



# Safety Statement

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Product Name: AC CytoSulf PF

Code: 20793PF

INCI Name: Plankton Extract

AC CytoSulf PF is manufactured by first fermenting Plankton (*Chlorobium tepidum*) using sulfur rich growth media. The plant matter is then filtered.

Plankton extract is derived from fermentation of the phototrophic species *Chlorobium tepidum*. *Chlorobium tepidum* is a non-pathogenic green microorganism. There is limited published safety data for the use of this species in cosmetics, but it is a naturally occurring organism widely found in sulfide-rich waters, mud, sediments, and hot springs. Derivatives of such have been studied for its potential use in agriculture-independent, sustainable, and efficient food production.<sup>1</sup>

Research has shown that *Chlorobium* has efficient carbon dioxide fixation and a simultaneously active biological nitrogen fixation, which supports its use in food production applications. *Chlorobium tepidum* provides fast growth rates that are supported by anoxygenic photosynthesis, indicating that biomass production could even occur with artificial illumination. Scientists propose that natural fermentation products of *Chlorobium* may be stored and then fed back during the day due to the organisms' respiration dependency on light.<sup>1</sup>

The natural behavior of *Chlorobium tepidum* when exposed to daylight allows the cell to naturally accumulate fermentation reserve compounds for use in sustainable food production.<sup>1</sup> Therefore, it is proposed that *Chlorobium tepidum* derived materials such as fermented plankton extract may be classified as Generally Recognized as Safe (GRAS) according to the FDA's Federal Food, Drug and Cosmetic Act.<sup>2</sup>

The act states:

Any substance that is intentionally added to food is a food additive, that is subject to premarket review and approval by FDA, unless the substance is generally recognized, among qualified experts, as having been adequately shown to be safe under the conditions of its intended use, or unless the use of the substance is otherwise excluded from the definition of a food additive.<sup>2</sup>

AC CytoSulf PF was tested using *in vitro* dermal and ocular irritation models. This product was found to be non-irritating in both models. The full report is attached for reference.

The above information supports the safety of AC CytoSulf PF in cosmetic applications at use levels of 1.0 – 5.0%. No further testing is required at this time.

1. Agriculture-independent, sustainable, fail-safe and efficient food production by autotrophic single-cell protein. Ingvar Bogdahn. (2015) CFSAN/Office of Premarket Approval. <https://peerj.com/preprints/1279.pdf>
2. Federal Food, Drug and Cosmetic Act. U.S Food and Drug Administration. [www.fda.gov](http://www.fda.gov).

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