NEW DIRECTIONS
AUSTRALIA

Preservatives Master Data Sheet

Preservative Trade Name	Preservative INCI	Dose Range	Avoid these situations	Origin	Price Guide (* <$50 per Kg, ** $51-$200 per Kg, *** $201-600 per KG, **** over $601 per application	pH Range	Heat Tolerance	Spectrum	Best Suited To	Added Benefits	Solubility	Effect on our emulsion base.
Plantaserv U	Gluconolactone, Sodium Benzoate, Calcium Gluconate, Aqua	0.75-2	Avoid pH above 6 as this preservative will be less effective in those conditions.	Nature-Identical	**	3=6	Can tolerate up to 70C for a short period of time.	Bacteria, yeast and mould.	Any type of cosmetic product. Leave on or rinse off. Palm Free.	Palm Free	Water Soluble	This does not affect emulsion stability but it can shift in pH over time so often a buffer solution is required to stabilise pH.
Glyceryl Caprylate	Glyceryl Caprylate	0.3-1%	Avoid pH of above 7 as the ingredient will break down.	Natural (plant based, can be used in many organic formulations)	**	4.5=7	Heat Tolerant – 80C	Bacteria, Yeast, moderate action on mould	Any type of cosmetic product but will require the addition of another preservative to boost mould cover.	Moisturising, re-fatting, strong action against Propionibacterium acnes. Also a co-emulsifier for oil products,	Clearly soluble in surfactant solutions, water-alcohol mixes and emulsions. In water alone it may require a solubiliser.	Slight loss of viscosity across emulsions. Nothing dramatic.
Naticide	Parfume	0.6-1%	Products that require no aroma,	Natural	****	4=9	Heat Tolerant – 80C	Bacteria, Yeast, Mould	Those cosmetic products with a medium to low bio-burden - that means no clays, no natural colours, no particulates (exfoliating agents), milk powder or other proteins. If you do wish to make a product containing any of the above and preserve with Naticide it is key to choose good packaging, run stability testing and perform preservative efficacy testing.	Pleasant smell, allowed in organics, all natural, broad tolerance of manufacturing conditions	Only 0.6% will be soluble in water, above that a solubiliser may be needed to create a clear, well mixed product. Naticide is readily soluble with water/ alcohol mixtures, glycols (glycerin) and in emulsions.	No change in viscosoty or apparent stability of any of the emulsions - olive emulsifier, vegetable or ceteareth-20, cetearyl alcohol.
P-Anisic Acid	P-Anisic Acid	0.05-0.3%	Do not use this alone as it will only give cove from mould. Not suitable for use in AHA formulations.	Natural (basil)	****	4.5=5.5	Heat Tolerant – 80C	Mould	Hard-to-preserve products that require a mould-protecting boost. Can be used with naticide or glyceryl caprylate to give broad-spectrum cover.	Low dose rate for high efficiency. No aroma.	Limited solubility in water but can be pre-dissolved in Glycerin for water-based products. Will be fine to add to the water phase before forming an emulsion.	No affect on emulsion stability
AMTCide Coconut	Lactobacillus & Cocos Nucifera Fruit Extract.	0.25-2%	Will take a while to start working so may not be appropriate in a high risk formula. Avoid Heating	Natural	****	3=8	not heat tolerant, add at temperatures of 45C or less.	Mould	Natural products, products looking for food-like ingredients, Palm Free, Organic formulations.	Palm Free, Probiotic	Water Soluble	No effect on emulsion stability
Leucidal	Leuconostoc/Radish Root Ferment Filtrate	2 - 4%	Will take a while to start working so may not be appropriate in a high risk formula. Avoid Heating	Natural	****	3=8	not heat tolerant, add at temperatures of 45C or less.	Bacterial	Natural products, products looking for food-like ingredients, Palm Free, Organic formulations.	Palm Free, Probiotic	Water Soluble	No effect on emulsion stability
Phenethylalcohol	phenethyl alcohol	0.3-1%	Products that require no aroma. Products that won't smell right with a 'rose' note included.	Natural (rose)	****	3=9	Reasonable but avoid holding at 80C	Bacteria, Yeast, Mould	Any type of formula.	Can boost your rose notes to give a more fuller, longer-lasting aroma	does mix in well with water up to 2% so 1% in a spritz spray would work well.	Slightly reduced viscosity with the olive derived emulsifier. Dramatically reduced viscosity with the vegetable emulsifier but stable with the cetearyl alcohol, ceteareth-20.
Phenoxyethanol	Phenoxyethanol	up to 1%	Can't be used in organic formulations and those claiming to be petrochemical derivative free.	Synthetic	*	3=11	Heat Tolerant- 80C	Bacteria, Yeast, Mould	All types of formula but in high risk formulations it is best to pair this with another preservative to improve kill time of microbes as phenoxyethanol can take quite a while to get on top of things!	Very cost effective!	Readily soluble in water, can be used in emulsions (oil and water blends)	no effect at all, completely fine.
Plantaserv D	Glycerin, Aqua, Sodium Levulinate, Sodium Anisate	3-4%	Not suitable for use in AHA formulations. Not suitable for oil-only products.	Natural	***	Max pH 5.5	Heat Tolerant- 80C	Bacteria, Yeast, Mould	All types of formulation but for those containing high-risk ingredients such as zinc oxide, pigments, clays and plant material a stronger preservative may be required. The only way to know if this is strong enough is to run PET.	Also boosts solubilty of essential oils in water based formulations, clear and no-odour.	Good water solubility, easy to incorporate into a water based product or emulsion. Not suitable for oil only products.	Reduced viscosity in olive, vegetable and cetearyl alcohol, ceteareth-20 cream.
Plantaserv E	Phenoxyethanol, Ethylhexylglycerin	0.3-1%	Not suitable for natural products.	Semi-Synthetic	**	Up to 12	Heat Tolerant – 80C	Bacteria, Yeast, Mould	All types of formula	Cost effective, versatile, easy to use	Good water solubility.	Doesn't seem to affect viscosity negatively in any of the olive, vegetable and cetearyl acohol/ ceteareth-20 emulsions. Improves the glossiness of the ceteareth-20 emulsion.
Plantaserv M	Benzyl Alcohol, Salicylic Acid, Glycerine, Sorbic Acid	0.3-1%	Can't be used in organic formulations	Semi-Synthetic	**	3=8	not heat tolerant, add at temperatures of 45C or less.	Bacteria, Yeast, Mould	All types of formula	Cost effective, low odour (slightly chemical but not overpowering).	Insoluble in water but soluble in water/ alcohol, glycerin solutions so can be added into those ingredients before adding to the water phase.	Dramatically reduced viscosity with the olive emulsifier - created instability in our formula. No problem with the vegetable derived and cetearyl alcohol, ceteareth-20 blend.
Plantaserv N	Glyceryl Caprylate, Glyceryl Undecylenate	0.9-1.1%	Can destabilise emulsions (thin them down). Not best suited to alcohol free spritz formulations as poorly soluble.	Natural	***	<7	Heat tolerant - heat can help mix this in.	Bacteria, Yeast, Mould	Most formulations but can be hard to solubilise and can be an issue with some types of emulsifiers.	Natural.	Partially water soluble. Solubility boosted with alcohol.	Dramatically reduces viscosity of Olive emulsifier and also affects emulsion stability with some other emulsifiers.
Plantaserv P	Phenoxyethanol, Caprylyl Glycol	0.75-1.5%	Can't be used in organic formulations. Not suitable for use in AHA formulations with pH under 4.	Synthetic	**	4=8	Heat tolerant to 80C	Bacteria, Yeast, Mould	All types of formula	Cost effective, low odour, easy to use.	Good water solubility	Dramatically reduced viscosity with Olive Emulsifier and Cetearyl alcohol, ceteareth-20 but good stability with the vegetable emulsifier.
Plantaserv S	Origanum Vulgare Extract, Thymus Vulgaris Extract, Cinnamomum Zeylanicum Bark Extract, Rosmarinus Officinalis Extract, Lavandula Angustifolia Extract, Citrus Limon Fruit Extract, Mentha Piperita Extract, Hydrastis Canadensis Extract, Olea Europaea Leaf Extract	0.45	Can't be used in water based formulations	Natural	****	NA	20-35C	Bacteria, yeast, mould	Oil based products that might come into contact with a little water - oily products for shower area, pigmented lip balms/ lip sticks, massage oils containing plant material etc.	All natural, pleasant smell and colour	Oil soluble	Only suitable for use in water-in-oil emulsions where it won't affect emulsion stability.
Potassium Sorbate	Potassium Sorbate	0.1-0.5	Can't be used in organic formulations any more. Can be irritating to skin, especially in formulations containing no oil. When used with Sodium Benzoate the maximum combined input is 0.5%	Synthetic (Nature-Identical)	*	Up to pH 5	20-45C	Mould and yeast	All types of formula that contain oils	Cost effective, nature-identical.	Good water solubility	No effect on emulsion stability
Sodium Benzoate	Sodium Benzoate (E211 food additive number)	0.1-0.5	Can't be used in organic formulations. Can be irritating to skin, especially in oil-free formulations. When used with potassium sorbate the maximum combined imput is 0.5%	Synthetic (Nature-Identical)	*	Up to pH 5	Heat tolerant	Bacteria, Mould	All types of formula that contain oils	Cost effective, nature identical	Good water solubility	No effect on emulsion stability
Sodium Hydroxymethylglycinate	Sodium Hydroxymethylglycinate	Up to 0.5%	Can't be used with citrus essential oils as it will turn the product pink due to a reaction between the preservative and essential oil components. This ingredient is also a formaldehyde releaser which is why the maximum permitted input is 0.5% - a safe level. When using formaldehyde releasing ingredients avoid adding AMINES into your formula - these include Triethanolamine, Urea, Some hair dye components and colours.	Synthetic (but from naturally derived starting materials-Amino Acid Glycine)	**	Up to pH 12	Heat tolerant to 85C	Bacteria, Yeast, Mould	All types of formula	Can be used as a neutraliser to help balance the pH of a formula from acidic to neutral.	Good water solubility	No effect on emusion stability

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