

Diet Coke and Mentos eruption

From Wikipedia, the free encyclopedia

Diet Coke and Mentos Eruption (also known as a **Mentos eruption** or a **coke geyser**) is a reaction of Diet Coke and mint Mentos candies, a two-liter bottle of Diet Coke (other carbonated beverages may be used instead; Diet Coke is preferred because it tends to react better) and dropping some Mentos into the bottle, usually around four. This causes the Diet Coke to foam at a rapid rate and spew into the air. Mint-flavored Mentos are used, as fruit-flavored Mentos have a smooth coating which slows the reaction. Because of the nature of this physical reaction and the easy availability of the ingredients, the eruption is a popular subject for Internet videos, and has also appeared in non-Internet sources.

A variation of this experiment consists of making the bottle rocket up by closing the cap shortly after Mentos is inserted and then slamming the bottle into the ground cap first. The explosion will generate a reaction like a rocket.

Contents

- 1 History
- 2 Explanation
- 3 Popularity
- 4 References
- 5 Further reading
- 6 External links

History

Steve Spangler initiated the Internet phenomenon when he appeared on 9News in 2002 and 2005, both times showcasing the experiment.^[1] The experiment's result was then further popularized by the website Eepybird.com, which promoted a video in which Fritz Grobe and Stephen Voltz re-created the fountain display seen in front of the Bellagio hotel in Las Vegas using a timed series of eruptions. Later Eepybird videos featured "self-activating" soda jets linked together to form a Domino Rally-style effect. In September 2007, the videos, including the "Extreme Diet Coke and Mentos Experiments" video that was viewed more than 10 million times, earned the pair the highest yearly payout of US\$50,000 from the video hosting service Revver.^[2]



A Diet Coke 2 litre bottle shortly after Mentos were dropped into it

The eruption has been reproduced many times by popular sources, including the television shows *Numb3rs*, *Bones* and *MythBusters* and an appearance by cast member Kari Byron in *FHM* magazine, an experiment conducted by Bart Simpson on *The Simpsons* episode, "The Debarfed", an appearance on the *Late Show with David Letterman* by physics teacher Lee Marek, and others. The *MythBusters* later set the record highest soda jet recorded, at over 29 feet (9 meters), using a nozzle.

Setting world records for the most simultaneous Mentos-and-Diet-Coke Eruptions has become a new challenge for groups of people. The original world record - 504 simultaneous eruptions - was set on May 24, 2007, and was broken on July 10, 2007, by Circle R Ranch and Books Are Fun during a special event in Flower Mound, Texas. Guinness World Records certified the record-setting effort when independent sales representatives from Books Are Fun, a Reader's Digest Company, simultaneously dropped Mentos into individual two-liter bottles of Diet Pepsi, creating 791 geysers and reaching over 29 feet with the use of a nozzle.

The next record was set on April 23, 2008, by students in the Belgian city of Leuven; they simultaneously launched 1,360 Mentos geysers^[3]. Then, on May 14, 2008, students at Louisville Male High School in Louisville, Kentucky, broke that record by setting off 1,800 simultaneous geysers.^[4]

The current Guinness World Record — 1,911 simultaneous geysers^[5] — was set on June 19, 2008, by students of The School of Business Administration Turiba (http://www.turiba.lv?object_id=199) in Latvia. This record was registered by the official representative of the Guinness World Record book^[6].

Explanation

In a 2006 episode of *MythBusters*, a popular television program on the Discovery Channel,^[7] they concluded that the caffeine, potassium benzoate, aspartame, and CO₂ gas contained in the Diet Coke and the gelatin and gum arabic ingredients of the Mentos all contribute to the jet effect.^[8] In addition, the MythBusters theorized that the physical structure of the Mentos is the most significant cause of the eruption due to nucleation. When flavored Mentos with a smooth waxy coating were tested in carbonated water, no reaction occurred, whereas standard Mentos added to carbonated water formed a small eruption, by their claim, affirming the nucleation-site theory. According to the MythBusters, the surface of the mint Mentos is littered with many small holes, allowing CO₂ bubbles to form very rapidly and in great quantity, in turn causing the jet of foam. This was further supported when rock salt was used as an effective substitute for Mentos.^[8]

A paper by Tonya Coffey, a physicist at Appalachian State University in Boone, North Carolina goes into detail on the reasons and physics behind the reaction.^{[9][10]}

Steve Spangler first put the Mentos Geyser in the public eye, has several videos and detailed experiments about it on his website.^[11] The Geyser Tube is a device invented for use in creating the reaction.^[12]

Popularity

As noted, the eruption has become an internet phenomenon. One reason for the popularity of this demonstration is its comparative safety. Because the interaction releases only the carbon dioxide already present in the liquid the cola bottle should not usually rupture if capped -- although it is possible to break the bottle with physical force.^{[13][14]} This differs from similar demonstrations with dry ice which have the potential to generate much larger pressures depending on the amount used. The MythBusters also noted when testing the experiment that, unlike other materials such as dry ice which are expensive and rare, Diet Coke and Mentos can be acquired at almost any local shop in countries where Mentos are sold. Many high school or middle school science labs experiments are based on this phenomenon, as it can promote a better understanding of chemical or physical reactions between elements

References

- [^] Denver, Colmy by InternetRetailer on March 27, 2007. Accessed on April 17, 2007.
- [^] Graham, Jefferson (2007-09-12). "Posters reap cash rewards at video-sharing site Revver". *USA Today*. http://www.usatoday.com/tech/webguide/internetlife/2007-09-13-revver_N.htm. Retrieved on 2007-09-13. "The biggest paycheck — \$50,000 for 15 clips — went to two guys from a Mentos mint into a bottle of Diet Coke (KO) and watched it explode"
- [^] Daily Mail news article (http://www.dailymail.co.uk/pages/live/articles/news/worldnews.html?in_article_id=561900&in_page_id=1811)



From left; Perrier carbonated water, Classic Coke, Sprite, and Diet Coke with 5 plain Mentos drops. Diet Coke presented a height about 2.5m.

- ⁴ ^ Video (<http://www.wlky.com/video/16266774/index.html>)
- ⁵ ^ Turiba University Sets World Record with 1911 Simultaneous Coke+Mentos Explosions on Gizmodo.com (<http://gizmodo.com/5018549/turiba-university-sets-world-record-with-1911-simultaneous-coke+mentos-explosions>)
- ⁶ ^ VIDEO - 1,911 Simultaneous Cola & Mentos fountains were made to set new Guinness World Record on June 19th, 2008 in Riga, Latvia (http://www.youtube.com/watch?v=_79ufqZ5H9M)
- ⁷ ^ MythBusters: Diet Coke and Mentos - TV.com (<http://www.tv.com/mythbusters/diet-coke-and-mentos/episode/822481/summary.html>)
- ⁸ ^ ^a ^b O'Hare, Kate. "The 'MythBusters' Take on the Mentos/Diet Coke Craze". <http://www.zap2it.com/tv/news/zap-mythbustersmentos,0,4325641.story>. Retrieved on 2007-01-21.
- ⁹ ^ Science of Mentos-Diet Coke explosions explained (<http://www.newscientist.com/article/dn14114-science-of-mentosdiet-coke-explosions-explained.html>)
- ¹⁰ ^ Diet Coke and Mentos: What is really behind this physical reaction? (<http://dx.doi.org/10.1119/1.2888546>)
- ¹¹ ^ Steve Spangler's personal website at <http://www.stevespangler.com>
- ¹² ^ <http://www.geysertube.com/>
- ¹³ ^ "YouTube demonstration video". <http://www.youtube.com/watch?v=PEmq3xLvJ5U&feature=related>.
- ¹⁴ ^ "YouTube video: Mentos rockets". <http://www.youtube.com/watch?v=9QuMASPj6Fg&feature=related>.

Further reading

- John E. Baur, Melinda B. Baur, The Ultrasonic Soda Fountain: A Dramatic Demonstration of Gas Solubility in Aqueous Solutions, Journal of Chemical Education, vol 83 no 4, April 2006, pp577–580 (<http://jchemed.chem.wisc.edu/HS/Journal/Issues/2006/Apr/clicSubscriber/V83N04/p577.pdf>)

External links

- Various Videos of the "Mentos Eruption" (http://www.youtube.com/results?search_query=mentos+diet+coke&search=Search) at YouTube
- About.com Chemistry page with instructions (<http://chemistry.about.com/od/chemistryhowtoguide/ht/mentos.htm>)
- Eepybird, official site (<http://www.eepybird.com/>)
- Cocamentos, official european site, soon available in english (<http://cocamentos.free.fr/>)
- Coke Rocket Bros (<http://www.cokerocketbros.com>) videos of experiments with Coke and Mentos
- Planet Mentos - Mentos eruption pics on flickr (<http://www.flickr.com/groups/mentos/>)
- Mentos Reaction Explained (<http://antoine.frostburg.edu/chem/senese/101/consumer/faq/mentos.shtml>)
- Cola & Mentos record dedicated blog in Latvian (<http://www.nakotnespilseta.lv>)
- Science Wonderland (<http://www.sciencewonderland.synthasite.com>)

Retrieved from "http://en.wikipedia.org/wiki/Diet_Coke_and_Mentos_eruption"

Categories: Chemistry classroom experiments | Internet memes | YouTube videos | Viral videos

Hidden categories: Articles needing additional references from March 2009 | Articles lacking reliable references from March 2009

- This page was last modified on 15 March 2009, at 01:14.

- All text is available under the terms of the GNU Free Documentation License. (See **Copyrights** for details.)
Wikipedia® is a registered trademark of the Wikimedia Foundation, Inc., a U.S. registered 501(c)(3) tax-deductible nonprofit charity.