

My science fair project is about creating a product to prevent deodorant from melting and keeping deodorant cool. Three topics I have researched for my project are: What temperature does aluminum melt, how does insulation keep a solid cool, and what are the main ingredients of deodorant? These questions will be important because I need to know how to make a product that will work to keep my deodorant cool.

What temperature does aluminum melt? According to americanelemnet.com, Aluminum's melting point as a solid is 1,220 degrees fahrenheit. This is when aluminum is a solid and not a compound with salts or oils. This is important because this will tell me when my cooling pouch will need to be.

How does insulation keep a solid cool? As stated in the article [How Insulation Works](#), you need to understand "three basic mechanisms -- conduction, convection, and radiation." This article also states that radiant barriers reflect heat instead of absorbing it. This shows that I need to make a product that reflects heat and does not absorb it. According to Britannica Kids, "Conduction is the flow of heat inside an object. It is also the flow of heat between objects in contact with each other." These heat transfers are important to know because, my product has to be able to radiate heat while cooling it.

What are the main ingredients of deodorant? The "ACTIVE INGREDIENT: ALUMINUM ZIRCONIUM TETRACHLOROXYDREX GLY (15.2%) INACTIVE INGREDIENTS: CYCLOPENTASILOXANE, STEARYL ALCOHOL, C12-15 ALKYL BENZOATE, PPG-14 BUTYL ETHER, HYDROGENATED CASTOR OIL, FRAGRANCE (PARFUM), DIMETHICONE, POLYETHYLENE, HELIANTHUS ANNUUS (SUNFLOWER) SEED OIL, STEARETH-100, BHT, TOCOPHERYL ACETATE [VITAMIN E ACETATE]."; in the Dove Men's deodorant. Based on the information from the Dove website. This is important because I need to know which chemicals that I am working with. According to Dove's website, there are many different types and ingredients in each product.

Three facts learned that there are different types of heat transfers, melting points of deodorant depending on their ingredients and there are many chemicals in deodorants. This is important for my project because this helps and shows me what I have to know in order to make a product that will work.

Sources/bibliography:

Heat, Britannica Kids, kids.britannica.com/kids/article/heat/390761. Accessed 14 Sept. 2025.

How Insulation Works, www.energy.gov/energysaver/insulation. Accessed 13 Sept. 2025.

"Melting Point of Common Metals, Alloys, & Other Materials | American Elements®."
Melting Point of Common Metals, Alloys, & Other Materials,
www.americanelements.com/meltingpoint.html . Accessed 14 Sept. 2025.

"Men+Care Clean Comfort Antiperspirant Stick." Dove, www.dove.com/us/en/p/men-care-clean-comfort-antiperspirant-stick.html/0007940006671 8. Accessed 14 Sept. 2025.

