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Climate Storage Technical Edition

Study Info
ARE Labs Project # withheld

Date: date withheld

Key Parameters:
- Eyelash Serum
- Climate Storage Testing

Purpose: This study aimed to evaluate the effects of storage temperature on three under five (5) storage conditions. The five storage temperatures selected for this study are -30°C, 5°C, 23°C (room temperature), 40°C, and 60°C.

Background: Two hundred and ten (210) anonymized samples were tested for integrity after climate simulation testing. Seventy (70) samples of each of Variant A Variant B and Variant C were tested at five different storage temperatures. Fourteen (14) samples of each product were used for each of the storage temperatures; 2 samples each (immediate and 4-hour observation) for each of the seven days.

Methods: All the samples were inspected and weighed before and after the climate tests. Fourteen (14) samples were stored at their designated temperature in their storage location for 226 hours, with observations recorded every 24 hours. Two (2) samples were pulled every 24 hours, of which one (1) sample was inspected immediately after the test and the other sample was inspected after 4 hours of storage at room temperature. Five storage temperatures (-30°C, 5°C, 23°C, 40°C, and 60°C) were achieved with freezers, refrigerators, and incubators.

Results: Weight loss in samples was observed in samples stored at 23°C and higher, with the percent of loss increasing at elevated temperatures. At the higher temperatures, several sample anomalies were noted, including internal leaks, serum seepage, and difficulty opening. Samples stored at -30°C had their serum frozen when inspected immediately but thawed after 4 hours at room temperature. Samples stored at 5°C and 23°C behaved normally with occasional gooping (localized accumulation of serum) on the wand. At 40°C, gooping on the wand became more pronounced, and isolated instances of crystallization were observed. At 60°C, wands bent, and wipers detached from the assembled body.

Conclusion: The testing revealed that changes occurred in the product properties when stored at extreme temperature conditions. The wiper component was one of the most important and affected components of the assembled product. It cleaned the wand of excess serum while opening and regulated the amount of serum being used per application. However, when subjected to various storage conditions, the effectiveness of the wiper diminished and the gooping of the product on the wand was observed. Additionally, at the highest storage temperature (60°C), the wand bent which caused the wiper to get stuck onto the wand.

INTRODUCTION

Climate storage testing is a critical procedure to ensure the stability and efficacy of makeup products under varied environmental conditions. By subjecting these products to different temperature and humidity levels, this process identifies potential changes in formulation, packaging integrity, and usability. Monitoring these changes is essential as variations in temperature and humidity can affect the chemical composition, efficacy, and safety of the makeup product. This ensures that consumers receive a high-quality and reliable product.

Additionally, assessing packaging integrity through climate storage testing is crucial as environmental fluctuations may compromise the packaging materials, testing helps confirm that the packaging can endure diverse storage conditions, thereby maintaining product safety and extending shelf life. Furthermore, this process also evaluates product usability, ensuring that any changes in formulation or packaging do not negatively impact the ease of use, appearance, or overall user experience, thereby guaranteeing a positive customer experience.

This study assessed three anonymized cosmetic serum products: anonymized Advanced, Variant B and Variant A Pro—under five storage temperatures (-30°C, 5°C, 23°C, 40°C, and 60°C). A total of 210 samples were provided by the sponsor with 70 samples per product. Each storage condition was simulated for 226 hours, with observations recorded every 24 hours. See **Figure 1** for images of representative samples for the products tested in this study.

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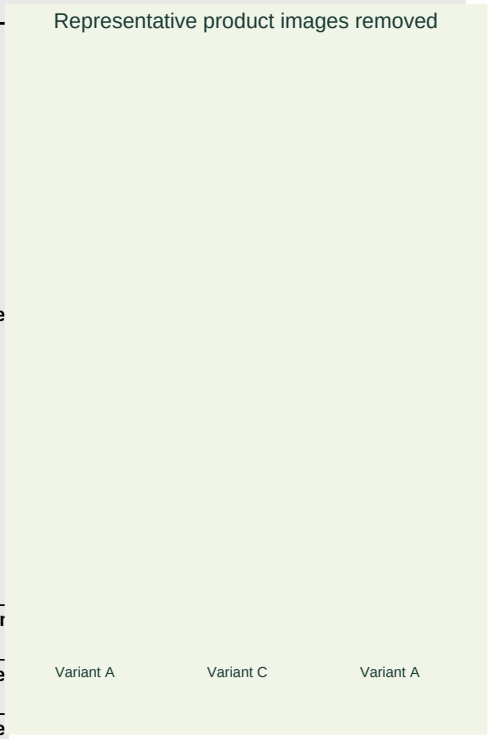
Product Image			
Manufacturer			
Product Name	Variant A	Variant C	Variant A
Product Type	Conditioner	Conditioner	Conditioner
Product ID	A	C	B
Lot #	withheld	withheld	withheld
Testing Performed	Climate Storage Simulation	Climate Storage Simulation	Climate Storage Simulation
# of Samples Tested	70	70	70

Figure 1: *The representative* anonymized *products tested.*

TEST METHOD

The testing was conducted in two phases: the first phase included extreme temperatures (-30°C and 60°C), while the second phase examined moderate temperatures (5°C, 23°C, and 40°C). Samples were placed in temperature-controlled storage environments and extracted at seven time points: five times in the first week (Monday–Friday) and twice in the second week (Monday & Tuesday). Two samples were pulled and inspected per time point—one analyzed immediately and the other after four hours at room temperature. See **Table 1** for the test matrix used for performing this study.

anonymized **Climatic Test Matrix**

Product Name	Total Qty. for Test	Total Temperature settings	Qty. observed per temperature setting	Number of units observed every 24 hours (except Sat/Sun)
Variant A Variant A Variant A packages	70 Total Tubes	5 total temperature settings	14 Tubes Observed per temperature setting	2 Tubes observed every 24 hours
Variant B Variant A Variant B Tubes)	70 Total Tubes	5 total temperature settings	14 Tubes Observed per temperature setting	2 Tubes observed every 24 hours
Variant C Variant C Tubes)	70 Total Tubes	5 total temperature settings	14 Tubes Observed per temperature setting	2 Tubes observed every 24 hours

Table 1*: Test Matrix used to perform the storage-temperature study on the* anonymized cosmetic serum samples

The storage spaces used for this study are listed below.

- -30°C – Thompson Freezer (See Figure2)
- 5°C – Powers Scientific Two-Door Refrigerator
- 23°C – Temperature Controlled Storage Room
- 40°C – Revco Ultima incubator
- 60°C – Lunaire TPS CEO910 – 4. (See Figure2)

Observations were made using a qualitative assessment sheet provided by the sponsor covering vial condition, wand characteristics, brush appearance, and wiper performance.

The qualitative inspection points were as follows:

1. Vial – Is there any solution on the outside of the tube?
2. Vial – Is there any solution on the vial neck (thread area)?
3. Vial – Does a bubble appear in the bottom window?
4. Wand – Is there a goopy solution on the wand?
5. Wand – Is there crystallization on the wand in the form of a hard, dried solution?
6. Wand – Is the wand clear in color? If not, what color?
7. Brush – Is the brush clear in color? If not, what color is it?
8. Wiper – Does the wiper remain seated in the vial when removing the cap?
9. Wiper - Does the wiper come out with the wand?
10. Wiper – Does the wiper appear to be discolored? Define color.

Product initial and final observations were made using the above-stated inspection points.

INITIAL OBSERVATIONS

The samples were lined up and arranged such that all the samples were ready for inspection. Each sample was labeled and inspected, and its condition was documented in a lab notebook using the ten inspection points. After inspection, each sample was weighed using a calibrated Mettler Toledo AX205 Calibrated weight scale. The weighed samples were then placed inside a flat-bottomed tub such that the tubes were parallel to the ground. The storage space was cleared of any additional objects that would affect the storage temperature, and the samples were placed inside the storage space.

FINAL OBSERVATIONS

The sample tubes were removed from the storage space and segregated into the immediate observations and 4-hour observation samples. Each sample group was weighed immediately after they were segregated, and the observations were noted using the inspection points. Pictures were taken when the final observation was different from the initial observation. After the final observations, the samples were stored in a separate box to avoid mix-ups and confusion throughout the observation period.

Storage Equipment Used

Name	*Lunaire TPS CEO910-4*	*Thompson Freezer*
Temperature Simulated	*60C*	*-30C*

Figure 2: *Storage devices used for the extreme low- and high-temperature (-30°C and 60°C) range of the testing.*

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Figure 3: *Sample Weight Loss Tracking of 210* anonymized cosmetic serum sample

RESULTS

SAMPLE WEIGHT TRACKING

The samples that were stored at sub-ambient temperatures (-30°C and 5°C) did not have any weight loss. However, the samples that were stored at ambient and above (23°C, 40°C, and 60°C) did see some weight loss. The loss in sample weight increased with an increase in storage temperature.

The A samples lost a maximum of 15mg, 93mg*(46mg otherwise, 93mg due to A sample 53), and 88mg when stored at 23°C, 40°C, and 60°C, respectively. The B samples lost a maximum of 15mg, 52mg, and 95mg when stored at 23°C, 40°C, and 60°C, respectively. The C samples lost a maximum of 15mg, 51mg, and 90mg when stored at 23°C, 40°C, and 60°C, respectively.

These results indicate that the storage temperature affects the sample weight during long-term storage. This loss and serum evaporation, but the exact cause cannot be determined without further investigation. See **Figure 3** for a 3D representation of all the sample weight losses recorded in this study at the inspection time points. See **Table A1** in **Appendix A** for complete weight loss tracking for all the samples tested in this study.

INITIAL OBSERVATIONS PERFORMED BEFORE TESTING

Of the 210 samples, there were only three samples that seemed to stand out as anomalous. The three samples were Variant A Samples 12 and 53 and Variant C Sample 12.

The Variant A sample 12 seemed to have an internal leak into the peekaboo window, and sample 53 had some serum on the outer body of the sample; the threaded area and the wand had some gooping. The Variant C sample 12 was harder to open compared to other samples, indicating either a manufacturing tolerance issue or serum drying on the top cap.

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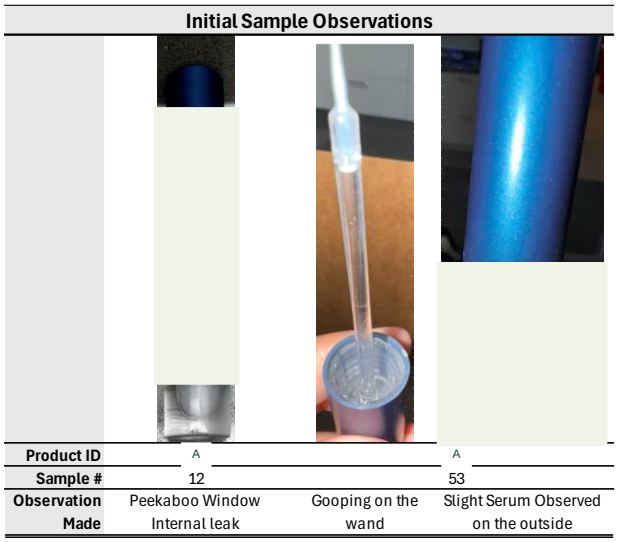

***Figure 4**: Initial observations for the anomalous samples.*

See **Figure 4** the images taken during initial observations of the anomalous samples. The sample wands were clear for all the samples provided, but the brush on the wand was classified as Translucent white. It is possible that the brush could also have been clear, but when they were analyzed, they had serum on them, and they were not completely clear so they were classified as Translucent white.

OBSERVATIONS PERFORMED AFTER TESTING

The A B and C had similar observations during the final observations. Most of the samples analyzed displayed slight gooping on the wand. Except for the 60°C samples, there were no failures of the wiper in the sample tube assembly. Types of gooping varied largely depending on the storage temperature and product type. Every storage temperature group had a unique set of characteristics. ***The scientist performing the study used slightly strict criteria to evaluate the samples. Hence there may be samples that may not be considered gooping to the manufacturer but were labelled as level 1 gooping.*** See **Figure 5** for a visual guide of gooping levels observed in this study.

Overall Immediate Test Observations

All the samples that were stored at -30°C had their serum completely frozen when they were analyzed immediately after extraction. The peekaboo window showed frozen serum with no air bubbles visible. Some of the samples, however, had small air bubbles inside the frozen serum. it was seen that the frozen serum was stuck on the wand which eventually turned into a goopy solution (level 2) on the wand. Some samples also had scratches on the wand in the location where the wiper was seated with the wand in the closed position. This indicated that the wiper orifice contracted during the storage period.

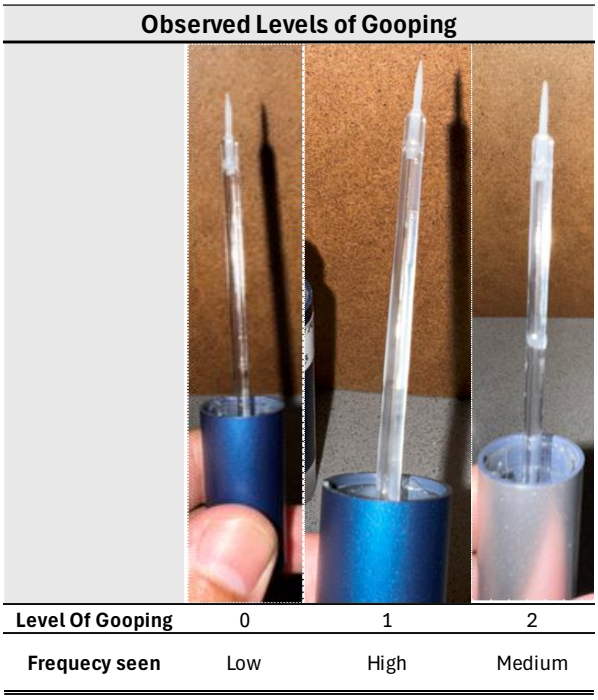

***Figure 5:** A visual guide for gooping levels ranging from 0 (None) to 2(Visible Gooping).*

Overall 4-Hour Test Observations

The 4-hour room temperature stored samples behaved normally, with the peekaboo window showing moving serum and a visible air bubble. However, some samples had slight gooping (level 1) on the wand. The wand properties were unaffected when compared to the initial observations.

OBSERVATIONS FOR SAMPLES STORED AT 5° AND 23°C

5° and 23°C - Immediate observations

None of the samples were frozen and the external properties of the samples were similar to the initial observations. Some samples had slight gooping on their wands. None of the samples had any discoloration of the wand/brush and the wiper was leaving slight marks on the wand. The wiper left some goop marks on the wand while removing and that was the case for most of the samples that

5° and 23°C - 4-Hour Observations

The 4-hour room temperature stored samples behavior normally, with the peekaboo window showing the moving serum and visible air bubble. The wand properties were unaffected when compared to the initial observations. The wiper left some goop marks on the wand while removing and that was seen for most of the samples that had gooping.

OBSERVATIONS FOR SAMPLES STORED AT 40°C

40°C - Immediate observations

All the stored samples were similar to the initial observations externally. The bubble inside the peekaboo window was moving for all the samples observed at various time points. When the wand was analyzed, we saw that there was visible gooping on it and it was mostly deposited in the region that was between the wiper orifice and the top of the wand.

Sample 53 Observations			
			
Product ID	A 53	A 53	A 53
Observation Made	Serum on Thread	Crystallization on the thread	Gooping

Figure 6: *Observations made on the A 53 Sample after storage at 40C.*

Sample 53, which before the storage displayed slight serum on the outer body and threads, was designated to be analyzed immediately after extraction from the incubator. The immediate observation after extraction was that the serum that was initially present on the threads of the tube had crystallized, and there was dried serum on the outer body of the tube. There was gooping observed on the wand, however, the wand and wiper characteristics did not change from the initial observations. The wand was clear in the regions there was no goop and the brush color remained translucent white.

40°C - 4-Hour Observations

The 4-hour room temperature stored samples behaved normally, with the peekaboo window showing the moving serum and a visible air bubble. The wand properties were unaffected when compared to the initial observations. There was slight gooping on all the samples which would indicate that the wiper orifice properties depended on the storage temperatures.

OBSERVATIONS FOR SAMPLES STORED AT 60°C

60°C - Immediate Observations

The external properties of the samples that were extracted and analyzed immediately did not have any changes compared to the initial observations. There was no serum on the threads, the air bubble was moving, and visible and there was no crystallization observed on any of the samples. However, all the wands of the 60°C stored samples were bent during the storage period. The angle of bend on the wand ranged from 1.5 – 5.5 depending on the sample and extraction timepoint. See **Figure 7** for an image of a sample showing a bend in the wand after 60°C storage. See **Table 2** for wand Bend tracking for all the 60°C samples. For most of the samples, the wiper dislodged from its original place and was stuck on the wand while opening the tube. Since the wiper was stuck on the wand, the wand had serum gooped all over, but the brush color did not change during the entire storage period.

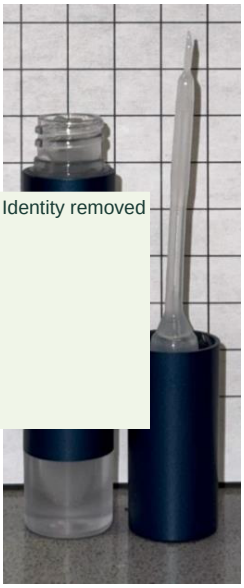

Figure 7: The wand bending observed on A sample 67 that was stored in 60C storage.

60°C - 4-Hour Observations

The observations made at 4 hours were similar to the ones that were made immediately. There were no changes in the external properties of the sample tubes. There was no crystallization on the tube and no serum on the threads of the sample. All of the samples had bent wands, and because of this, the wiper was stuck on the wand and got dislodged when it was opened. These results indicate that storing the products at high storage temperatures should be avoided.

SUMMARY OF RESULTS

The effects of storage temperatures on the were tested. A total of 210 samples were used to analyze the temperature effects. Three individual products were tested in this study; they were Variant A Variant B and Variant C The findings highlight that weight loss was observed at 23°C and higher, with the degree of loss increasing at elevated temperatures. Several sample anomalies were noted, including internal leaks, serum seepage, and difficulty opening. Lower storage temperatures (-30°C and 5°C) preserved formulation integrity, though frozen serum caused temporary usability issues. At 40°C, gooping on the wand became more pronounced, and isolated instances of crystallization were observed. At 60°C, wands bent and wipers detached which significantly impacted usability.

This study revealed that the wiper was one of the most important components of the assembled product. It cleaned the wand of excess serum while opening and regulated the amount of serum being used per application. However, when subjected to various storage conditions, the effectiveness of the wiper started diminishing and we started noticing gooping on the wand. The wand also plays an important role in product functionality as when subjected to very high storage temperature (60°C), the wand bent which caused the wiper to get stuck onto the wand. The Final observations of all samples can be seen in **Table 3**, **Table 4,** and **Table 5** on the following pages.

Wand Angle Bend Tracking

Sample ID		Bend Angle	Sample ID		Bend Angle	Sample ID		Bend Angle
A	57	2.5	C	57	4.1	B	57	2.5
A	58	3.9	C	58	4.3	B	58	4.3
A	59	4	C	59	3.6	B	59	1.8
A	60	3.5	C	60	4	B	60	4
A	61	3.5	C	61	3	B	61	2.9
A	62	4.6	C	62	3.6	B	62	2.2
A	63	2.7	C	63	3.2	B	63	3.8
A	64	3.5	C	64	3.3	B	64	2.9
A	65	4.5	C	65	2.9	B	65	4.3
A	66	3.8	C	66	3	B	66	5.5
A	67	3.3	C	67	3.4	B	67	3.2
A	68	3.9	C	68	4.3	B	68	4
A	69	2.9	C	69	2.9	B	69	4
A	70	4	C	70	2.5	B	70	3.2

***Table 2**: Wand Bend Angle tracking for 60C stored Samples.*

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A Sample Observations Summary Table

Storage Temperature	Sample ID	Vial: Solution Outside Tube?		Vial: Solution on Neck?		Vial peekaboo window: bubble moving?		Wand: Goop Level?		Wand: Hard/dried solution?		Wand: Color: Clear?		Brush: Color: Clear?		Wiper: Is Seated While Opeing?		Wiper: Wiper moves with wand?		Wiper: decolorization? Define?	
		Initial	Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final
-30°C Storage	A 1	No	No	No	No	Yes	No	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	A 2	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	A 3	No	No	No	No	Yes	No	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	A 4	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	A 5	No	No	No	No	Yes	No	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	A 6	No	No	No	No	Yes	Yes	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	A 7	No	No	No	No	Yes	No	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	A 8	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	A 9	No	No	No	No	Yes	No	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	A 10	No	No	No	No	Yes	Yes	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	A 11	No	No	No	No	Yes	No	0	2	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	A 12	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	A 13	No	No	No	No	Yes	No	0	2	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	A 14	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
5°C Storage	A 15	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	A 16	No	No	No	No	Yes	Yes	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	A 17	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	A 18	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	A 19	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	A 20	No	No	No	No	Yes	Yes	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	A 21	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	A 22	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	A 23	No	No	No	No	Yes	Yes	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	A 24	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	A 25	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	A 26	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	A 27	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	A 28	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
23°C Storage	A 29	No	No	No	No	Yes	Yes	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	A 30	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	A 31	No	No	No	No	Yes	Yes	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	A 32	No	No	No	No	Yes	Yes	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	A 33	No	No	No	No	Yes	Yes	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	A 34	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	A 35	No	No	No	No	Yes	Yes	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	A 36	No	No	No	No	Yes	Yes	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	A 37	No	No	No	No	Yes	Yes	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	A 38	No	No	No	No	Yes	Yes	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	A 39	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	A 40	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	A 41	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	A 42	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
40°C Storage	A 43	No	No	No	No	Yes	Yes	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	A 44	No	No	No	No	Yes	Yes	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	A 45	No	No	No	No	Yes	Yes	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	A 46	No	No	No	No	Yes	Yes	0	2	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	A 47	No	No	No	No	Yes	Yes	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	A 48	No	No	No	No	Yes	Yes	0	2	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	A 49	No	No	No	No	Yes	Yes	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	A 50	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	A 51	No	No	No	No	Yes	Yes	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	A 52	No	No	No	No	Yes	Yes	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	A 53	Yes	No	Yes	Yes	Yes	Yes	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	A 54	No	No	No	No	Yes	Yes	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	A 55	No	No	No	No	Yes	Yes	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	A 56	No	No	No	No	Yes	Yes	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
60°C Storage	A 57	No	No	No	No	Yes	Yes	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	A 58	No	No	No	No	Yes	Yes	0	2	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	A 59	No	No	No	No	Yes	Yes	0	2	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	A 60	No	No	No	No	Yes	Yes	0	2	No	No	Yes	Yes	White	White	Yes	No	No	Yes	No	No
	A 61	No	No	No	No	Yes	Yes	0	2	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	A 62	No	No	No	No	Yes	Yes	0	2	No	No	Yes	Yes	White	White	Yes	No	No	Yes	No	No
	A 63	No	No	No	No	Yes	Yes	0	2	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	A 64	No	No	No	No	Yes	Yes	0	2	No	No	Yes	Yes	White	White	Yes	No	No	Yes	No	No
	A 65	No	No	No	No	Yes	Yes	0	2	No	No	Yes	Yes	White	White	Yes	No	No	Yes	No	No
	A 66	No	No	No	No	Yes	Yes	0	2	No	No	Yes	Yes	White	White	Yes	No	No	Yes	No	No
	A 67	No	No	No	No	Yes	Yes	0	2	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	A 68	No	No	No	No	Yes	Yes	0	2	No	No	Yes	Yes	White	White	Yes	No	No	Yes	No	No
	A 69	No	No	No	No	Yes	Yes	0	2	No	No	Yes	Yes	White	White	Yes	No	No	Yes	No	No
	A 70	No	No	No	No	Yes	Yes	0	2	No	No	Yes	Yes	White	White	Yes	No	No	Yes	No	No

***Table 3**: Final Observations of the 70* Variant A *Samples Tested in this Study.*

ARE Labs
12880 Metcalf Ave, Overland Park, KS 66213
+1-913-850-6630 | info@arelabs.com

B **Sample Observations Summary Table**

Storage Temperature	Sample ID	Vial: Solution Outside Tube?		Vial: Solution on Neck?		Vial peekaboo window: bubble moving?		Wand: Goop Level?		Wand: Hard/dried solution?		Wand: Color: Clear?		Brush: Color: Clear?		Wiper: Is Seated While Opeing?		Wiper: Wiper moves with wand?		Wiper: decolorization? Define?	
		Initial	Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final
-30°C Storage	B 1	No	No	No	No	Yes	No	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 2	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 3	No	No	No	No	Yes	No	0	2	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 4	No	No	No	No	Yes	Yes	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 5	No	No	No	No	Yes	No	0	2	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 6	No	No	No	No	Yes	Yes	0	2	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 7	No	No	No	No	Yes	No	0	2	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 8	No	No	No	No	Yes	Yes	0	2	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 9	No	No	No	No	Yes	No	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 10	No	No	No	No	Yes	Yes	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 11	No	No	No	No	Yes	No	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 12	No	No	No	No	Yes	Yes	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 13	No	No	No	No	Yes	No	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 14	No	No	No	No	Yes	Yes	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
5°C Storage	B 15	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 16	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 17	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 18	No	No	No	No	Yes	Yes	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 19	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 20	No	No	No	No	Yes	Yes	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 21	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 22	No	No	No	No	Yes	Yes	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 23	No	No	No	No	Yes	Yes	0	2	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 24	No	No	No	No	Yes	Yes	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 25	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 26	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 27	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 28	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
23°C Storage	B 29	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 30	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 31	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 32	No	No	No	No	Yes	Yes	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 33	No	No	No	No	Yes	Yes	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 34	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 35	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 36	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 37	No	No	No	No	Yes	Yes	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 38	No	No	No	No	Yes	Yes	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 39	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 40	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 41	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 42	No	No	No	No	Yes	Yes	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
40°C Storage	B 43	No	No	No	No	Yes	Yes	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 44	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 45	No	No	No	No	Yes	Yes	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 46	No	No	No	No	Yes	Yes	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 47	No	No	No	No	Yes	Yes	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 48	No	No	No	No	Yes	Yes	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 49	No	No	No	No	Yes	Yes	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 50	No	No	No	No	Yes	Yes	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 51	No	No	No	No	Yes	Yes	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 52	No	No	No	No	Yes	Yes	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 53	No	No	Yes	Yes	Yes	Yes	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 54	No	No	No	No	Yes	Yes	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 55	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 56	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
60°C Storage	B 57	No	No	No	No	Yes	Yes	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 58	No	No	No	No	Yes	Yes	0	2	No	No	Yes	Yes	White	White	Yes	No	No	Yes	No	No
	B 59	No	No	No	No	Yes	Yes	0	2	No	No	Yes	Yes	White	White	Yes	No	No	Yes	No	No
	B 60	No	No	No	No	Yes	Yes	0	2	No	No	Yes	Yes	White	White	Yes	No	No	Yes	No	No
	B 61	No	No	No	No	Yes	Yes	0	2	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 62	No	No	No	No	Yes	Yes	0	2	No	No	Yes	Yes	White	White	Yes	No	No	Yes	No	No
	B 63	No	No	No	No	Yes	Yes	0	2	No	No	Yes	Yes	White	White	Yes	No	No	Yes	No	No
	B 64	No	No	No	No	Yes	Yes	0	2	No	No	Yes	Yes	White	White	Yes	No	No	Yes	No	No
	B 65	No	No	No	No	Yes	Yes	0	2	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 66	No	No	No	No	Yes	Yes	0	2	No	No	Yes	Yes	White	White	Yes	No	No	Yes	No	No
	B 67	No	No	No	No	Yes	Yes	0	2	No	No	Yes	Yes	White	White	Yes	No	No	Yes	No	No
	B 68	No	No	No	No	Yes	Yes	0	2	No	No	Yes	Yes	White	White	Yes	No	No	Yes	No	No
	B 69	No	No	No	No	Yes	Yes	0	2	No	No	Yes	Yes	White	White	Yes	No	No	Yes	No	No
	B 70	No	No	No	No	Yes	Yes	0	2	No	No	Yes	Yes	White	White	Yes	No	No	Yes	No	No

***Table 4**: Final Observations of the 70* Variant B *Samples Tested in this Study.*

ARE Labs
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C **Sample Observations Summary Table**

Storage Temperature	Sample ID	Vial: Solution Outside Tube?		Vial: Solution on Neck?		Vial peekaboo window: bubble moving?		Wand: Goop Level?		Wand: Hard/dried solution?		Wand: Color: Clear?		Brush: Color: Clear?		Wiper: Is Seated While Opeing?		Wiper: Wiper moves with wand?		Wiper: decolorization? Define?	
		Initial	Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final
-30°C Storage	B 1	No	No	No	No	Yes	No	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 2	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 3	No	No	No	No	Yes	No	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 4	No	No	No	No	Yes	Yes	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 5	No	No	No	No	Yes	No	0	2	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 6	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 7	No	No	No	No	Yes	No	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 8	No	No	No	No	Yes	Yes	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 9	No	No	No	No	Yes	No	0	2	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 10	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 11	No	No	No	No	Yes	No	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 12	No	No	No	No	Yes	Yes	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 13	No	No	No	No	Yes	No	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 14	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
5°C Storage	B 15	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 16	No	No	No	No	Yes	Yes	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 17	No	No	No	No	Yes	Yes	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 18	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 19	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 20	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 21	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 22	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 23	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 24	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 25	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 26	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 27	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 28	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
23°C Storage	B 29	No	No	No	No	Yes	Yes	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 30	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 31	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 32	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 33	No	No	No	No	Yes	Yes	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 34	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 35	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 36	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 37	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 38	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 39	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 40	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 41	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 42	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
40°C Storage	B 43	No	No	No	No	Yes	Yes	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 44	No	No	No	No	Yes	Yes	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 45	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 46	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 47	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 48	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 49	No	No	No	No	Yes	Yes	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 50	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 51	No	No	No	No	Yes	Yes	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 52	No	No	No	No	Yes	Yes	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 53	No	No	Yes	Yes	Yes	Yes	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 54	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 55	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 56	No	No	No	No	Yes	Yes	0	0	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
60°C Storage	B 57	No	No	No	No	Yes	Yes	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 58	No	No	No	No	Yes	Yes	0	2	No	No	Yes	Yes	White	White	Yes	No	No	Yes	No	No
	B 59	No	No	No	No	Yes	Yes	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 60	No	No	No	No	Yes	Yes	0	2	No	No	Yes	Yes	White	White	Yes	No	No	Yes	No	No
	B 61	No	No	No	No	Yes	Yes	0	1	No	No	Yes	Yes	White	White	Yes	Yes	No	No	No	No
	B 62	No	No	No	No	Yes	Yes	0	2	No	No	Yes	Yes	White	White	Yes	No	No	Yes	No	No
	B 63	No	No	No	No	Yes	Yes	0	2	No	No	Yes	Yes	White	White	Yes	No	No	Yes	No	No
	B 64	No	No	No	No	Yes	Yes	0	2	No	No	Yes	Yes	White	White	Yes	No	No	Yes	No	No
	B 65	No	No	No	No	Yes	Yes	0	2	No	No	Yes	Yes	White	White	Yes	No	No	Yes	No	No
	B 66	No	No	No	No	Yes	Yes	0	2	No	No	Yes	Yes	White	White	Yes	No	No	Yes	No	No
	B 67	No	No	No	No	Yes	Yes	0	2	No	No	Yes	Yes	White	White	Yes	No	No	Yes	No	No
	B 68	No	No	No	No	Yes	Yes	0	2	No	No	Yes	Yes	White	White	Yes	No	No	Yes	No	No
	B 69	No	No	No	No	Yes	Yes	0	2	No	No	Yes	Yes	White	White	Yes	No	No	Yes	No	No
	B 70	No	No	No	No	Yes	Yes	0	2	No	No	Yes	Yes	White	White	Yes	No	No	Yes	No	No

***Table 5**: Final Observations of the 70* Variant C *Samples Tested in this Study.*

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ANONYMIZED EDITION NOTICE

The original signature, personnel, project-identification, date, and compliance-statement content on this page has been removed. This anonymized technical edition is unsigned and does not independently assert regulatory status, accreditation scope, or reviewer identity.

Scientific methods, results, tables, evidentiary photographs, and appendices remain on their original report pages. The source weight-loss plot is omitted because product codes are embedded in its raster; the exact plotted values remain in Table A1.

Editorial evidence notes: one 40 C Variant A unit lost 93 mg; the maximum among the remaining Variant A units was 46 mg. That unit had exterior and thread residue before exposure, so its later dried or crystallized residue does not establish a new storage-caused leak. The report did not determine the cause of mass loss. Its narrative gives a 1.5-5.5 degree bend range, while the displayed Table 2 values span 1.8-5.5 degrees.

Edition changes: identifying names, codes, dates, personnel, signatures, representative product-lineup images, and the identity-bearing raster plot were removed. Retained evidentiary photographs were pixel-redacted only where identifiers appeared. Scientific tables and appendices remain on their source pages.

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Appendix - A

Additional Supporting the Data

ARE Labs
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Sample Weight Loss Tracking Summary

Storage Temperature		A				B				C			
	#	Before Aging (gms)	After Aging (gms)	Net (gms)	Net (mg)	#	Before Aging (gms)	After Aging (gms)	Net (gms)	Net (mg)	#	Before Aging (gms)	After Aging (gms)	Net (gms)	Net (mg)
-30C	1	23.568	23.568	0.000	0.00	1	23.621	23.621	0.000	0.00	1	23.543	23.543	0.000	0.00
	2	23.587	23.587	0.000	0.00	2	23.607	23.607	0.000	0.00	2	23.608	23.608	0.000	0.00
	3	23.574	23.574	0.000	0.00	3	23.678	23.678	0.000	0.00	3	23.565	23.565	0.000	0.00
	4	23.600	23.600	0.000	0.00	4	23.583	23.583	0.000	0.00	4	23.536	23.536	0.000	0.00
	5	23.554	23.554	0.000	0.00	5	23.568	23.568	0.000	0.00	5	23.591	23.591	0.000	0.00
	6	23.581	23.581	0.000	0.00	6	23.563	23.563	0.000	0.00	6	23.593	23.593	0.000	0.00
	7	23.594	23.594	0.000	0.00	7	23.566	23.566	0.000	0.00	7	23.516	23.516	0.000	0.00
	8	23.540	23.540	0.000	0.00	8	23.580	23.580	0.000	0.00	8	23.521	23.521	0.000	0.00
	9	23.579	23.579	0.000	0.00	9	23.552	23.552	0.000	0.00	9	23.560	23.560	0.000	0.00
	10	23.521	23.521	0.000	0.00	10	23.580	23.580	0.000	0.00	10	23.527	23.527	0.000	0.00
	11	23.553	23.553	0.000	0.00	11	23.625	23.625	0.000	0.00	11	23.661	23.661	0.000	0.00
	12	23.532	23.532	0.000	0.00	12	23.624	23.624	0.000	0.00	12	23.829	23.829	0.000	0.00
	13	23.592	23.592	0.000	0.00	13	23.600	23.600	0.000	0.00	13	23.602	23.602	0.000	0.00
	14	23.601	23.601	0.000	0.00	14	23.644	23.644	0.000	0.00	14	23.569	23.569	0.000	0.00
5C	15	23.592	23.592	0.000	0.00	15	23.538	23.538	0.000	0.00	15	23.640	23.640	0.000	0.00
	16	23.566	23.566	0.000	0.00	16	23.602	23.602	0.000	0.00	16	23.537	23.537	0.000	0.00
	17	23.489	23.489	0.000	0.00	17	23.582	23.582	0.000	0.00	17	23.582	23.582	0.000	0.00
	18	23.587	23.587	0.000	0.00	18	23.654	23.654	0.000	0.00	18	23.512	23.512	0.000	0.00
	19	23.532	23.532	0.000	0.00	19	23.609	23.609	0.000	0.00	19	23.560	23.560	0.000	0.00
	20	23.578	23.578	0.000	0.00	20	23.546	23.546	0.000	0.00	20	23.477	23.477	0.000	0.00
	21	23.585	23.585	0.000	0.00	21	23.603	23.603	0.000	0.00	21	23.581	23.581	0.000	0.00
	22	23.605	23.605	0.000	0.00	22	23.572	23.572	0.000	0.00	22	23.552	23.552	0.000	0.00
	23	23.557	23.557	0.000	0.00	23	23.585	23.585	0.000	0.00	23	23.618	23.618	0.000	0.00
	24	23.544	23.544	0.000	0.00	24	23.615	23.615	0.000	0.00	24	23.650	23.650	0.000	0.00
	25	23.548	23.548	0.000	0.00	25	23.557	23.557	0.000	0.00	25	23.495	23.495	0.000	0.00
	26	23.602	23.602	0.000	0.00	26	23.608	23.608	0.000	0.00	26	23.573	23.573	0.000	0.00
	27	23.580	23.580	0.000	0.00	27	23.573	23.573	0.000	0.00	27	23.600	23.600	0.000	0.00
	28	23.619	23.619	0.000	0.00	28	23.573	23.573	0.000	0.00	28	23.520	23.520	0.000	0.00
23C	29	23.561	23.558	0.003	3.00	29	23.594	23.591	0.003	3.00	29	23.558	23.556	0.002	2.00
	30	23.611	23.608	0.003	3.00	30	23.550	23.546	0.004	4.00	30	23.511	23.508	0.003	3.00
	31	23.537	23.532	0.005	5.00	31	23.599	23.593	0.006	6.00	31	23.558	23.554	0.004	4.00
	32	23.580	23.575	0.005	5.00	32	23.640	23.635	0.005	5.00	32	23.558	23.553	0.005	5.00
	33	23.528	23.521	0.007	7.00	33	23.625	23.618	0.007	7.00	33	23.522	23.516	0.006	6.00
	34	23.548	23.541	0.007	7.00	34	23.567	23.560	0.007	7.00	34	23.575	23.568	0.007	7.00
	35	23.487	23.478	0.009	9.00	35	23.565	23.556	0.009	9.00	35	23.583	23.574	0.009	9.00
	36	23.544	23.535	0.009	9.00	36	23.563	23.554	0.009	9.00	36	23.547	23.538	0.009	9.00
	37	23.547	23.536	0.011	11.00	37	23.585	23.574	0.011	11.00	37	23.573	23.563	0.010	10.00
	38	23.524	23.514	0.010	10.00	38	23.598	23.587	0.011	11.00	38	23.611	23.601	0.010	10.00
	39	23.501	23.489	0.012	12.00	39	23.543	23.531	0.012	12.00	39	23.603	23.593	0.010	10.00
	40	23.606	23.594	0.012	12.00	40	23.617	23.605	0.012	12.00	40	23.531	23.520	0.011	11.00
	41	23.575	23.560	0.015	15.00	41	23.542	23.529	0.013	13.00	41	23.512	23.498	0.014	14.00
	42	23.513	23.498	0.015	15.00	42	23.614	23.599	0.015	15.00	42	23.572	23.557	0.015	15.00
40C	43	23.541	23.529	0.012	12.00	43	23.552	23.538	0.014	14.00	43	23.528	23.516	0.012	12.00
	44	23.534	23.523	0.011	11.00	44	23.582	23.571	0.011	11.00	44	23.539	23.529	0.010	10.00
	45	23.545	23.526	0.019	19.00	45	23.548	23.528	0.020	20.00	45	23.541	23.521	0.020	20.00
	46	23.574	23.557	0.017	17.00	46	23.562	23.544	0.018	18.00	46	23.513	23.495	0.018	18.00
	47	23.569	23.545	0.024	24.00	47	23.564	23.538	0.026	26.00	47	23.514	23.489	0.025	25.00
	48	23.562	23.539	0.023	23.00	48	23.537	23.513	0.024	24.00	48	23.594	23.571	0.023	23.00
	49	23.574	23.544	0.030	30.00	49	23.594	23.565	0.029	29.00	49	23.560	23.530	0.030	30.00
	50	23.541	23.516	0.025	25.00	50	23.617	23.588	0.029	29.00	50	23.534	23.505	0.029	29.00
	51	23.495	23.461	0.034	34.00	51	23.616	23.582	0.034	34.00	51	23.576	23.541	0.035	35.00
	52	23.538	23.507	0.031	31.00	52	23.684	23.652	0.032	32.00	52	23.544	23.512	0.032	32.00
	53	22.806	22.713	0.093	93.00	53	23.591	23.543	0.048	48.00	53	23.525	23.479	0.046	46.00
	54	23.543	23.497	0.046	46.00	54	23.557	23.511	0.046	46.00	54	23.495	23.451	0.044	44.00
	55	23.591	23.547	0.044	44.00	55	23.589	23.537	0.052	52.00	55	23.534	23.484	0.050	50.00
	56	23.502	23.456	0.046	46.00	56	23.585	23.534	0.051	51.00	56	23.498	23.447	0.051	51.00
60C	57	23.525	23.479	0.046	46.00	57	23.581	23.551	0.030	30.00	57	23.633	23.603	0.030	30.00
	58	23.595	23.572	0.023	23.00	58	23.552	23.529	0.023	23.00	58	23.582	23.559	0.023	23.00
	59	23.502	23.461	0.041	41.00	59	23.600	23.558	0.042	42.00	59	23.604	23.563	0.041	41.00
	60	23.554	23.517	0.037	37.00	60	23.573	23.535	0.038	38.00	60	23.541	23.504	0.037	37.00
	61	23.487	23.440	0.047	47.00	61	23.602	23.554	0.048	48.00	61	23.580	23.526	0.054	54.00
	62	23.556	23.512	0.044	44.00	62	23.563	23.520	0.043	43.00	62	23.631	23.584	0.047	47.00
	63	23.515	23.460	0.055	55.00	63	23.595	23.538	0.057	57.00	63	23.558	23.502	0.056	56.00
	64	23.491	23.441	0.050	50.00	64	23.634	23.580	0.054	54.00	64	23.537	23.487	0.050	50.00
	65	23.589	23.527	0.062	62.00	65	23.683	23.620	0.063	63.00	65	23.547	23.486	0.061	61.00
	66	23.618	23.563	0.055	55.00	66	23.558	23.499	0.059	59.00	66	23.492	23.431	0.061	61.00
	67	23.561	23.473	0.088	88.00	67	23.653	23.568	0.085	85.00	67	23.545	23.461	0.084	84.00
	68	23.561	23.480	0.081	81.00	68	23.574	23.492	0.082	82.00	68	23.553	23.473	0.080	80.00
	69	23.612	23.528	0.084	84.00	69	23.607	23.515	0.092	92.00	69	23.558	23.477	0.081	81.00
	70	23.576	23.488	0.088	88.00	70	23.634	23.539	0.095	95.00	70	23.618	23.528	0.090	90.00

Table A1: Sample Weight Loss Tracking for the 210 anonymized samples tested in the Study.