

What is the Best Heat Protectant?

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Have you ever wondered which heat protectant best protects your hair while styling it with heat? The problem that was investigated in this experiment was testing which heat protectant spray works best against thermal receipt paper. 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 Aveada, 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). This topic is important because there are many people who constantly style their hair with heat but do not know any protectants for keeping their hair healthy at the same time. Another reason heat protectants are important to use is because it reduces water evaporation by sealing in what is already there in your hair. Without using heat protectant, your hair may get split ends and breakage to your hair because it was not made to withstand the heat from the tools.

Method

The scientific method was used to conduct this experiment. The question asked for this experiment was: which heat protectant spray works best against thermal receipt paper. 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 Aveada, 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).

Materials

There were several materials used to conduct this experiment. The computer and logbook were used for documenting and organizing data. The Aveada, Verb, Pureology, Olaplex, and Moroccanoil heat protectants were used to see which one had the best protection against heat. The roll of MFLABEL thermal receipt paper was used to help test each of the heat protectants. The Drybar flatiron was used to add heat to the thermal paper to see which protectant worked

best. Scissors were used to cut the thermal paper into approximately five-inch sections. The grayscale was used to determine how well the paper was protected from the heat.

Procedures

The scientific method was followed while conducting this experiment. To begin, all materials were gathered. Making sure every trial is an even temperature, Preheat hair straightener to 350 degrees fahrenheit which is also 232 degrees celsius. Cut an approximate five-inch strip of the thermal receipt paper for the heat protectant that will be tested first. Spray or apply any one of the heat protectants to the previously cut paper. "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. Using the grayscale, log a number based on the shade of the paper (one being the lightest color and nine the darkest color). In the logbook, log each number after every trial and repeat this process again with a minimum of fifteen trials.

Conclusion

In conclusion, this experiment found that the Aveda heat protectant is the best to keep thermal paper from heat damage.

Results

The results from this experiment were unexpected. My hypothesis in this experiment was contradicted. The results of this experiment showed that the Aveda heat protectant worked best to keep thermal paper from heat damage. Aveda had an average of 2.86 darkness. Pureology had an average of 3.73 darkness. Moroccanoil had an average of 5.2 darkness. Verb had an average of 5.47 darkness. Lastly, Olaplex had an average of 8.47 darkness.

Discussion

There is lots of information to be found on heat protection. Brookie Maddison conducted an experiment to see which heat protectant works best. She tested the ORS's silk n shine heat protectant serum, Avlon KeraCare Silken Seal protectant, Design Essentials agave and lavender serum, and Mizani's heat screen spray. Her results showed that the heat protectant that worked best was the Mizani's heat screen spray and did not ignite even after being directly under the flame. (Maddison & Kera, 2023)

An experiment from the Sarsef Virtual Fair conducted to see heat protectant brands on samples of hair to see which sample has the best outcome by testing the hairs strength after it has been exposed to the high heat and what the noticeable damages are. This experiment tested hair with no protection, Biolage, REF, Kerastase, and Argan Oil. The results of this experiment showed that the REF heat protectant spray worked the best. (Unknown Author, 2023)

According to Its A 10 Haircare, “Experts say applying heat to hair essentially evaporates the water molecules in the inner cortex, altering the internal structure and mechanical properties of the strands. This allows you to change your hair’s natural curl patterns..., but it can also cause frizz and dry out your hair.” It states on Its A 10 Haircare, “Heat protectant is a product that reduces damage to your hair when used before heat styling.” (*Its A 10*, 2023)

Conclusions and Future Study

My hypothesis was contradicted in this experiment. One reason this experiment worked is because while doing this experiment, all of the data was measured correctly. Another reason why this experiment was successful is because I followed the scientific method carefully and followed each step according to the method. The results proved that the Aveda heat protectant is the best to keep thermal paper from heat damage. What I would do differently if I ever did this

experiment again would be to test with a larger sample size and also test more heat protectants to have a wider range of data. How I would make this experiment more precise is 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.

References

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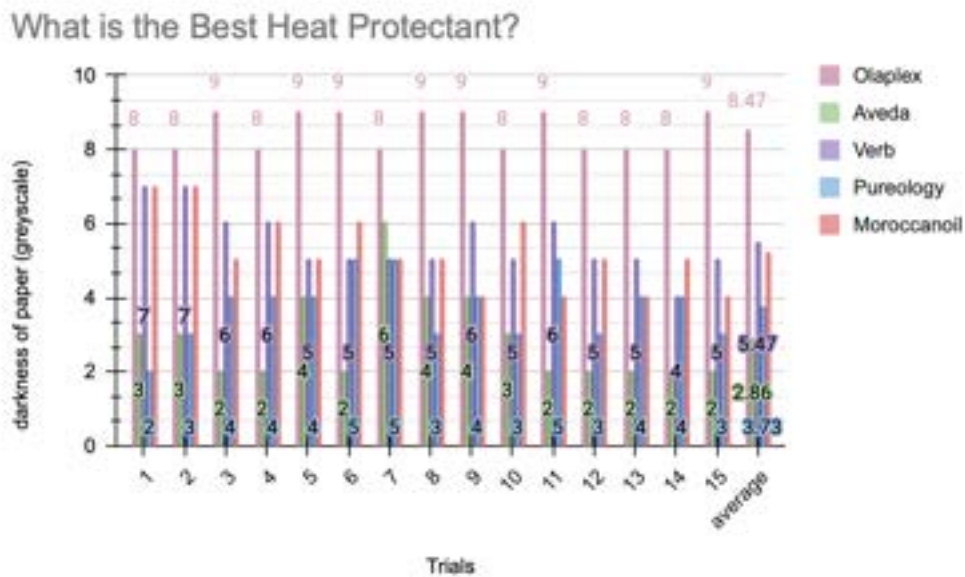
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Appendix

Table A1

	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

Figure A1



Appendix B

Table B1

	olaplex	aveda	verb	pureology	moroccanoil
average	8.47	2.86	5.47	3.73	5.2

Figure B1

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