

It's all relative

Count on an explanation to bring lasting clarity.

One of the soap boxes I often mount is the one that warns people away from using sulphur-phosphorous extreme pressure (EP) additized lubricants in components made with yellow metal (copper, brass or bronze) parts. I can usually prove with pictures the disastrous chemical reaction the EP additive has with copper, but often the qualifier that the effect occurs only with an sulphur-phosphorous EP additive, not just any EP additive, is missed.

Now I cannot make the statement that EP lubricants are never to be used in yellow metals applications, because someone inevitably recounts a current application that has been using EP-based lubricants for years without injury. Sometimes they will even have supporting statements from an OEM or lubricant supplier to use EP products. I must explain further to make the point clear.

Detailing the chemistry is not really required. I find it much more effective to explain that not all EP additives use sulphur-phosphorous chemistry. Therefore one cannot exclude all EP products but rather must determine the nature of the additive. Only then is it safe to explain how this certain formulation of EP additive is harmful.

This explanation often reminds me of my coffee preferences. I don't like black coffee, no matter the blend, roast or origin. I can turn down a cup explaining that I don't like coffee, but in the next breath order a frappuccino or coffee milkshake. It has nothing to do with preferring cold drinks over hot—it's just my genetic disposition. Allow me to explain.

People are genetically divided into two camps: normal tasters and strong tasters. To determine which one you are, simply gather a dropper of food coloring, a piece of three-hole punched paper and a mirror. Place a drop or two of food coloring on the tip of your tongue, then hold up the piece of paper to your tongue. Using the mirror, count how many taste buds you can see within the hole. Normal tasters have fewer than 20 taste buds, strong tasters more than 20. Too complicated? Pour a packet of Sweet'N Low™ into a glass of water; normal tasters will think it tastes sugary, strong tasters will find it very bitter.

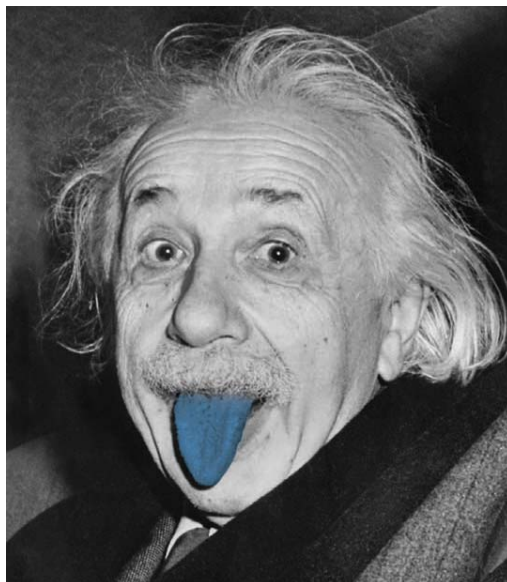
The reason for this difference is due to a chemical called phenylthiocarbamide (PTC). PTC's bitterness was discovered in 1931 by DuPont chemist Arthur Fox, who accidentally released some PTC powder into the air. His colleague complained it tasted bitter, and, although he was closer, Fox did not taste it at all. They confirmed this difference by each tasting the non-poisonous chemical again, and soon PTC crystals were being given to all kinds of friends and family to corroborate the findings. Genial traits proved to be so strong that PTC was used for paternity testing before DNA tests were available. Interestingly, it wasn't until 2003 that scientists were able to identify the single gene responsible for different PTC-tasting abilities.

So if you're like me and have PTC sensitivity, you probably won't like PTC-containing dark green vegetables or dark chocolate and, of course, coffee. So why do I love frappuccinos and coffee-flavored ice cream? The bitterness can be easily masked by a high enough sugar content but not with artificial sweeteners like the

saccharin-based Sweet'N Low.™

I find this lesson explains the inconsistency in my beverage-ordering behavior and also offers up an interesting piece of trivia. It shows how relative an answer can be, and I think the same can be said for explaining the proper application of EP products. Not all EP lubricants are created equally, and sometimes further details are required to understand fully.

An old proverb states that giving a man fish feeds him for a day, but teaching him to fish feeds him for a lifetime. Simply stating that a particular product cannot be used in a certain application only helps today, but teaching people why helps them for the rest of their careers.



The genetic differences in people's taste buds reveals a lesson that can be translated to extreme pressure additives.

Evan Zabawski, CLS, is manager of training and education services for The Fluid Life Corp. in Edmonton, Alberta, Canada. You can reach him at evan@fluidlife.com.

