

Q&A Report:	Green Chelation
"Question Asked"	Answer Given
Does Aminoacids derived surfactants have chelating properties?	<i>No but they do have antibacterial effects and some are self-preserved.</i>
Is there any safety concern about using for instance EDTA on the skin? Does it penetrate and alter homeostasis by altering availability of minerals on the skin (since minerales have many functions on the skin). I wonder if there is any info on this...	<i>EDTA is a penetration enhancer for the optical delivery of drugs. The CIR found EDTA and all its salts safe to use in cosmetics. CIR also found EDTA was not well absorbed into the skin. The FDA also says it is safe in cosmetics and food products. The biggest problem with EDTA is not with skin but with the environment.</i>
Are additional synergy studies with preservatives planned?	<i>The labs are working at a reduced rate with the coronavirus but more studies will be done since the results are so promising. Other preservatives like Ethyl Lauroyl Arginate HCl (LAE) and glycols like caprylyl glycol are likely subjects.</i>
What other natural preservative will you recommend for yeast? and why there were not interaction of the natural preservative and chelator with yeast	<i>Yeast and fungi have different cell walls than bacteria, Ethyl Lauroyl Arginate HCl (LAE) works against yeast. and caprylyl glycol is synergistic with it.</i>
Do chelators (or some of them) have antioxidation effect?	<i>It is possible, there are papers on the subject like Metal chelators as antioxidants for food preservation by Karin Allen and Antioxidant and free radical scavenging activity of iron chelators by Jonathan P.Adjimani PrinceAsare</i>
I did not find MGDA on the Cosmos data base of approved ingredients, are they in the process of registering it? Thanks	<i>In January 2019, the COSMOS standard issued a new regulation for the ingredients containing both natural origin and petrochemical moieties, GLDA is in the list of petrochemical RM, which can be COSMOS approved with a restriction. Unfortunately MGDA is not in this list.</i>
Also polylysine by Sino Lion is not on the Cosmos list of approved ingredients	<i>It is, the INCI Name of Everguard PL is Polyepsilon-lysine. I have the Attestation of Conformity from COSMOS, but the company is described as Nanjing Huashi New Material Co., LTD, the Manufacture Partner of Sino Lion USA.</i>
IS THE CORN THAT IS USED AS THE STARTING MATERIAL -GMO CORN	<i>it is non-GMO</i>

<p>SO WHAT YOU ARE SAYING IS THE CHELATING AGENTS YOU ARE PRESENTING ARE NOT EFFECTIVE AT Ph BELOW 7.5</p>	<p><i>They are less effective because they are competing with H+ ions. The extent of the competition depends on the pH and the specific metal ion.</i></p>
<p>Is it cost effective as compared to STPP for use in laundry detergent powder.?</p>	<p><i>STPPP is produced in the millios of tons, an amino acid based product produced aon a vastly smaller scale with never compete cost-wise.</i></p>
<p>Do you have a general idea of efficacy of phytic acid vs. GLDA/MGDA?</p>	<p><i>No, I can only find information regarding its effects on food and nutrition, not data allowing the comparison to GDLA/MGDA</i></p>
<p>Great presentation! Are any of the inputs into GLDA not considered natural? what reduces the natural content to 66.94% from 100?</p>	<p><i>Yes there are components that are not natural, but over 50% by molecular weight are natural</i> ISO 16128 - Natural Index and Natural Origin Index <i>Natural origin index = 1: Ingredient meets the definition of natural ingredients</i> <i>0.5 < Natural origin index ≤ 1: Ingredient meets the definition of derived natural ingredients. The value is calculated as the ratio of the natural origin moiety, as determined by molecular mass</i> <i>Natural origin index = 0: Ingredient neither meets the definition of natural ingredients nor derived natural ingredients, including those with natural origin indexes calculated to be ≤0.</i> <i>Non-natural ingredients: ingredients are ingredients that are greater than or equal to 50 % by molecular weight of fossil fuel origin or other ingredients</i></p>
<p>Clarifying question: are you saying that chelating agents will have more preservation synergy at higher pH becasue otherwise the chelating agent will be binding the free hydrogen and, therefore, less effective at binding available iron?</p>	<p><i>Yes the lower the pH the more h+ is present competing for binding sites with the metal ions.</i></p>
<p>Are there any green chelates recommended for oil soluble systems?</p>	<p><i>The only one I am aware of is INCI: Lauryl alcohol diphosphonic acid, Lauric acid, and it is certainly not green</i></p>

I didn't get the conversion rate concept. $glda = 3.3W$ EDTA to treat Ca^{2+} , does it mean i can use 3.3 times less GLDA than EDTA?

First there was a typo on the slide, the top line in the box below the table should have been 4N-EDTA, then there is a precie metal ion and pH, and the EDTA is 100% while the others are 28%, so taking account the molecular weigt and solution % for 1 part EDTA you need 3.3 parts of GLDA-30 or 2.41 parts of MGDA-30. I should heve explained it better during the webinar.