

BETAINE REPLACEMENT

Dichloroacetic acid has been on the Proposition 65 list of chemicals with no safe harbor limit for some time. Many were not aware that betaines and amphotoacetates contain trace amounts of either dichloroacetic acid or sodium dichloroacetate, the latter of which may be partially converted to dichloroacetic acid depending on the formulation pH. However recently several industry leaders are now reporting the presence of these chemicals on their SDS. Therefore, products formulated with betaines and amphotoacetates must be labeled in CA.

Below are some suggestions for replacing betaines in personal care formulations:

- 1) Below is comparative information on Betaines vs. Hydroxysultaines, FYI. We would recommend trying our Cocamidopropyl Hydroxysultaine as a drop-in replacement for Betaines, adjusting for solids. You may have to make other formulation adjustments, but this should be a good start. We have two versions of Cocamidopropyl Hydroxysultaine - PEL-AMPH CBS-GF which is glycerin free, and we also have a less expensive product which contains glycerin called PEL-AMPH CBS-G.
- 2) PEL-AMPH 2CSF-CG (Disodium Cocoamphodipropionate) is another option. The resulting viscosity of your shampoo might be lower depending on your formulation, so viscosity aids might be needed.
- 3) If you go with a sulfate-based shampoo system, we'd recommend using an alkanolamide as a viscosity modifier. PEL AMID CAEE (Coconut Oil Aminoethoxyethanol Amides) or PEL-AMID C-DIPA (Cocamide DIPA) are two good options. Elé does not manufacture any sulfates.

Betaines vs. Hydroxysultaines		
Parameter	Betaines	Hydroxysultaines
pH Compatibility	Broad	Broad
Wetting Ability	Better	Moderate
Bleach Stable (H2O2 or Hypo)	No	No
Personal Care Cleaning	Good	Better
Mildness	Mild	More Mild
Foam	Good	Good
Viscosity	Good	Good
Considered "Sulfate Free"	Yes	Yes

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