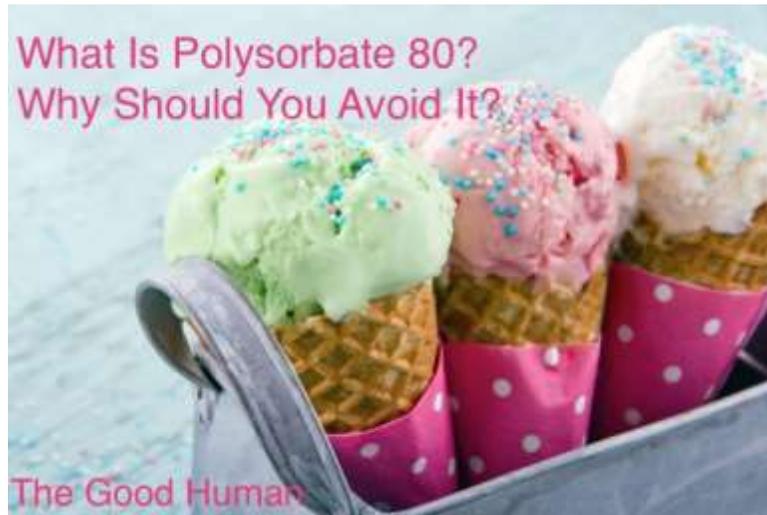


What Is Polysorbate 80 And Why Should You Avoid It?

By David Quilty, *The Good Human*



Our daily lives see us exposed to toxins in many forms. We breathe them in thanks to polluted air, we unwittingly apply them to our skin, serve them up disguised in our foods, not to mention inhaling cigarette smoke, even as a by product of someone else's life choices.

Our modern lifestyle is largely toxic, so much so that 'detoxing' is a term that we are used to seeing.

Unfortunately allergies and disease are also things we are used to seeing, and medical studies are beginning to make connections between some of these toxins and damage to our bodies.

But what of polysorbate 80?

What is it?

This is a lesser known synthetic compound, also known as Tween 80.

It is an amber/golden-colored viscous liquid. It is made from polyethoxylated sorbitan (chemical compounds derived from the dehydration of sugar alcohol) and oleic acid, a fatty acid found in animal and vegetable fats.

What does it do?

Polysorbate 80 is used as an emulsifier or defoamer in foods, vitamins, medicines, and vaccines.

Why is it used in food?

It is used as a defoamer for the fermenting process of some wines, and also to bind some ice-creams and other ‘puddings’, to keep their creamy texture without separating. It is also used to bulk foods up and keep sauces smooth.

Why is it used in cosmetics?

It can also act as a surfactant in soaps and cosmetics, as well as a solubilizer – helping to dissolve ingredients so that they can more easily blend together. It is used as a solubilizer. It makes products look creamier and more attractive.

Polysorbate 80

Why is it used in medicine?

It is used as an ingredient in some vaccines, as well as in some vitamins and supplements. Polysorbate 80 is used to improve the consistency of gel capsules and to make pills disperse in the stomach.

What products is it used in?

Polysorbate 80 is a versatile and useful ingredient, so it is present in quite a few products. Here is a short, generalized list of where it is most often found:

- Food shortening
- Chewing Gum
- Ice Cream
- Gelatin
- Vitamins
- Soap
- Shampoo
- Cosmetics
- Skin Creams
- Condiments
- Medicines
- Vaccines

Polysorbate 80

Should we be worried?

Let's see what the Material Safety Data Sheet for polysorbate 80 has to say:

- Slightly flammable to flammable in presence of heat
- Slightly hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation.
- May cause adverse reproductive effects based on animal test data. No human data found.
- May cause cancer based on animal test data. No human data found.
- May affect genetic material (mutagenic)

However, it is also listed in the handbook of green chemicals.

Important

Not all Polysorbate 80 is created equal

Some cosmetic grade Polysorbate 80 may potentially contain ethylene oxide, 1,4-dioxane and mono- and diethylene glycol as impurities, although worryingly these carcinogenic contaminants have also been picked up in food additives.

The report on Skin Deep gives Polysorbate a moderate hazard, with a 3/10 rating, but the contaminants ethylene oxide and 1,4-dioxane have ratings as a high hazard (8/10 and 10/10).

Generally, the cosmetic grade Polysorbate 80 is more likely to contain these impurities. Some natural cosmetics manufacturers are very careful about the quality that they use, and stick to only the food grade Polysorbate 80.

What about scientific studies?

There are many published studies which analyze Polysorbate 80, but it is important to recognize their limitations before generalizations are made.

This study suggests a link between the ingredient and infertility in mice.

The relative weight of the uterus and ovaries was decreased relative to the untreated controls. Ovaries were without corpora lutea, and had degenerative follicles.

It was seen to accelerate the maturation of female rats and resulted in deformities of the ovary. These effects were demonstrated in newborn mice which were injected with Polysorbate 80. It is certainly a concern when we consider that some vaccines may contain Polysorbate 80.

A separate study suggested that Polysorbate 80 could be a causative agent of a pregnant woman going into anaphylactic shock.

While this is also a worry, I would choose to be wary of this study as research was conducted on just one pregnant woman who had a severe allergic reaction to a multivitamin administered via IV. While doctors identified Polysorbate 80 as the cause, no other incidences of this type of reaction have been reported.

A recent study has shown a real connection between ingesting Polysorbate 80 and the development of bowel problems – it could be a real worry for those with a predisposition to Colitis.

Relatively low concentrations of two commonly used emulsifiers, namely carboxymethylcellulose and polysorbate-80, induced low-grade inflammation and obesity/metabolic syndrome in wild-type hosts and promoted robust colitis in mice predisposed to this disorder... These results support the emerging concept that perturbed host–microbiota interactions resulting in low-grade inflammation can promote adiposity and its associated metabolic effects. Moreover, they suggest that the broad use of emulsifying agents might be contributing to an increased societal incidence of obesity/metabolic syndrome and other chronic inflammatory diseases.

In a similar vein, the study linked here connected Polysorbate 80 to exacerbated Crohn's Disease.

Crohn's disease is common in developed nations where the typical diet is low in fibre and high in processed food. Primary lesions overlie Peyer's patches and colonic lymphoid follicles where bacterial invasion through M-cells occurs. We have assessed the effect of soluble non-starch polysaccharide (NSP) and food emulsifiers on translocation of *Escherichia coli* across M-cells.

Translocation of *E coli* across M-cells is reduced by soluble plant fibres, particularly plantain and broccoli, but increased by the emulsifier Polysorbate-80. These effects occur at relevant concentrations and may contribute to the impact of dietary factors on Crohn's disease pathogenesis.

Polysorbate 80 has also been causally linked with an increased risk of blood clots, stroke, heart attack, heart failure, and of tumor growth or recurrence in patients with certain types of cancer .

So should we avoid Polysorbate 80?

It can be considered a concern to accept vaccines which contain the ingredient.

The choice is ultimately down to you, and while we are told that ingesting Polysorbate is not a high risk, there are certainly some worrying issues.