

Popping popcorn

M3-1 PHYSICS

Testable Question & Purpose

Question: Does the amount of vegetable oil affect the amount of popcorn kernels in four minutes that pop in a pan when heated to 450 degrees?

Purpose: My purpose of this project was to see if the amount of vegetable oil affects the amount of popped popcorn kernels in 4 minutes for 450 degrees.

Abstract

The question I wanted to answer is if the amount of vegetable oil affects the amount of popcorn popped in 4 minutes. My hypothesis is that if I put more oil in a pan, the amount of popped popcorn kernels will be greater than if I put less or no vegetable oil in the pan because the more oil in the pan, the more heat that is surrounding the popcorn kernels. The oil will be heated to a certain temperature before placing the kernels in. We heated the pan to 450 degrees and we started to measure the pop corn kernels and vegetable oil. After our trials we found that the more vegetable oil we put in, the more kernels popped. The evidence supported my hypothesis. The amount of oil does affect the amount of popcorn kernels popped in 4 minutes.

Hypothesis

My hypothesis is that if I put more oil in a pan, the amount of popped popcorn kernels will be greater than if I put less or no vegetable oil in the pan because the more oil in the pan, the more heat that is surrounding the popcorn kernels. The oil will be heated to a certain temperature before placing the kernels in.

Materials

My materials for my project included:

- ▶ A pan with a cover
- ▶ Stove
- ▶ Vegetable oil
- ▶ Popcorn kernels
- ▶ Pot holders
- ▶ Timer
- ▶ Measuring cup
- ▶ Fire extinguisher

Procedures

- ▶ Place the pan onto the stove with cover
- ▶ Turn stove on 450 degrees
- ▶ Measure the popcorn kernels to 1/4 of a cup and cover
- ▶ Place the kernels into the pan
- ▶ Start timer for 4 minutes
- ▶ After timer is done turn stove off
- ▶ Place pan to side

Procedures

- ▶ When pan is room temperature count and record the popcorn kernels
- ▶ Wash and dry pan
- ▶ Repeat these steps 20 times to be accurate
- ▶ Repeat steps 1-4
- ▶ Add 1 teaspoon of oil to the pan
- ▶ Then repeat steps 6-10
- ▶ Then repeat steps 1-10 with 2 teaspoons of vegetable oil

Variables

Variables:

Constants -

The amount of kernels

Pan

Time

Tempurature

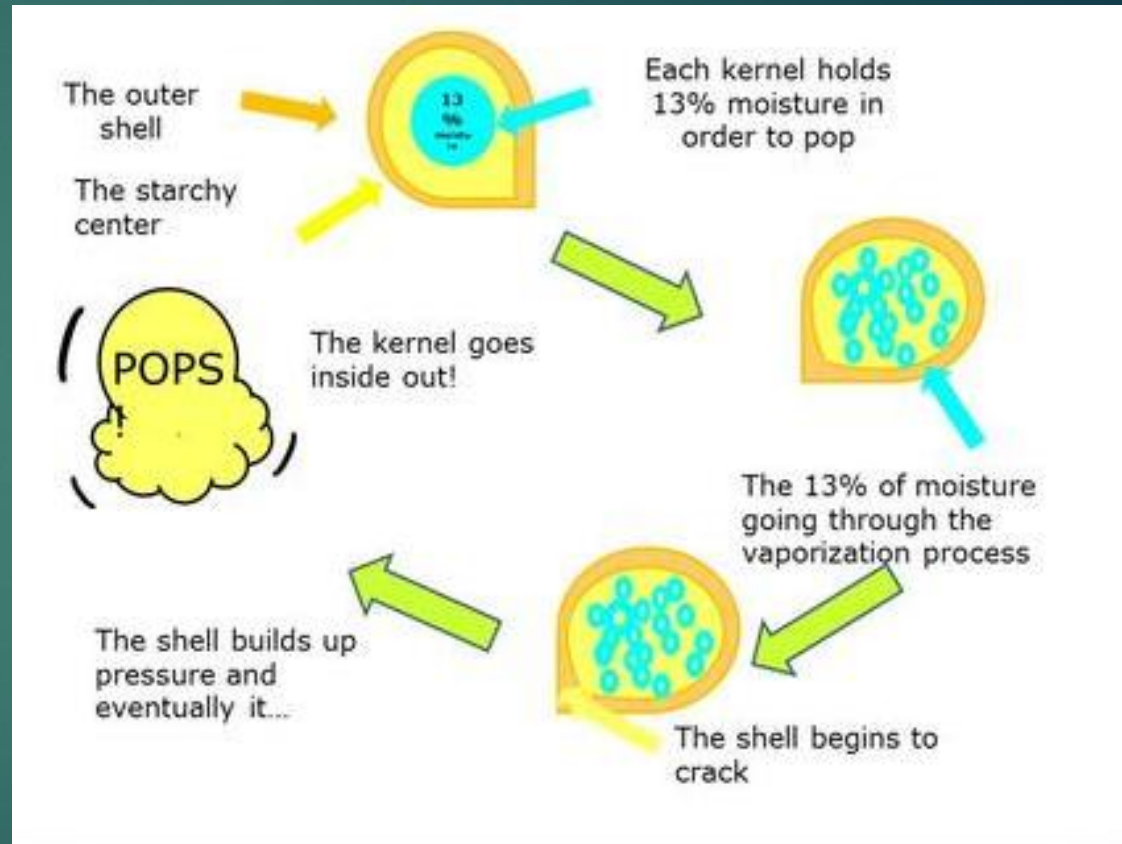
Independent-

The amount
of vegetable
oil

Dependent-

The amount
of popped
kernels

Pictures

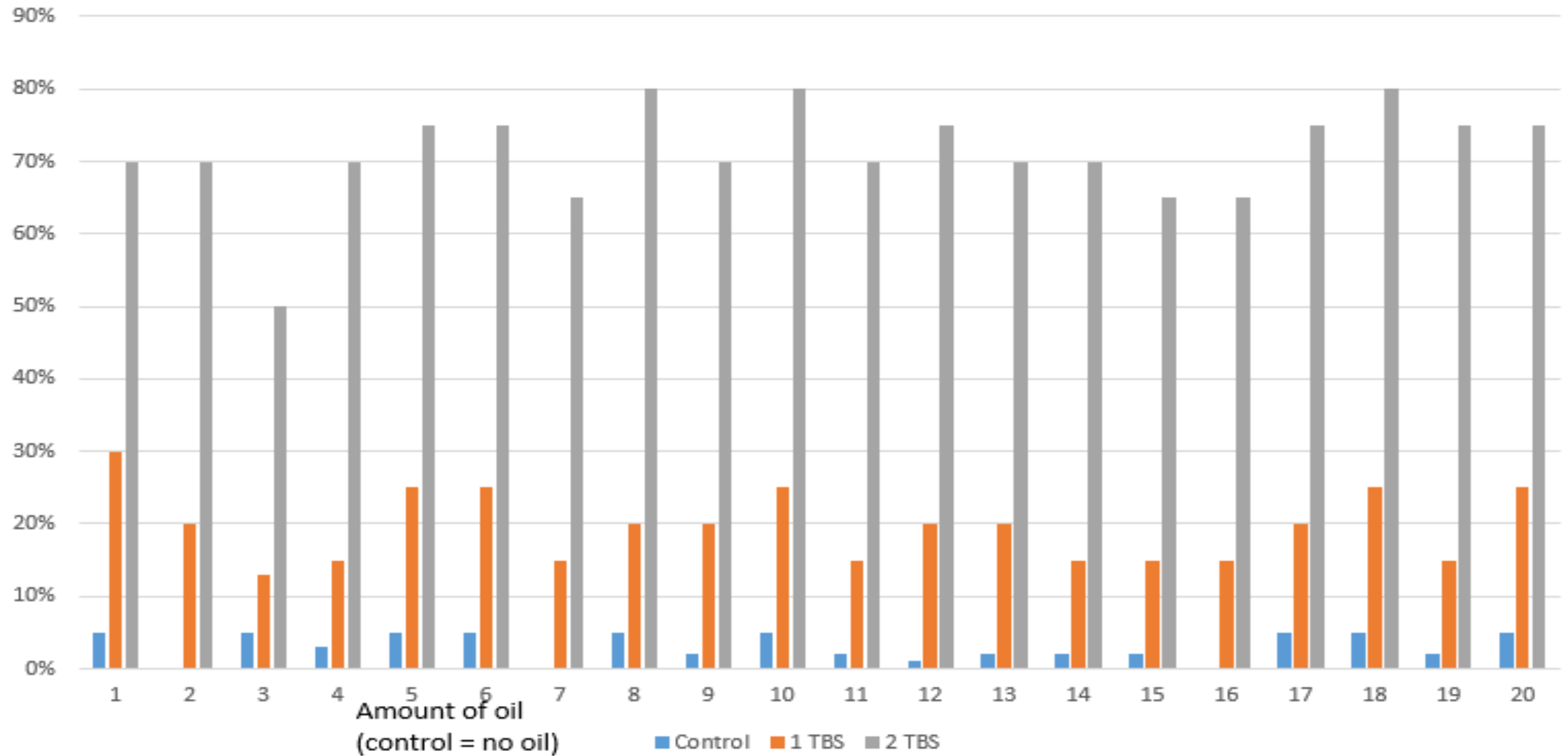


Results (Data tables)

Trial	Yields		
	Control	1 TBS	2 TBS
1	5%	30%	70%
2	0%	20%	70%
3	5%	13%	50%
4	3%	15%	70%
5	5%	25%	75%
6	5%	25%	75%
7	0%	15%	65%
8	5%	20%	80%
9	2%	20%	70%
10	5%	25%	80%
11	2%	15%	70%
12	1%	20%	75%
13	2%	20%	70%
14	2%	15%	70%
15	2%	15%	65%
16	0%	15%	65%
17	5%	20%	75%
18	5%	25%	80%
19	2%	15%	75%
20	5%	25%	75%
Avg	3%	20%	71%

Results (Graph)

Popcorn Yields



Results

I noticed that the more oil you put in the pan the more popcorn that has popped in 4 minutes.

Conclusion

My hypothesis was supported because the more oil I put into the pan does affect the amount of popped popcorn kernels because more popcorn popped in the pan in 4 minutes when I had 2 teaspoons of vegetable oil.

Sites Noted

- ▶ www.factmonster.com by Holly Hartman
- ▶ www.Green-trust.org by Paul Hawken & Fred Rohe
- ▶ www.able2know.org by Merry Andrew
- ▶ www.recipeshowstuffworks.com
- ▶ www.chowhound.com by Jason Horn