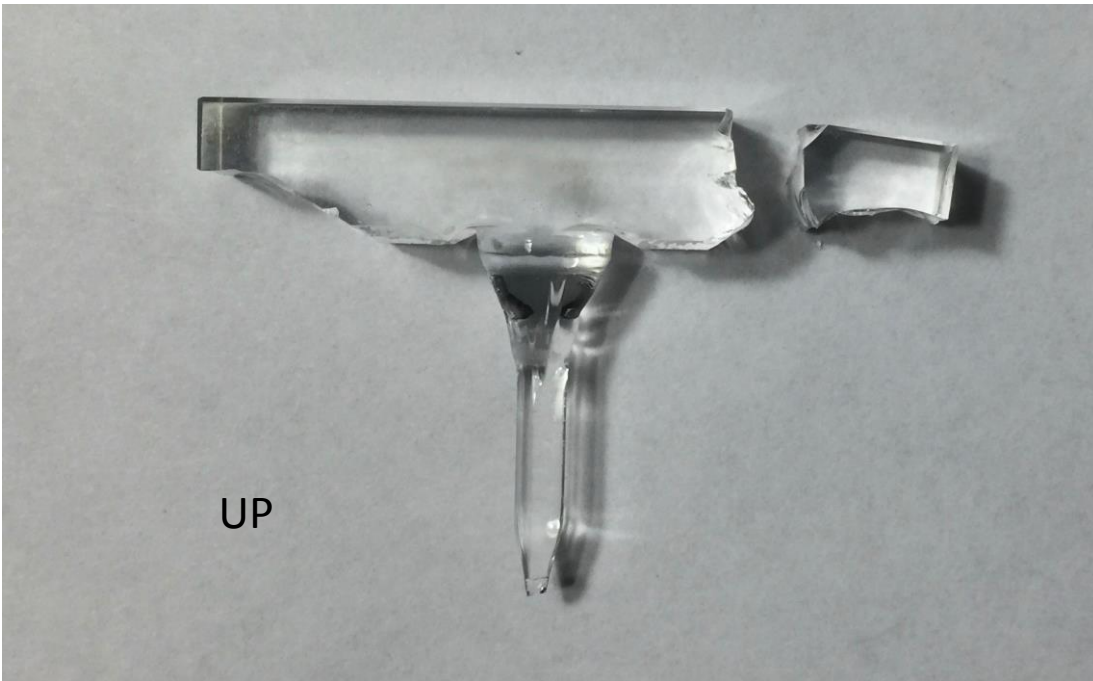


# NI - Anchors n°2

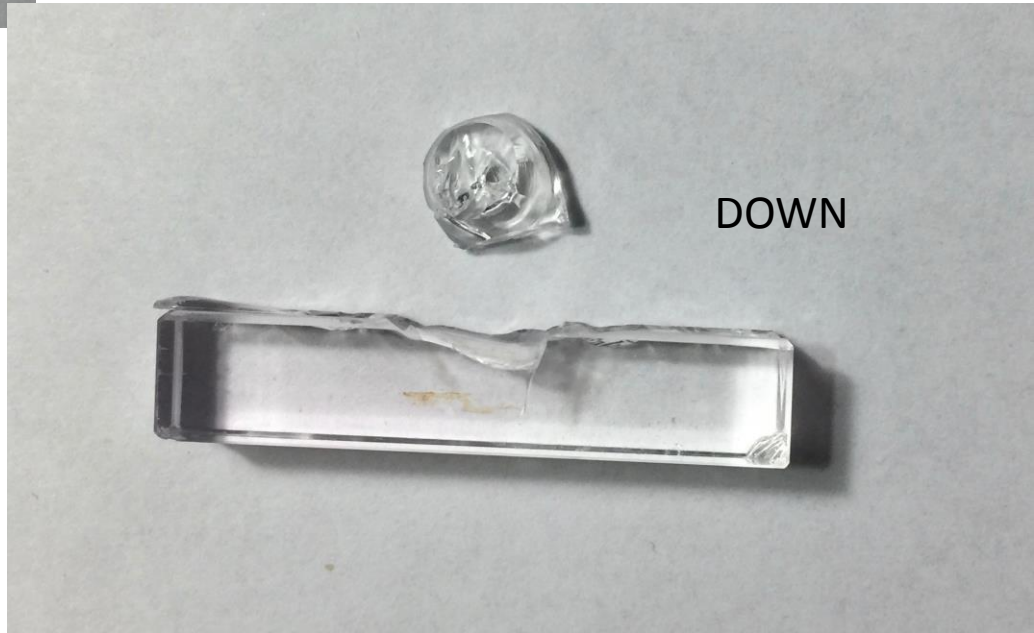
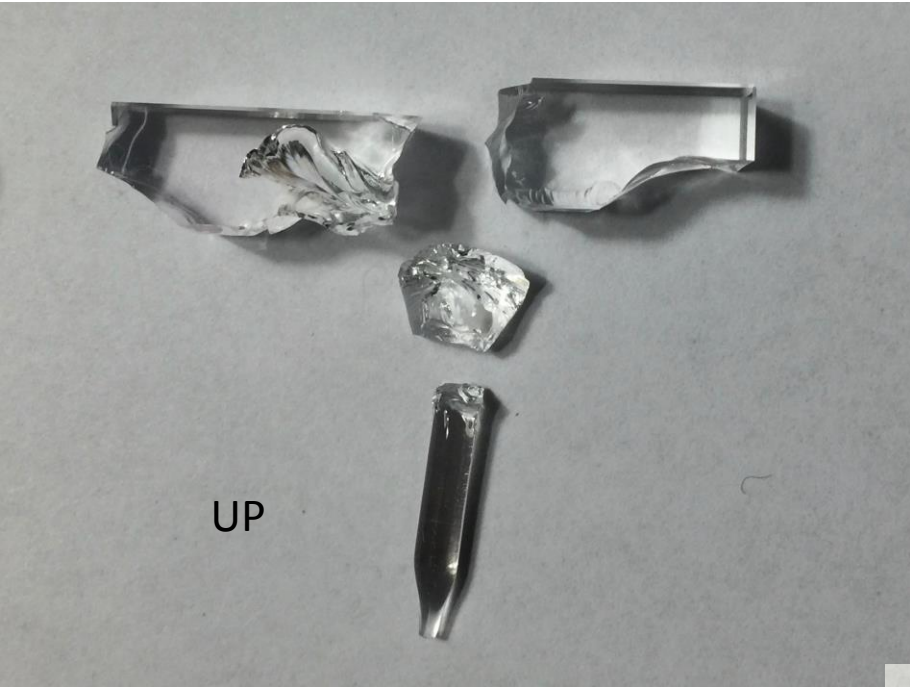
According to the data the crash begun from this fiber



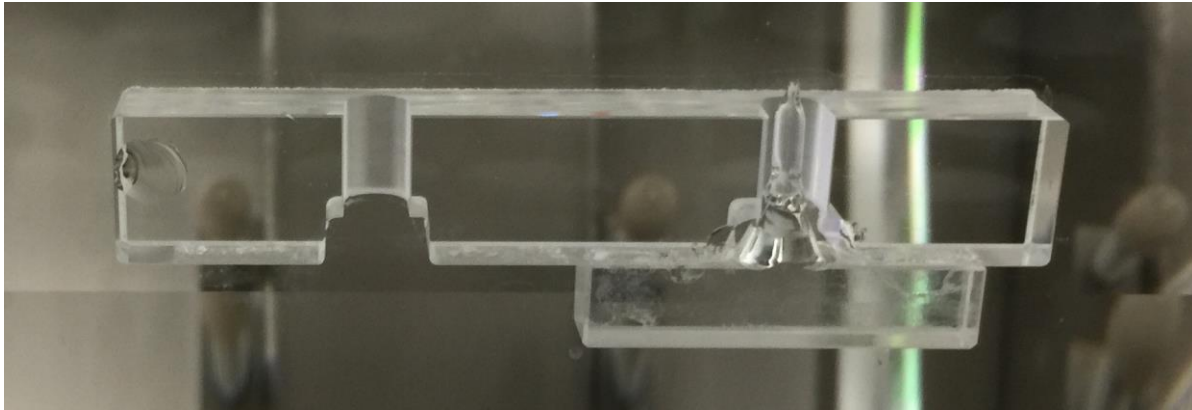
# NI - Anchors n°3



# NI - Anchors n°4

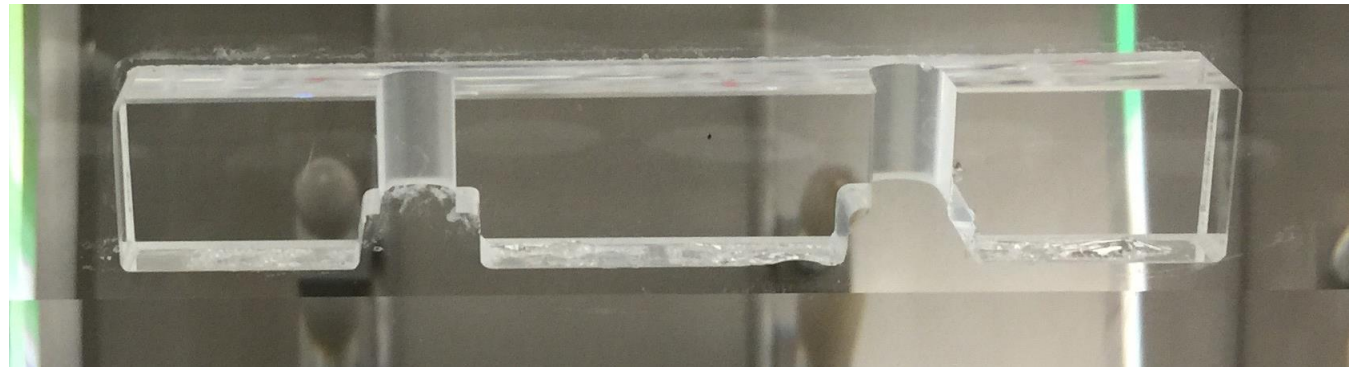


# 2° NI - Ears view after the crash



1

2



3

4

# 2° NI - Marionetta view after the crash

2

1



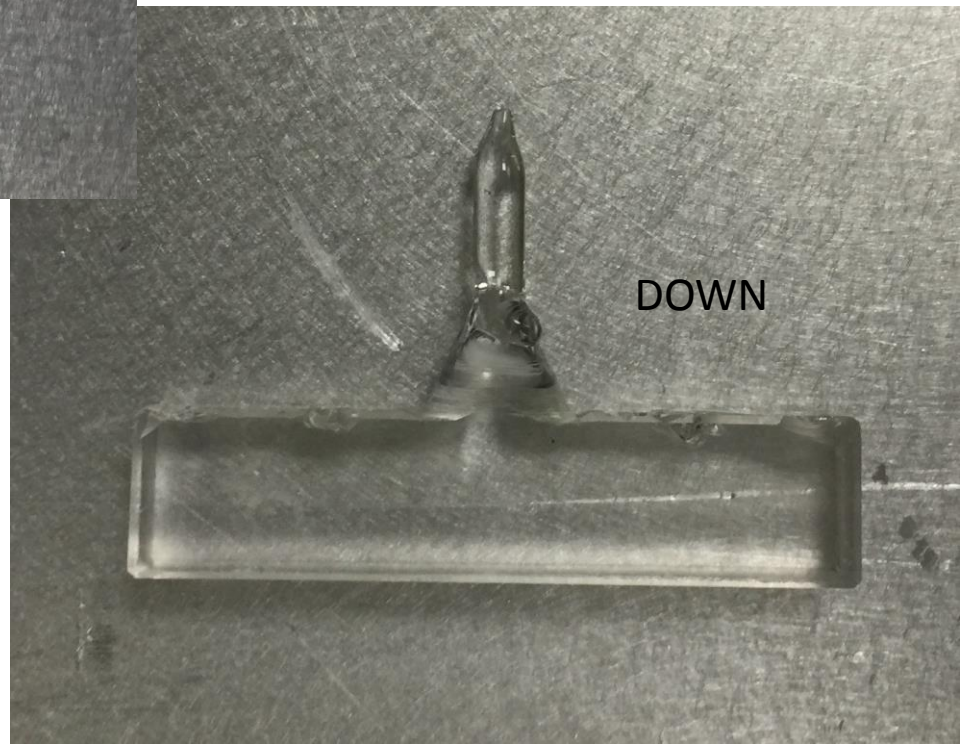
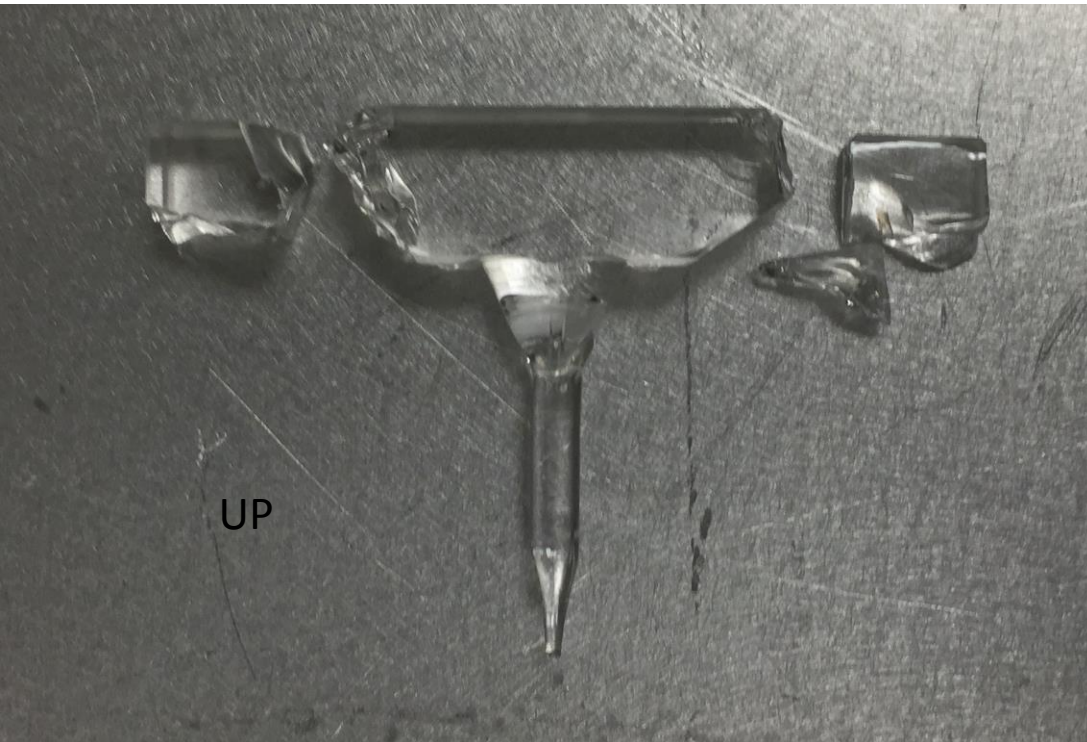
4

3



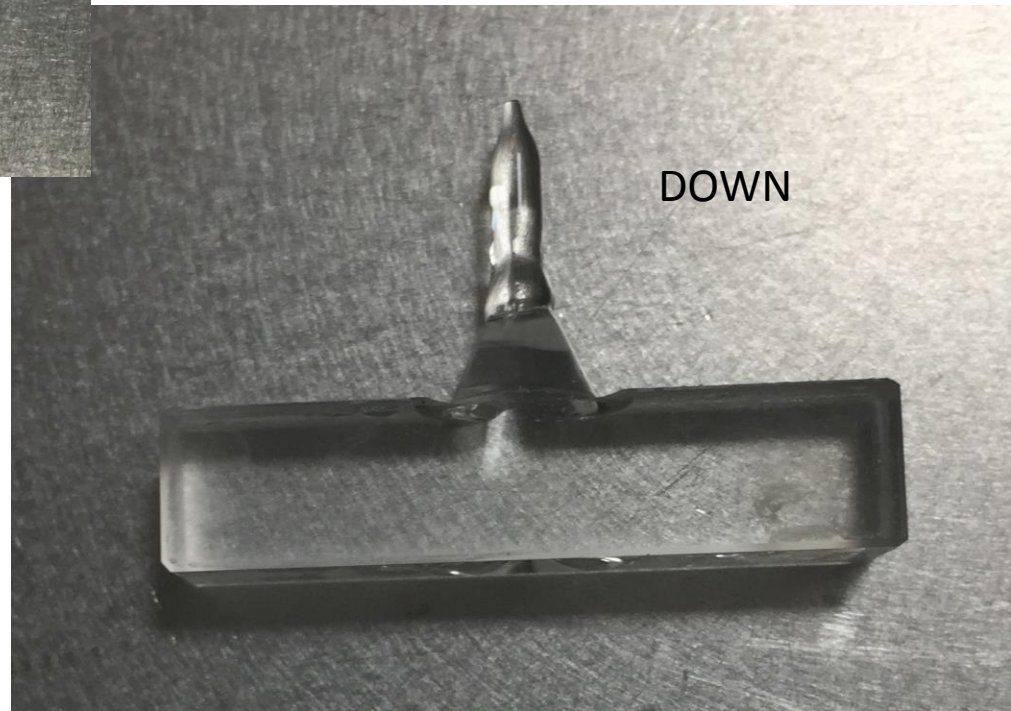
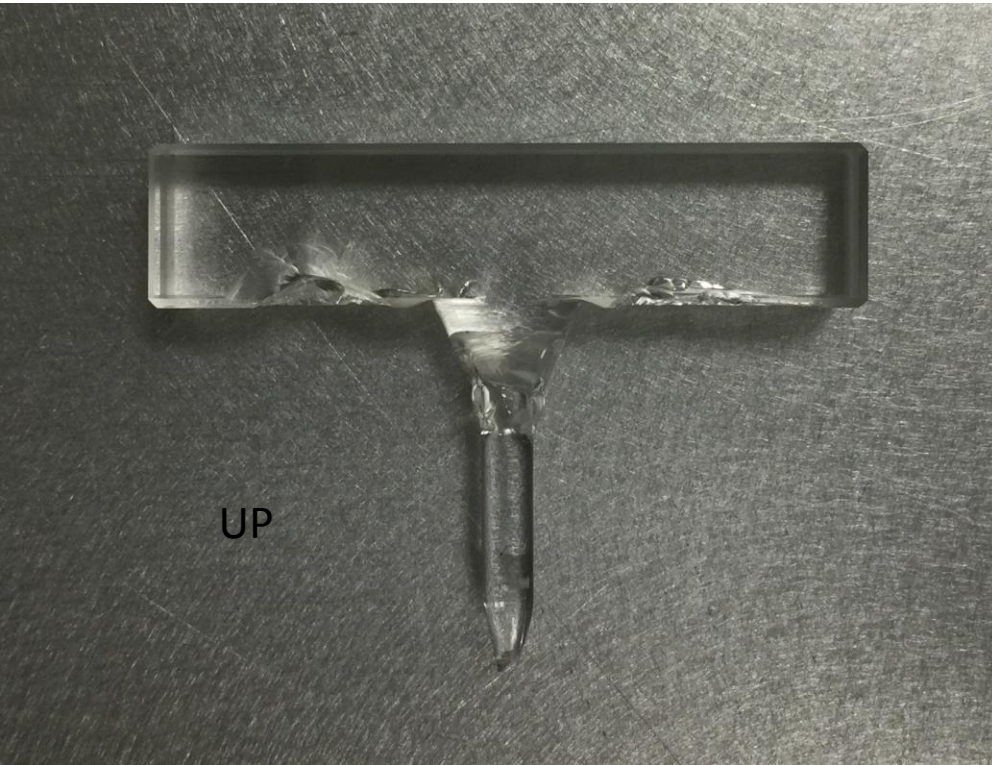


# 2° NI - Anchors n°1

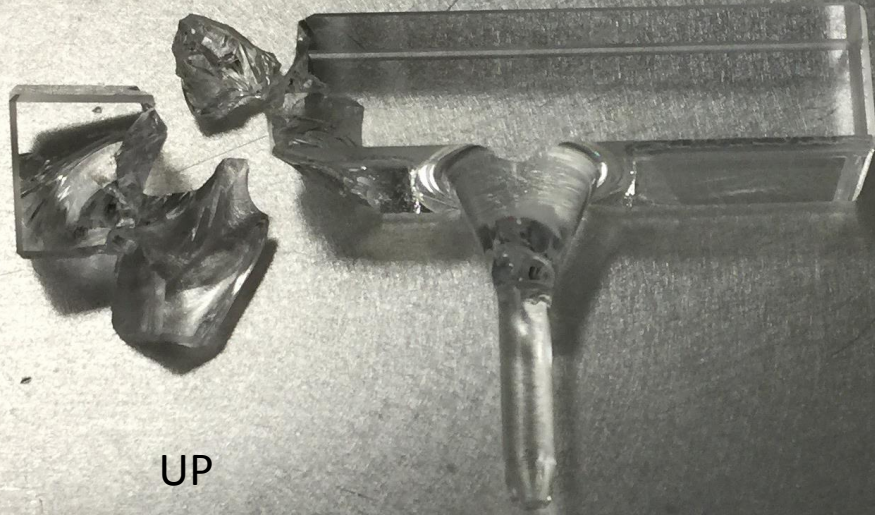


# 2° NI - Anchors n°2

According to the data the crash begun from this fiber

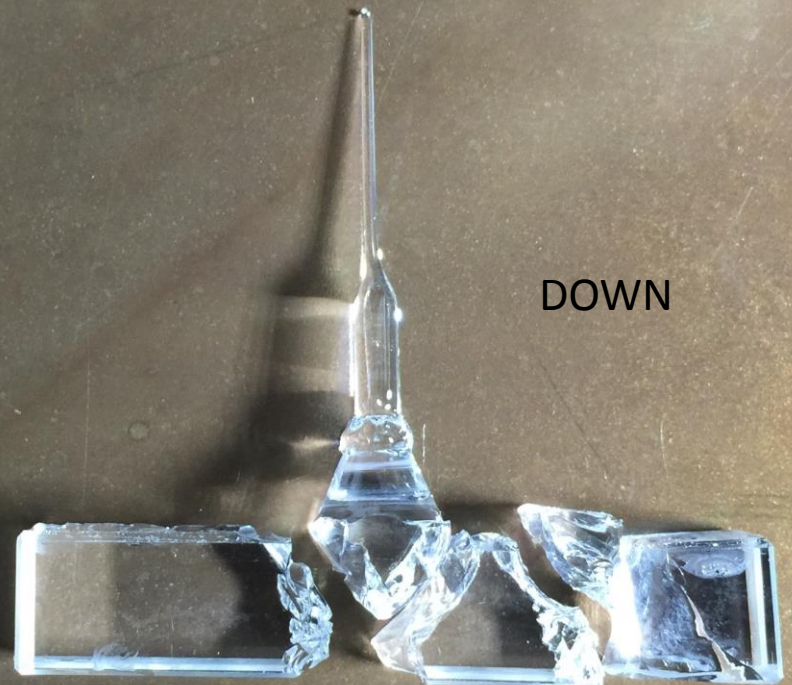


# 2° NI - Anchors n°3



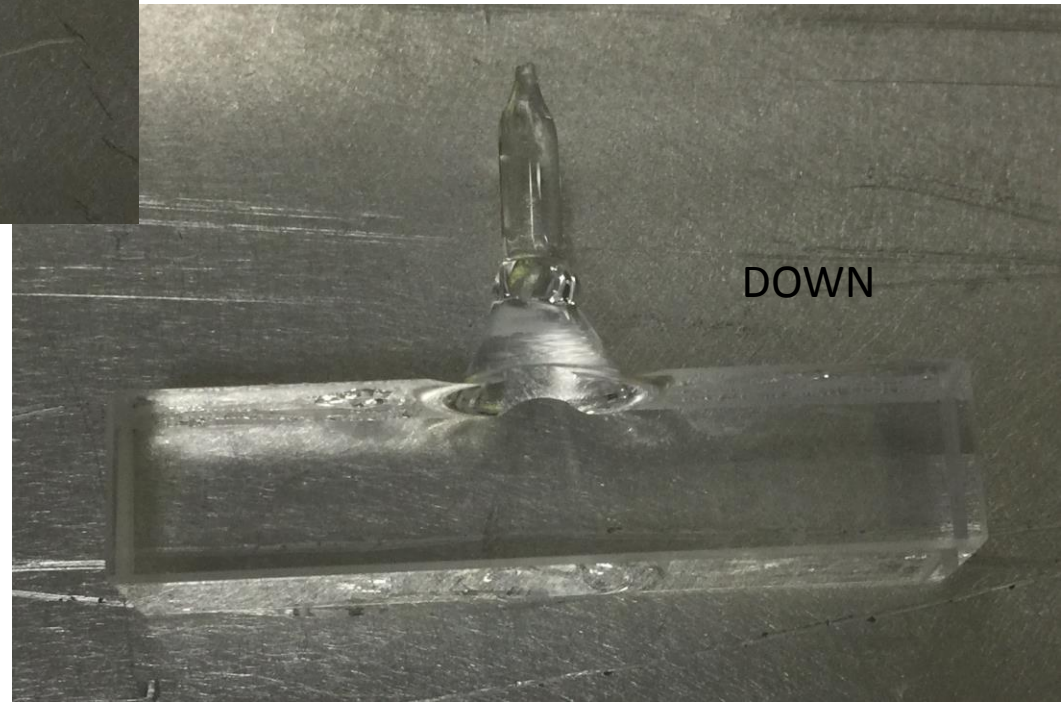
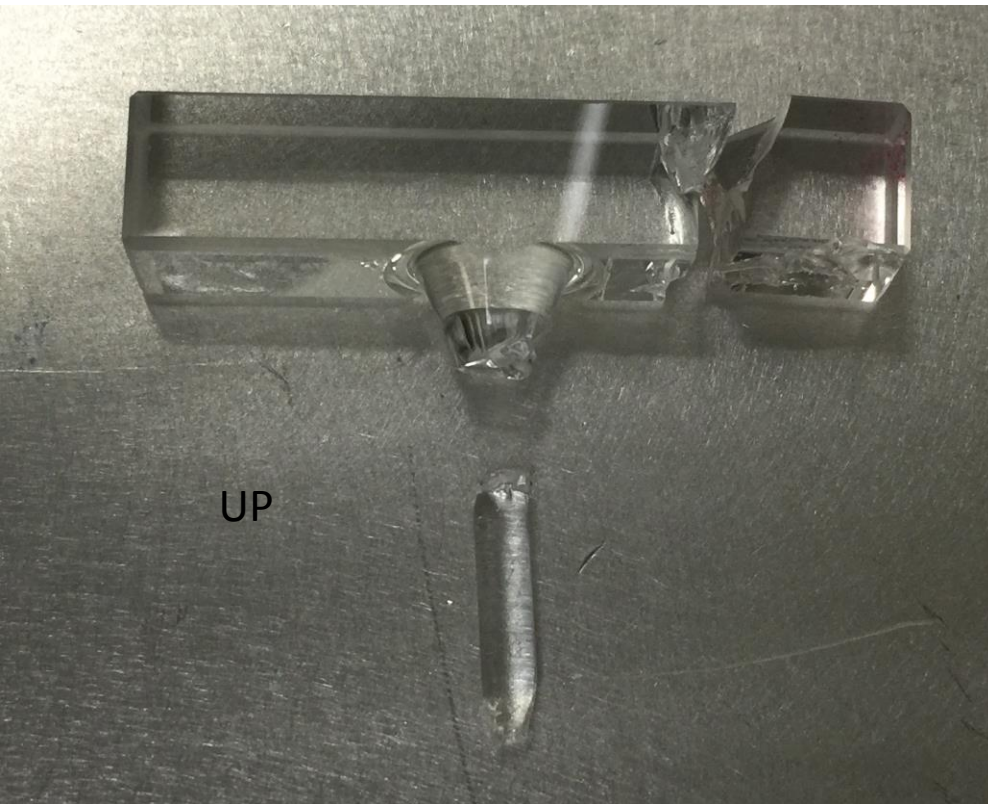
UP

In this suspension the anchors performed as expected.



DOWN

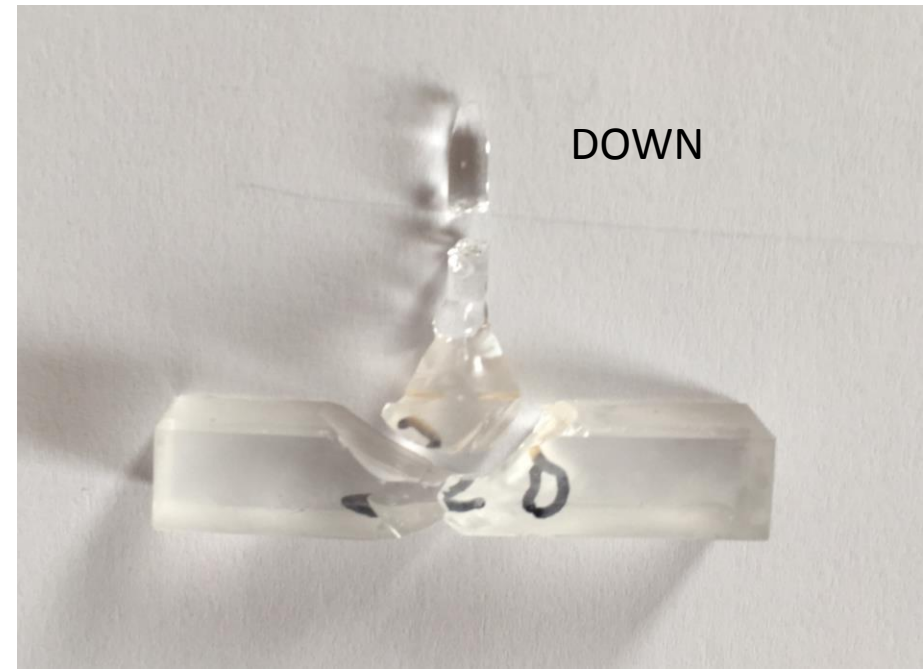
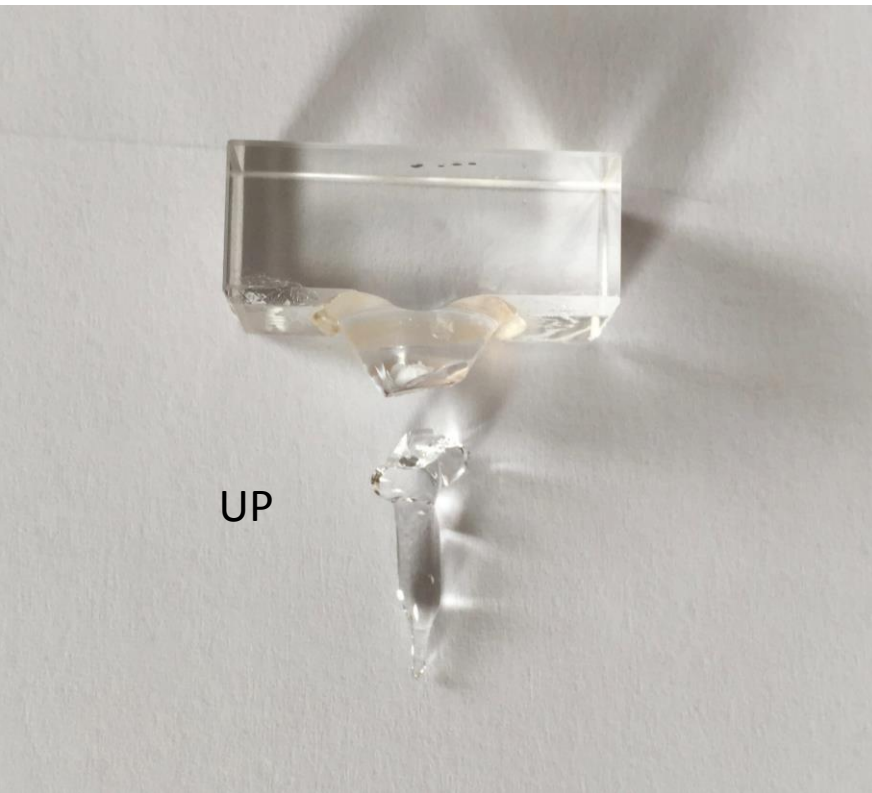
# 2° NI - Anchors n°4



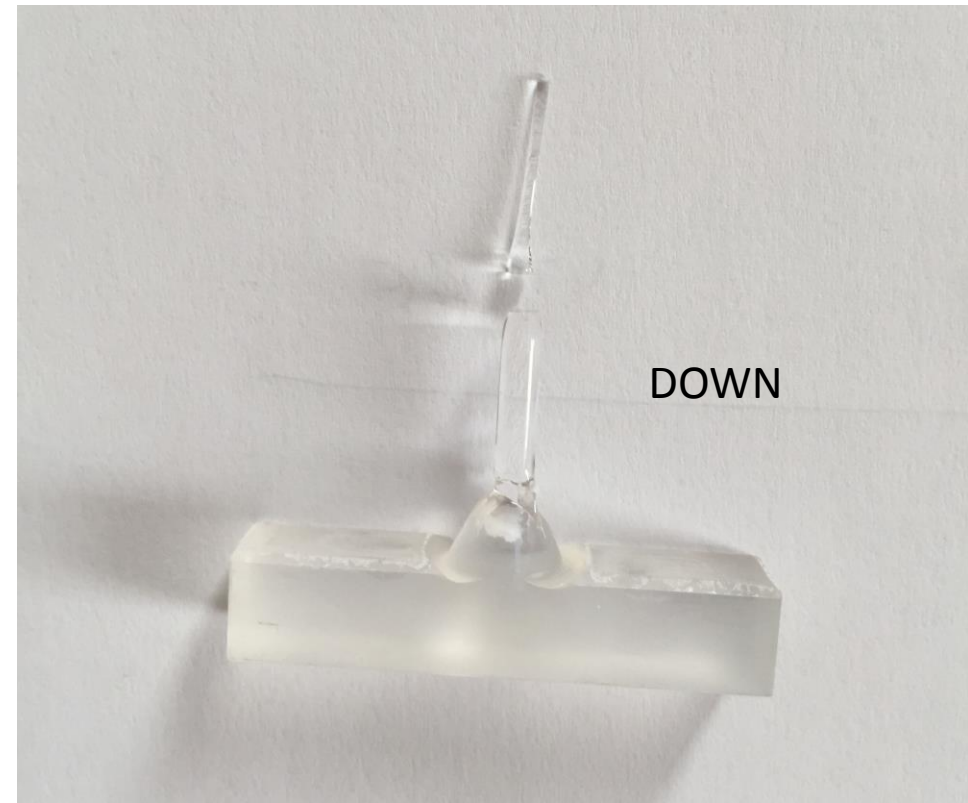
# WI - DUMMY

The fiber 3 and 4 survived,  
while fibers 1 and 2 were  
broken!

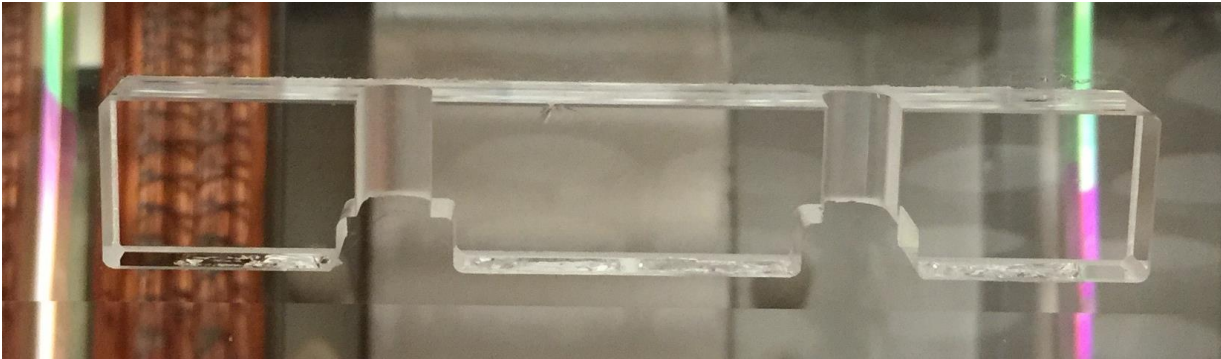
# WI dummy- Anchors n°1



# WI dummy- Anchors n°2



# 2° WI - Ears view after the crash



1

2



3

4



# 2° WI - Marionetta view after the crash

1

2

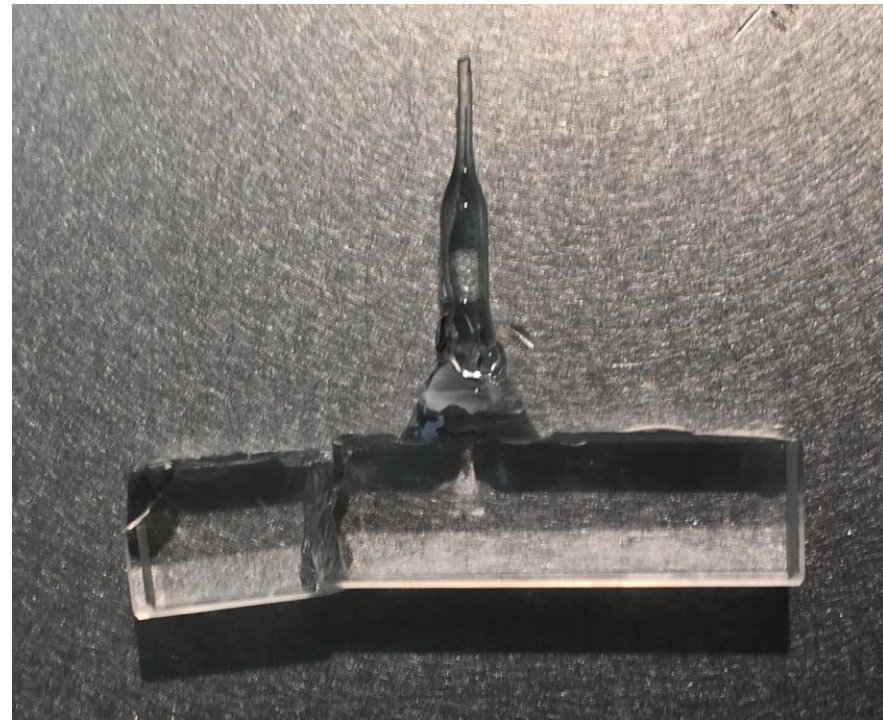
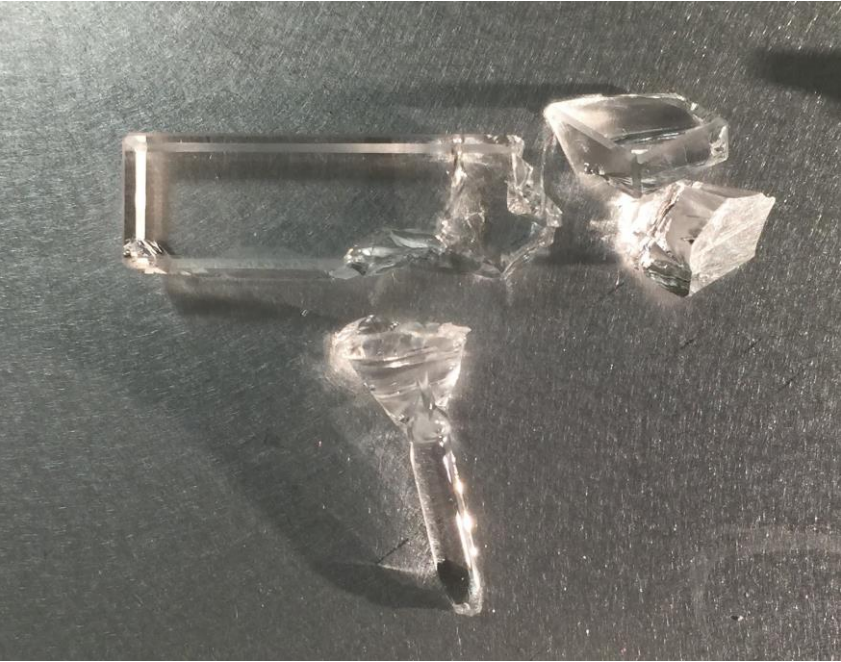


3

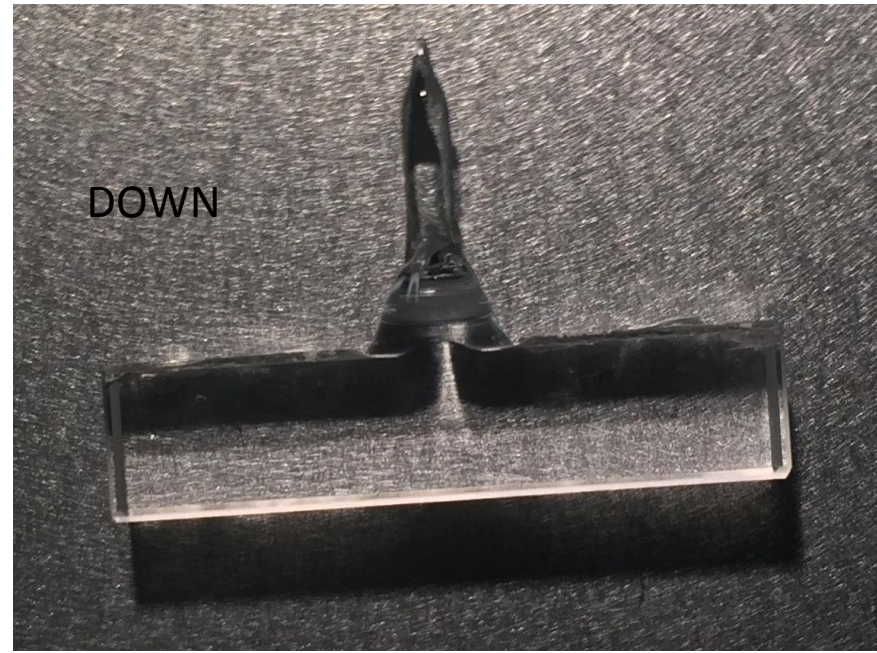
4



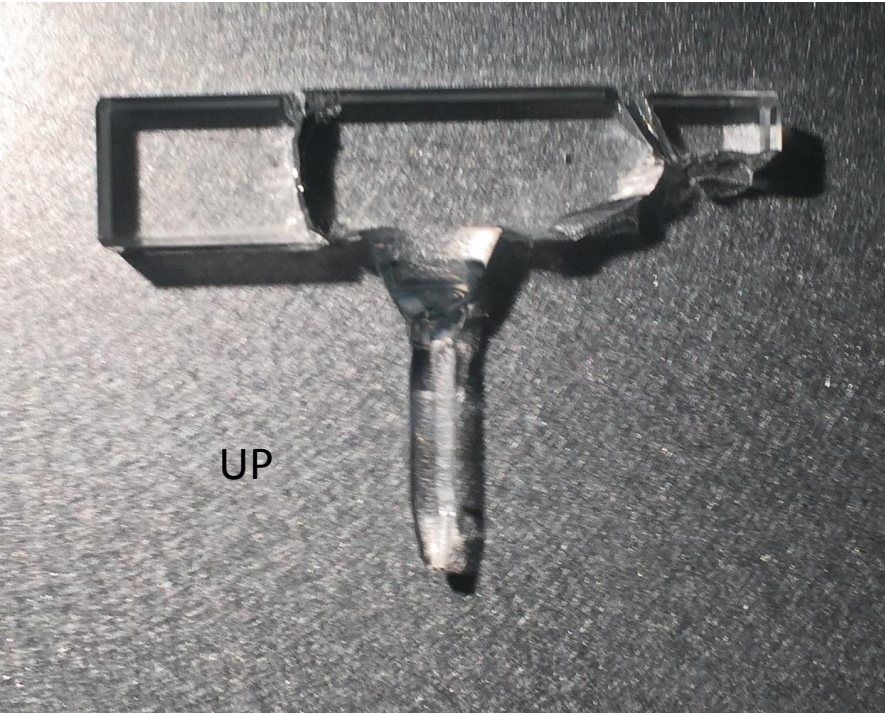
# 2° WI - Anchors n°1



# 2° WI - Anchors n°2



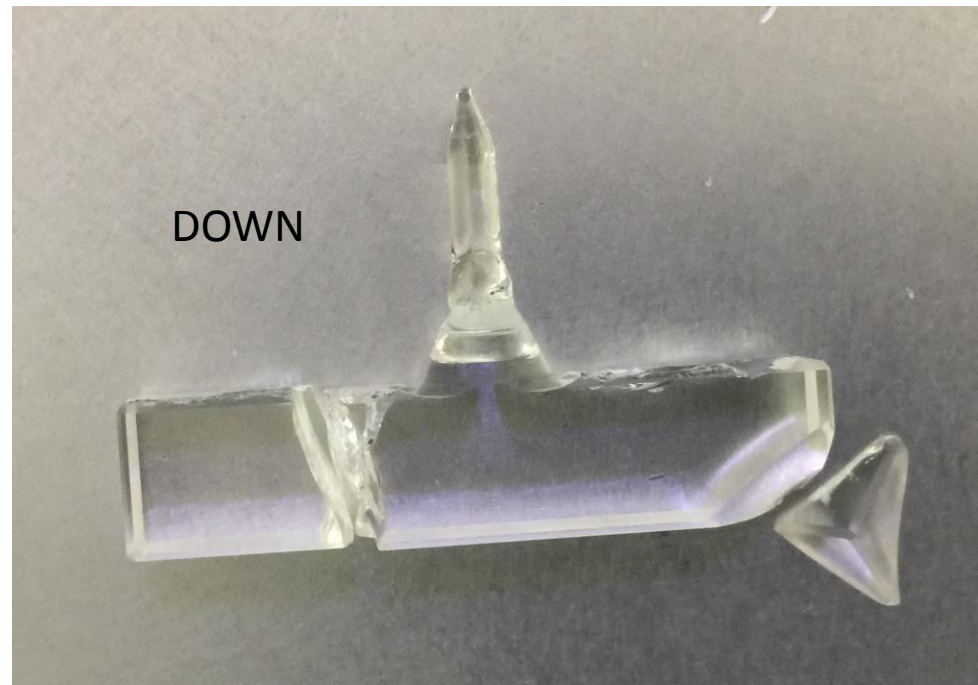
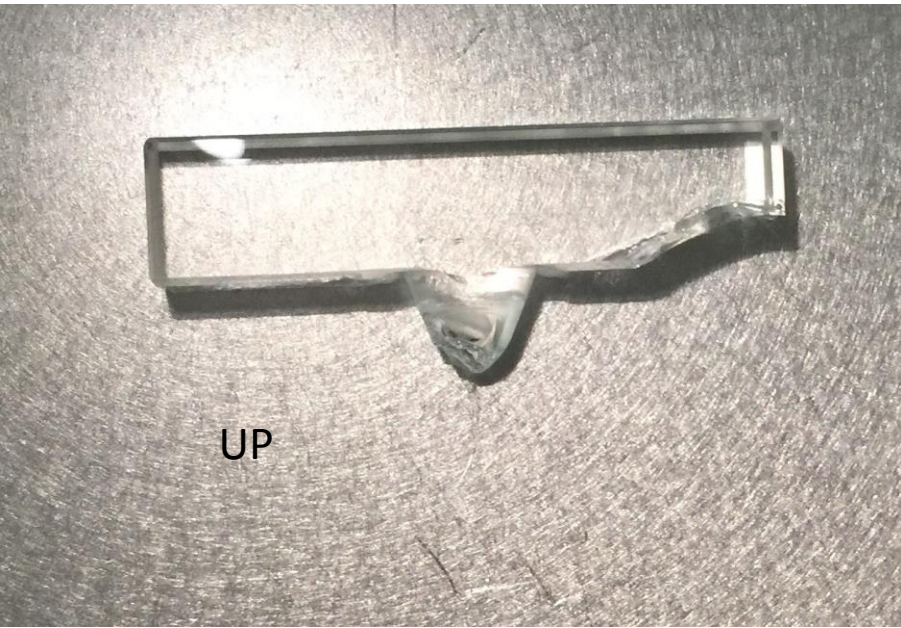
## 2° WI - Anchors n°3



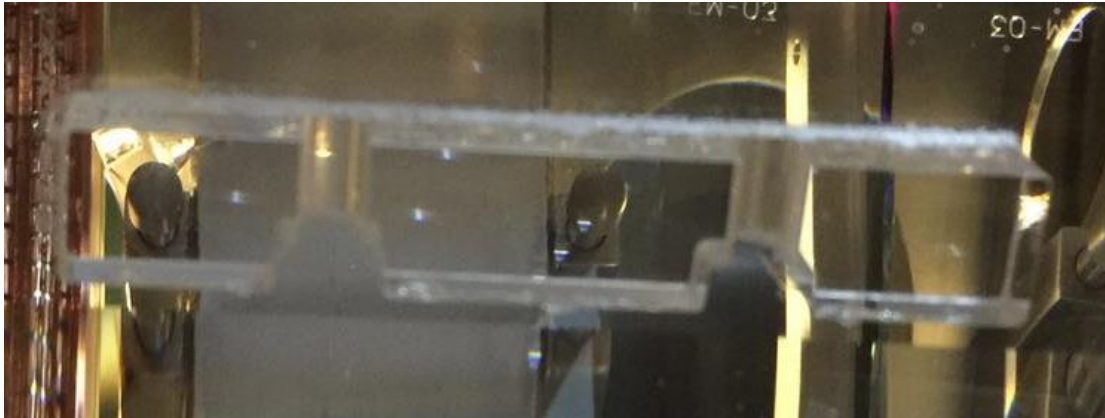
According to the data the crash begun from this fiber. The anchors performed as expected. The failure started at the level of the fiber (or at the level of the 3mm bar close to the welding).



# 2° WI - Anchors n°4

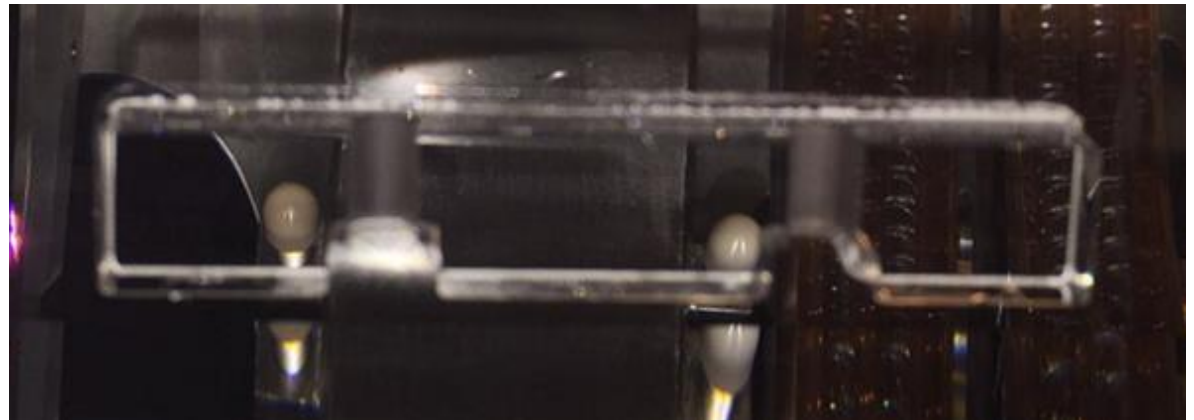


# WE - Ears view after the crash



1

2



3

4

# WE - Marionetta view after the crash



1

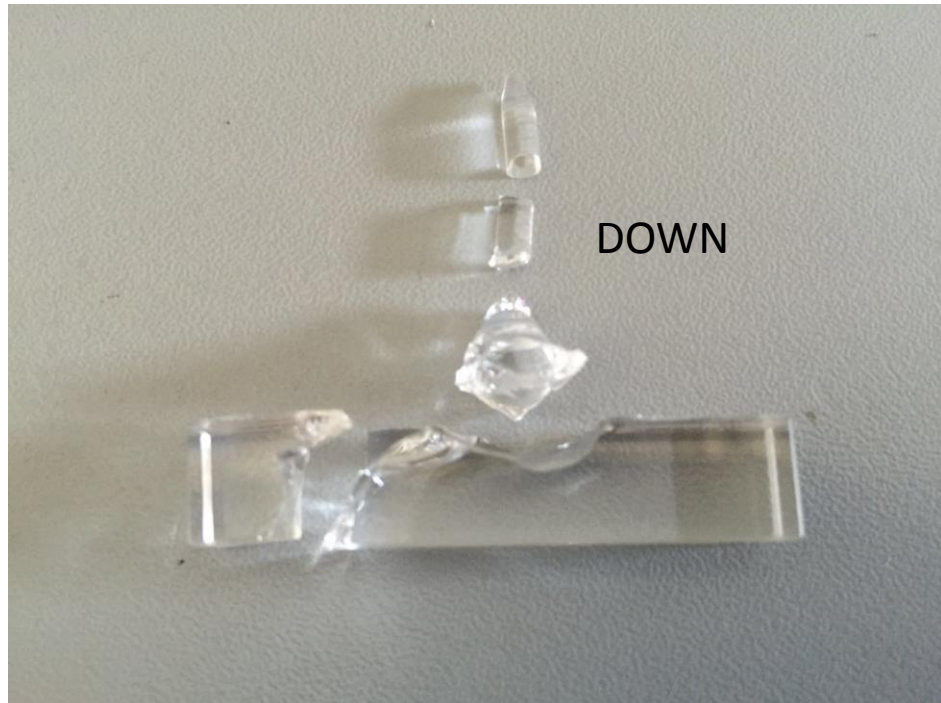
2



3

4

# WE - Anchors n°1





# WE - Anchors n°2

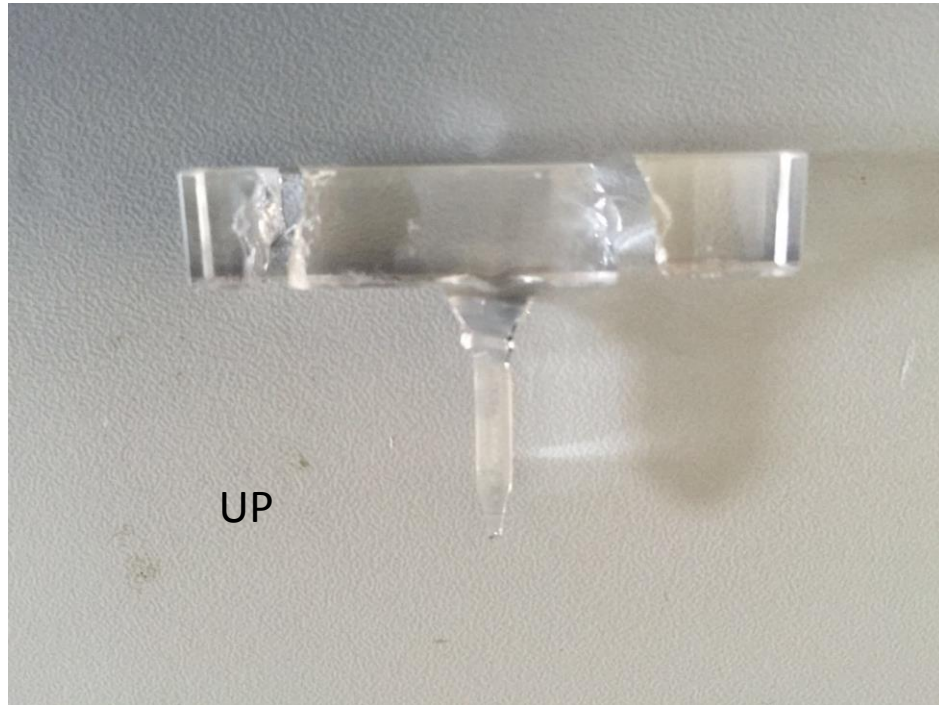


UP

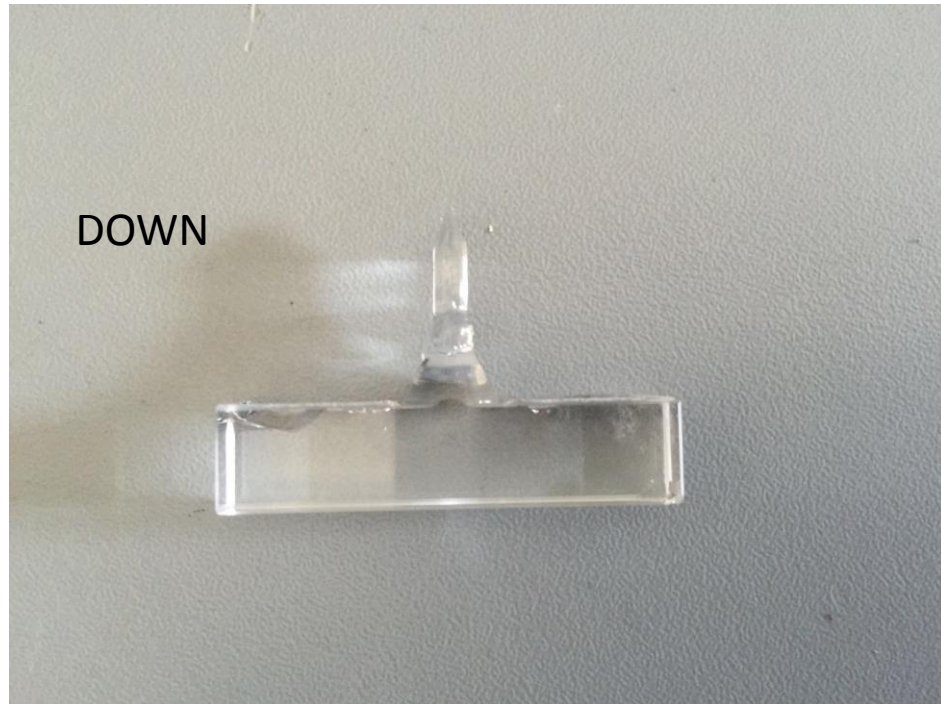


DOWN

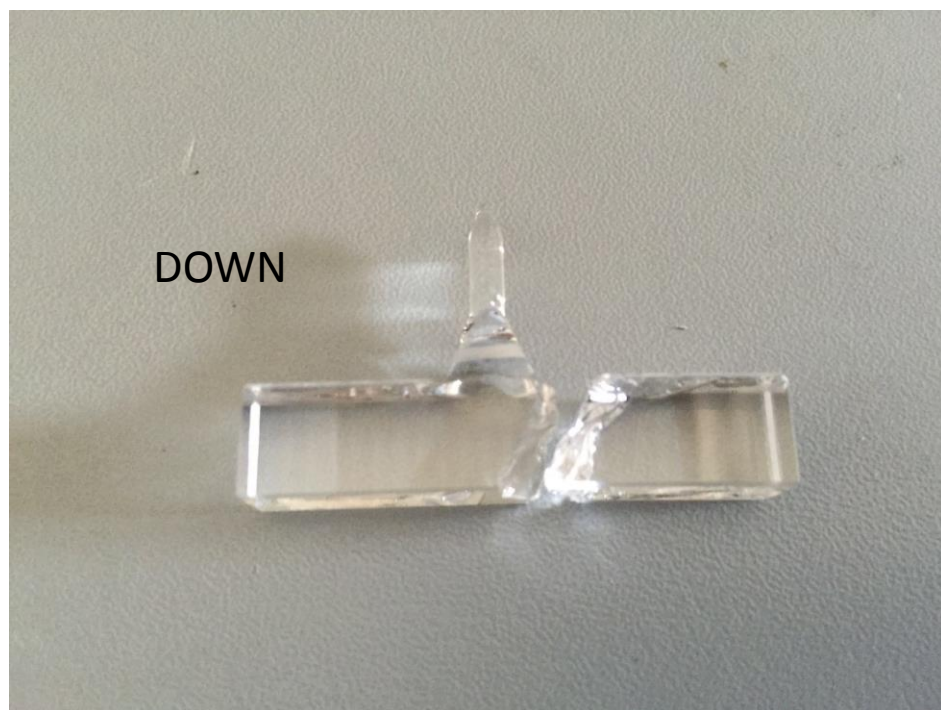
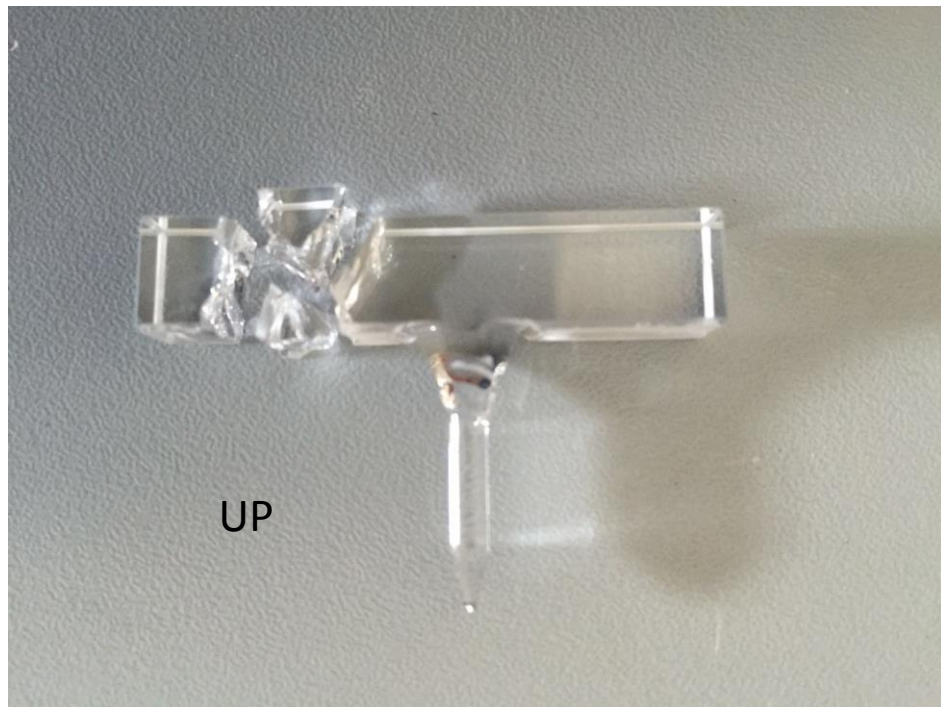
# WE - Anchors n°3



According to the data the crash begun from this fiber..it seems that the failure was induced by the fiber



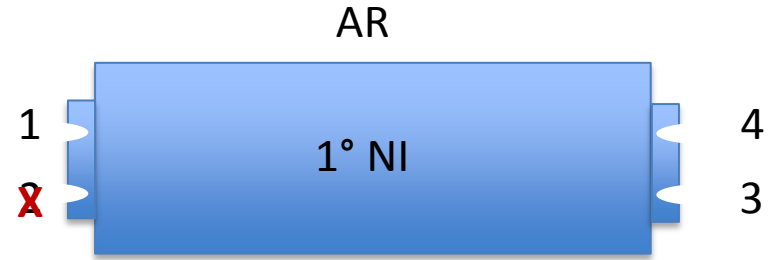
# WE - Anchors n°4



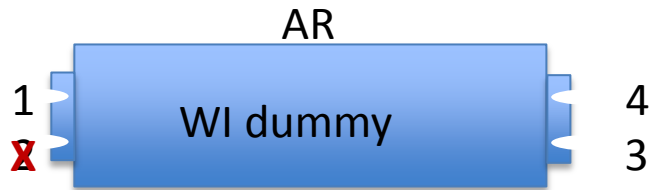
# Summary



HR



HR



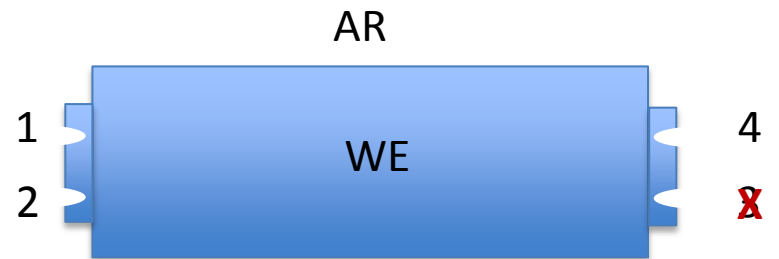
HR



HR



HR



HR

# Summary

Mirror failed	Failure date	Time in air	Time in vacuum	Anchor type	Likely cause
<b>WI</b>	Nov 18 <sup>th</sup> , 2015	5 months	9 days	old	Anchor collapse/welding/fibber
<b>NI</b>	Dec 18 <sup>th</sup> , 2015	4.5 months	5 days	old	Fiber/welding failure
<b>NI</b>	Mar 1 <sup>st</sup> , 2016	1 week	5 days	new	Fiber
<b>NE</b>	No failure	6 months	4 months (currently)	new	No failure
<b>WI dummy</b>	Apr 25 <sup>th</sup> , 2016	1 week	11 days	mixed old	Anchor collapse
<b>WI dummy</b>	No failure	2 days	2 weeks	mixed old	No failure
<b>WI</b>	Jun 25 <sup>th</sup> , 2016	1 month	30 days	new	Fiber/welding failure
<b>WE</b>	Jun 28 <sup>th</sup> , 2016	7 months	18 days	new	Fiber