

Logbook

Title:

- What is the Best Heat Protectant?

Statement of the Problem:

- What is the problem in this experiment? The purpose or problem in this experiment is to determine which brand heat protectant works best against thermal receipt paper. As a person who often uses heat tools on their hair, I wanted to know which heat protectant I should be using to have my hair stay healthy as long as possible. I think this project will help other people choose the most beneficial spray that most protects their hair from damage.

Objective:

- In this experiment I will be testing which heat protectant spray works best against thermal receipt paper.

Hypothesis:

- I hypothesize that the Olaplex No. 7 Bonding Hair Oil will be able to protect heat from the thermal paper the best out of the Aveda, Verb, Pureology, and Moroccanoil. Research states, on Olaplex.com, that the Olaplex would be able to have heat protection up to 450° F (232° C).
- <https://itsa10hairecare.com/blogs/blog/how-does-heat-protectant-work#:~:text=Heat%20protectants%20add%20a%20barrier.look%20smooth%20and%20feel%20soft.>
- <https://olaplex.com/products/olaplex-no-7-bonding-oil>
- <https://bellatory.com/news/best-heat-protectants>

Materials:

- 1- logbook
- 1- computer
- 1- Olaplex No. 7 Bonding Hair Oil 30ml (1fl oz)
- 1- Aveda heat relief™ thermal protector & conditioning mist 100ml (3.4 fl oz)
- 1- Verb glossy shine spray with heat protection 193ml (6.5 fl oz)
- 1- Pureology Strength Cure Miracle Filler Heat Protectant Spray 145ml (5 fl oz)
- 1- Moroccanoil Protect & Prevent Spray 160ml (5.4 fl oz)
- 1- roll of thermal receipt paper from MFLABEL
- 1- Drybar Reserve Vibrating Flat Iron
- 1- Scissors
- 1- grayscale (shown in figure 1)

Dependent and Independent Variable:

- Dependent- darkness of receipt paper
- Independent- hair protectant

Procedure: Number your steps.

1. Gather the following materials:
 - a. 1- logbook
 - b. 1- computer
 - c. 1- Olaplex No. 7 Bonding Hair Oil 30ml (1fl oz)
 - d. 1- Aveda heat relief™ thermal protector & conditioning mist 100ml (3.4 fl oz)
 - e. 1- Verb glossy shine spray with heat protection 193ml (6.5 fl oz)
 - f. 1- Pureology Strength Cure Miracle Filler Heat Protectant Spray 145ml (5 fl oz)
 - g. 1- MoroccanOil Protect & Prevent Spray 160ml (5.4 fl oz)
 - h. 1- roll of thermal receipt paper from MFLABEL
 - i. 1- Drybar Reserve Vibrating Flat Iron
 - j. Scissors
 - k. 1- grayscale (shown in figure 1)
2. Preheat hair straightener to 350° F (232° C)
3. Cut an approximate 5 inch strip of the thermal receipt paper for the heat protectant that will be used
4. Spray or apply any heat protectant to the previously cut paper (the order in which you do each of them doesn't matter)
5. "Straighten" the piece of thermal paper that has protectant on it with a constant pace, making sure to not go too fast or too slow.
6. Using the grayscale, log a number based on the shade of the paper after (1 being the lightest and 9 the darkest)
7. Repeat steps 2-6 for all trials while logging each trial in the logbook

Results:

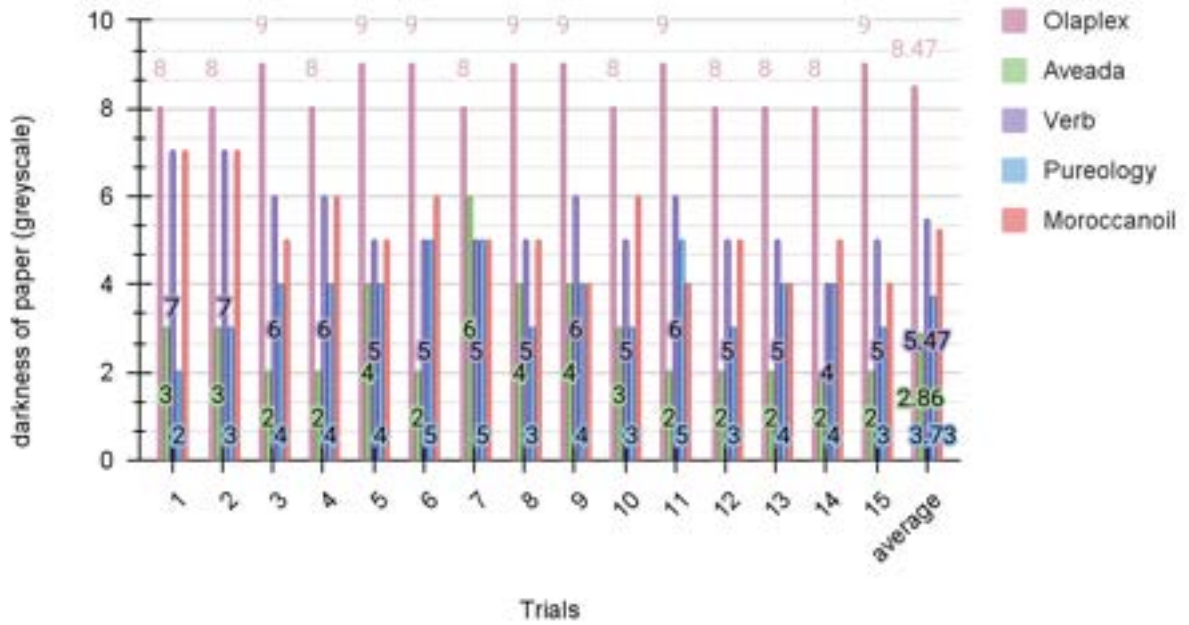
- The results for this experiment showed that after averaging my 15 trials per heat protectant, Olaplex had an average of 8.47, Aveda had an average of 2.86, Verb had an average of 5.47, Pureology had an average of 3.73, MoroccanOil had an average of 5.2. This information indicated that the Aveda heat protectant is the best to keep your hair the best protected with.

	Olaplex	Aveda	Verb	Pureology	MoroccanOil
1	8	3	7	2	7
2	8	3	7	3	7
3	9	2	6	4	5
4	8	2	6	4	6
5	9	4	5	4	5
6	9	2	5	5	6
7	8	6	5	5	5
8	9	4	5	3	5
9	9	4	6	4	4
10	8	3	5	3	6
11	9	2	6	5	4
12	8	2	5	3	5

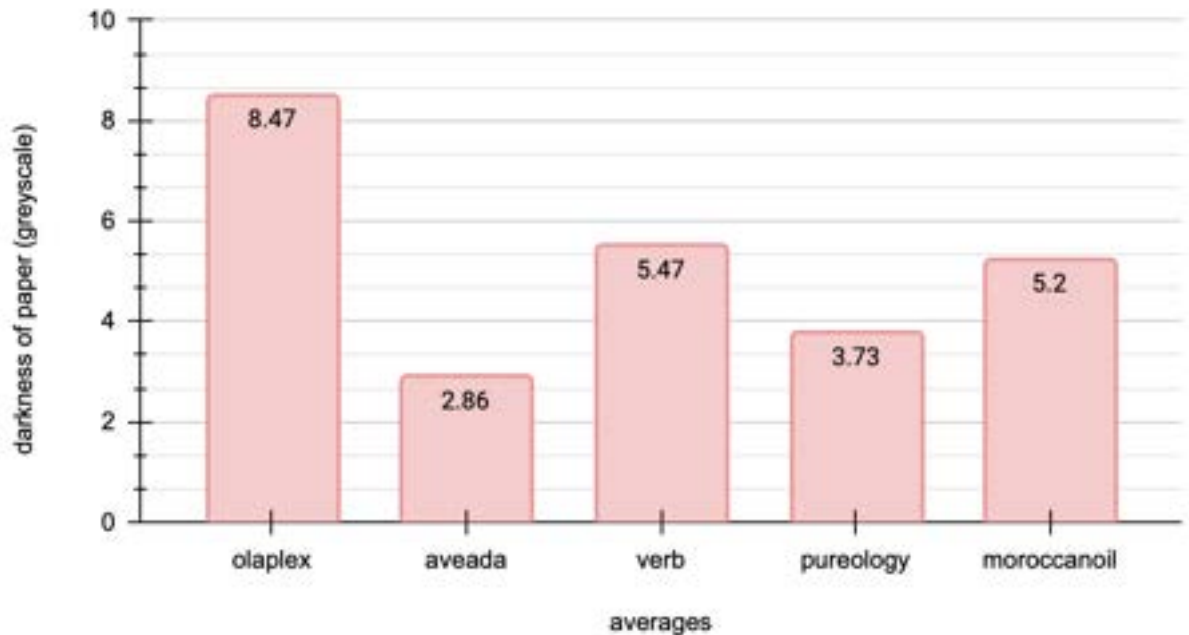
13	8	2	5	4	4
14	8	2	4	4	5
15	9	2	5	3	4
average	8.47	2.86	5.47	3.73	5.2

	olaplex	aveda	verb	pureology	moroccanoil
average	8.47	2.86	5.47	3.73	5.2

What is the Best Heat Protectant?



What is the Best Heat Protectant?



Conclusion:

1. In this experiment, my objective was testing which heat protectant spray works best against thermal receipt paper. I achieved this by spraying a piece of thermal paper with a heat protector and going through it with my straightener at 350 degrees.
2. In this experiment, I hypothesized that the Olaplex No. 7 Bonding Hair Oil will be able to protect heat from the thermal paper the best out of the Aveda, Verb, Pureology, and MoroccanOil. Research states, on Olaplex.com, that the Olaplex would be able to have heat protection up to 450° F (232° C). My hypothesis was contradicted because the heat protectant that works the best was actually Aveda.
3. The results for this experiment showed that after averaging my 15 trials per heat protectant, Olaplex had an average of 8.47, Aveda had an average of 2.86, Verb had an average of 5.47, Pureology had an average of 3.73, MoroccanOil had an average of 5.2. This information indicated that the Aveda heat protectant is the best to keep your hair the best protected with.
4. As a person who often uses heat tools on their hair, I wanted to know which heat protectant I should be using to have my hair stay healthy as long as possible. What I learned from this lab was that the heat protectant that better helped protect the thermal paper was the Aveda heat protectant and the protectant that was the most damaging was the Olaplex.
5. What I would do differently if I ever did this lab again would be to test with a larger sample size and also test more heat protectants to have a wider range of data. I would make this experiment more precise by doing longer strips of paper and also using a grayscale that had more shades in between to have a more accurate description of each shade that paper was.

Pictures: Additional photographs or drawings



Figure 1: greyscale used for determining the number based on the shade of the paper



Figure 2: Pureology trials 1-5 (including piece without heat protectant for reference)



Figure 3: Pureology trials 6-10



Figure 4: Pureology trials 11-15



Figure 5: Verb trials 1-5



Figure 6: Verb trials 6-10



Figure 7: Verb trials 11-15

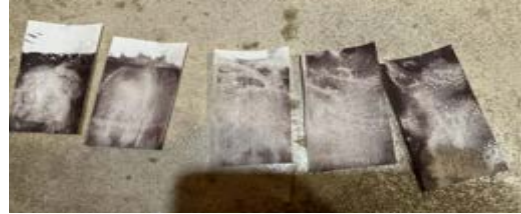


Figure 8: Aveda trials 1-5



Figure 9: Aveda trials 6-10



Figure 10: Aveda trials 11-15



Figure 11: Moroccanoil trials 1-5 (including piece without heat protectant for reference)



Figure 12: Moroccanoil trials 6-10



Figure 13: Moroccanoil trials 11-15



Figure 14: Olaplex trials 1-5 (including piece without heat protectant for reference)



Figure 15: Olaplex trials 6-10



Figure 16: Olaplex trials 11-15