



The Science of Artificial Flavor Creation

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March 2009



Flavor Quotes

- “ I often say that when you can measure what you are speaking about, you know about it. When you cannot measure it, when you cannot express it in numbers, your knowledge is of a meager and unsatisfactory kind. It may be a beginning but you have scarcely in your thoughts advanced to the stage of science, whatever the matter might be.
- William Thompson
- Lord Kelvin 1883
- “ Ars Sine Scientia Nihil Est”
- (Art without science in nothing)
- Mila Cathedral 1/25/1400



What is a Science ?

- It is a brand of knowledge or study especially one concerned with establishing and systematizing facts, principles, and methods as by experimentation and hypothesis.



Flavor Compound



Flavor Portion

Diluent/Solvent Portion



Flavor portion

- The flavor portion is composed of three parts:
- 1. A Flavor Character Item
- 2. A Flavor Contributory Item
- 3. A Flavor Differential Item



The Functions of the Flavor Portion are to:

- ❑ 1. Simulate the named flavor
- ❑ 2. To maintain this character (Character fixation) That it remains reminiscent of the named flavor after processing.).
- ❑ 3. To enhance the flavor impression and its acceptability



:The functions of the Diluent Portion are to:

- 1. Keep the flavor principles in solution.
- 2. It is the carrier for the color if any.
- 3. A strength regulator, the greater the amount of solvent the weaker the flavor.
- 4. It gives the flavor a physical fixation. (That it remains after processing).
- 5. It inhibits chemical reaction's from occurring
- 6. It can act as a preservative. (Ethyl alcohol, Propylene glycol)
- 7. It is the vehicle for the presentation of the flavor portion.
- 8. It determines the form of the flavor. The way the flavor appears on the market, i.e., as a liquid, powder of paste form. It makes the flavor applicable. The flavor materials do not make a flavor work, it is the form of the flavor that does. The solvent distributes the flavor uniformly throughout the product



Definitions:

- ❑ **Character Fixation**: The use in flavors of high boiling solids at high concentrations that is above their threshold values. They are usually used in combinations e.g., Vanillin, Oxanone, Heliotropine and Maltol. Since they are used above their threshold concentration when diluted down they are still above their thresholds and therefore the perception of the flavor does not appear to change.
- ❑ **Physical Fixation**: The use of a flavoring compound or relatively high boiling materials (boiling points), by that make it less heat labile. We use these materials, whenever we have flavors to be used at temperatures above the boiling point of water. Vegetable oil, or high boiling esters e.g., diethyl succinate



Five Concepts of Flavor

1. The concept of the Characteristic Threshold Value.
2. The concept of the Flavor Impact Item.
3. The concept of the Flavor Contributory Item.
4. The concept of the Flavor Differential Item.
5. The concept of the Flavor Impact Group



Characteristic Threshold Value

- This is the procedure that one uses to “characterize” the flavor material, i.e., the placing of the flavor material into the different categories. (For greater retention.) (Greater retention results in greater creativity – because creativity always starts with something already known.)
- This procedure presents the flavor materials closer to the levels at which they are found in nature. Realistic levels that are used in flavors. At the use level flavor materials are not used in percentage quantities, but in the p-p-m range.