

COMPATIBILITY AND SOLUBILITY OF DHA AND NaDHA

Preservative	Solubility		Compatibility			Typical % Use Level
	Water	Propylene Glycol	Anionics	Nonionics	Cationics	
DHA	0.10%	1.7%	Yes	Yes	Yes	0.35%
NaDHA	33.0%	48.0%	Yes	Yes	Yes	0.35%
Parabens	<0.25%	22.0%	Some	No	Yes	>0.60%

Notes :

- 1) Sodium DHA is superior to all Parabens as preservative.
- 2) Both are (DHA and Sodium DHA) compatible in all types of Formulations.
(Anionics , Nonionics , Cationics).
- 3) Parabens are not compatible with Nonionics and with some Anionics .
- 4) Use level, for both (DHA and Sodium DHA) is 0.35% , compared to Parabens , more than 0.60%.

ACTIVITY AT VARIOUS pH RANGE

Preser- vatives	pK Value	pH Range								
		3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0
DHA	5.27	100%	98	95	86	65	37	15.9	5.6	1.9
Sorbic Acid	4.76	98	95	85	65	37	15	5.5	1.8	0.6

Notes :

- 1) DHA is better than Sorbic Acid in Activity .
- 2) With DHA , there is more activity across wider pH Range compared to Sorbic Acid .
- 3) The efficacy of DHA is pH dependent , offering greater efficacy at lower pH.