

Three Mentos in Diet Coke Erupt 36% Higher Than Ten Mint Tic-tacs and One

Mentos in Diet Coke

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Summary:

A mentos eruption is a reaction between a Diet Coke and mint mentos that results in an eruption spraying out of the bottle. For this mentos comparative experiment, it consisted of dropping fresh mint and wintergreen tic-tacs, including one mentos, in a diet coke. Previous research showed, as an alternative, others have used cinnamon-flavored mentos instead of regular, mint ones. The cinnamon-flavored mentos reported to have an eruption 27% higher than the experiment's control (mint mentos). But, in this study, the outcome differed. Our control

erupted higher than our mentos alternative, a variety of mint tic tac-tacs (fresh mint and wintergreen) by 36%. A possible reason for this is because the tic-tac mints ingredients (sugar, maltodextrin, tartaric acid, natural and artificial flavors, rice starch, gum arabic, magnesium stearate, artificial colors, and carnauba wax) did not contain any reactive chemicals that respond tremendously with the chemical properties of the Diet Coke.

Introduction:

A mentos eruption, that's commonly known, occurs when there's a chemical reaction between Diet Coke and Mentos mints that generates the beverage to spray out of its bottle. Carbon dioxide (CO₂), is released from the mentos and it causes an eruption that pushes most of the liquid out of its bottle. The Mentos and Diet Coke eruption became a phenomenon when Stephen Voltz and Fritz Grobe, two scientists, made a trending video in 2006 of Mentos and Diet Coke creating a presentation by drilling holes in the bottles and changing the nozzles.

Currently, there are no other known studies that have been found that involves the research of Tic Tacs and Mentos with Diet Coke. But there have been experiments that have involved other candies such as Sweet Tarts, Life Saver Mints, Skittles, and Nerds. The goal of this experiment is to find out whether or not the mint tic-tacs will have a higher eruption and percentile than the control of the study.

Procedure:

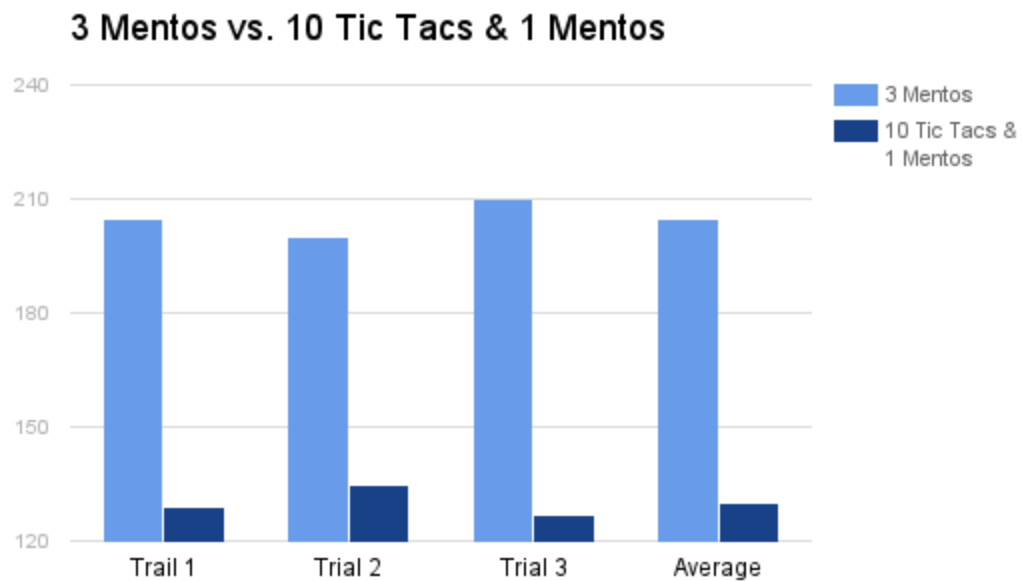
1. Gather all materials: two bottles of diet coke, mint tic tacs, mint mentos, two geyser tubes (or something to fill to drop into the bottle and have it explode out of), and a meter stick

2. Fill one geyser tube with 3 mentos, and another geyser tube with 10 tic tacs and 1 mentos on the bottom to prevent the tic tacs from falling out (in this geyser tube, the tic tacs replace the two mentos)
3. Place the two diet coke bottles next to each other against a wall and put the meter stick against the wall so the height of the eruption can be measured
4. Have two people (one for each bottle) take the cap off the soda bottle and screw in the geyser tube
5. At the same time have each person pull the pin on the geyser tubes so the mentos and tic tacs drop in the bottle
6. Record eruption height and compare
7. Repeat as many times necessary to obtain accurate results

Table:

Substance:	Eruption heigh (trial 1)t:	Eruption height (trial 2);	Eruption height (trial 3):	Average:
3 Mentos	205	200	210	205cm
10 Tic Tacs	129	135	127	130cm

Graph:



Conclusion:

In conclusion, the mint tic-tacs, the mentos alternative, tested resulted in a lower eruption compared to to the control of this experiment, the three unaffected mint mentos. The fresh mint

and wintergreen tic-tacs decreased the eruption height by 36%. In this experiment, the sole goal was to determine whether or not the mentos alternative will erupt higher than the control. This study is unique, there has been no other study that involves tic-tacs, so there is no prior research with the same exact study. In other experiments where the mento is replaced with another mint, the results are similar; the eruption of the control is higher than the variable being tested. For example, a study comparing the control with fruit mentos had a percentile, similar to this one's. Since the mint tic-tacs are smaller in size the surface area is small as well. Therefore, there were not a lot of nucleation sites, which causes the formation of bubbles leading to the actual eruption. Because of the lack of bubbles, it showed how the carbon dioxide from the Diet Coke is not forming tremendously with the mint tic-tacs. Previous papers, similar to this, have been consistent with results: a different type of mint results in a lower eruption percentile. Seeing this project, it makes sense to get a mint that contains gum Arabic in order for the results to be higher than the control.

Endnotes

1. Tonya Shea Coffey, Diet Coke and Mentos: What is really behind this physical reaction?. Retrieved 2014-09-30.

1. "Tic Tac's Web Flavor". *Business Week*. August 13, 2006. Retrieved 2008-11-09
2. Spangler, Steve (2010). *Naked Eggs and Flying Potatoes*. Greenleaf Book Group Press.
3. ^ a b Sear, Richard P. (2014). "Quantitative Studies of Crystal Nucleation at Constant Supersaturation: Experimental Data and Models". *CrystEngComm*. 16 (29): 6506. doi:10.1039/C4CE00344F.
4. Sear, Richard P. (2014). "Quantitative Studies of Crystal Nucleation at Constant Supersaturation: Experimental Data and Models". *CrystEngComm*. 16 (29): 6506. doi:10.1039/C4CE00344F.