

Date Tested: 1/29/25

Date Fabricated for Speed 1: 1/28/25

Moved to #2 SD card

Speed 1 (Cup 10) – 0.5 mm/s

Humidity: 16%

	Insertion 15			Insertion 5			Insertion 1		
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	trail	Photo #	L/N	trail	Photo #	L/N	trail	Photo #	L/N
Retraction 0	01	1	Leaked, straight up. Injection curve might be a bit unexpected.	05	5	Formed a cavity (that is perpendicular to the camera), then leaked.	07	7	Likely didnt penetrate enough, leaked above surface.
Retraction 1	02	2	No leak. Expanded cavity perpendicular so can't see as well on camera.	06	6	Leaked straight up.	x	x	x
Retraction 2	03	3	No leak, expanded cavity from needle	x	x	x	x	X	x
Retraction 4	04	4	Slightly leaking and expanding cavity	x	x	x	X	X	x

Speed 2 (Cup 9) - 2.5 mm/s
Humidity: 16%

	Insertion 15			Insertion 5			Insertion 1		
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	trail	Photo #	L/N	trail	Photo #	L/N	trail	Photo #	L/N
Retraction 0	08	8	No leak	12	12. Video shot after insertion.	Created cavity, then leaked.	14	14	Likely didn't penetrate enough, leaked above surface.
Retraction 1	09	9	Leaked at end a bit after creating cavity.	13	13	Created cavity then leaked.	x	x	x
Retraction 2	10	10	No leak. Created cavity, but perpendicular to camera.	x	x	x	x	X	x
Retraction 4	11	11	Created cavity, no leak.	x	x	x	X	X	x

Speed 3 (Cup 8) - 12.5 mm/s

Humidity: 16%

	Insertion 15			Insertion 5			Insertion 1		
	trail	Photo #	L/N	trail	Photo #	L/N	trail	Photo #	L/N
Retraction 0	15	15	No leak, cavity formed. Injection and graph peak 400	19	19	Heart shaped cavity, no leak.	21	21	Likely didnt penetrate enough, leaked above surface.
Retraction 1	16	16	No leak, created cavity, also high peak of 360.	20	20	No leak, heart shaped cavity.	x	x	x
Retraction 2	17	17 - didnt record insertion	No leak, created cavity, also high peak.	x	x	x	x	X	x
Retraction 4	18	18	Created cavity somewhat perpendicular to camera, no leak.	x	x	x	X	X	x

Speed 1 (Cup 7) - 0.5 mm/s

Humidity: 16%

	Insertion 15			Insertion 5			Insertion 1		
	trail	Photo #	L/N	trail	Photo #	L/N	trail	Photo #	L/N
Retraction 0	22	22	Shot up and leaked	26	26	Created cavity (perpendicular to camera) and leaked	28	28	Likely didnt penetrate enough, leaked above surface.
Retraction 1	23	23	Shot up and	27	27	Shot up and leaked	x	x	x

			leaked.						
Retraction 2	24	24	Shot up and leaked	x	x	x	x	X	x
Retraction 4	25	25	Shot up and leaked.	x	x	x	X	X	x

Speed 2 (Cup 6) - 2.5 mm/s

Humidity: 16%

	Insertion 15			Insertion 5			Insertion 1		
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	trail	Photo #	L/N	trail	Photo #	L/N	trail	Photo #	L/N
Retraction 0	29	29	Temp: 12.5 No leak. Cavity formed along the needle	33	33	No leak. Penny shaped crack along the needle	35	35	Like always.
Retraction 1	30	30	A spiral crack around the needle and then leaked	34	34	Looked like no leak. But at the end we had splash of water going out,	x	x	x
Retraction 2	31	31	No leak! A spiral crack along the needle and expansion of a penny-shaped crack.	x	x	x	x	X	x
Retraction 4	32	32	No leak. Crack along the needle, in the videos looks one sided but it is not.	x	x	x	X	X	x

Speed 3 (Cup 5) - 12.5 mm/s

Humidity: 16%

	Insertion 15			Insertion 5			Insertion 1		
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	trail	Photo #	L/N	trail	Photo #	L/N	trail	Photo #	L/N
Retraction 0	36	36	No leak. Cavity half way through the needle	40	40	No leak. Penny shaped crack	42	42	No insertion video
Retraction 1	37	37	No leak. Crack formed around the needle about $\frac{2}{3}$ of the needle.	41	41	No leak. Nice penny shaped crack at the tip. Leak was expected based on the insertion data	x	x	x
Retraction 2	38	38	No leak. Crack along the needle half way up.	x	x	x	x	X	x
Retraction 4	39	39	A small bubble. Keep an eye! No leak. Half way through	x	x	x	X	X	X

Speed 1 (Cup 4) - 0.5 mm/s

Humidity: 16%

	Insertion 15			Insertion 5			Insertion 1		
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	trail	Photo #	L/N	trail	Photo #	L/N	trail	Photo #	L/N
Retraction 0	43	43	Leaked from the beginning no cavity formed	47	47	Leak from the beginning. The insertion graph would tell.	49	49	Forgot to do injection
Retraction 1	44	44	Leaked. Almost no cavity	48	48	Leaked. Mind the gap between the needle and gelatin.	x	x	x
Retraction 2	45	45	No leak. A cavity around the needle. The insertion graph would tell no leak	x	x	x	x	X	x
Retraction 4	46	46	Formed a cavity a bit and then leaked and just leaked did not expand the cavity again.	x	x	x	X	X	x

Speed 2 (Cup 3) - 2.5 mm/s

Humidity: 16%

	Insertion 15			Insertion 5			Insertion 1		
	trail	Photo #	L/N	trail	Photo #	L/N	trail	Photo #	L/N
Retraction 0	50	50	No leak. Cavity all along the needle. No insertion video	54	54	No leak. There is a good cavity at the tip of the needle. I accidentally rewrote the insertion curve with the next insertion. But the insertion was a perfect nice insertion.	56	56	Like always
Retraction 1	51	51	No leak. Distorted crack around the needle. I accidentally rewrote the insertion curve with the next insertion. But the insertion was a perfect nice insertion.	55	55	Leaked from the beginning. Insertion curve (54) would tell.	x	x	x
Retraction 2	52	52	Insertion is 51. No leak crack along the needle	x	x	x	x	X	x
Retraction 4	53	53	No leak Distorted crack along the needle.	x	x	x	X	X	x

Speed 3 (Cup 1) - 12.5 mm/s

Humidity: 16%

	Insertion 15	Insertion 5	Insertion 1
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	trail	Photo #	L/N	trail	Photo #	L/N	trail	Photo #	L/N
Retraction 0	57	57	No leak. Penny shaped crack toward the end of the needle. Kind of one sided	61	61	No leak. Nice penny shaped crack at the tip of the needle.	x	x	x
Retraction 1	58	58	No leak. Expanding one sided crack along the needle.	62	62	No leak. Nice crack at the tip of the needle. The insertion curve suggested leaking.	x	x	x
Retraction 2	59	59	No leak. Onesided cavity. From here on it is popping up in the 2025-1-30 folder	x	x	x	x	X	x
Retraction 4	60	60	No leak. An almost one sided cavity along the needle. Cannot be observed well in the video	x	x	x	X	X	x