

PARABENS

Preservatives For Focused Protection



Parabens are the most commonly used preservatives in personal care products.

Parabens display a low irritation potential, have low toxicity levels, and are active against a wide spectrum of fungi and bacteria at low concentrations. They are stable and effective over a wide pH range, can withstand temperatures up to 100°C, and are biodegradable. Also, they are highly compatible with other compounds.

When combining two or more Parabens, their antimicrobial performance is enhanced due to a synergistic effect. While this is not a complete listing of Paraben features, it is clear why they are such an effective preservative and so commonly used.

MINIMUM INHIBITION CONCENTRATIONS (MIC) FOR PARABENS

Microorganism	Methyl	Ethyl	Propyl	Butyl
Aspergillus niger	600	300	300	200
Candida albicans	900	500	200	100
Pseudomonas aeruginosa	1600	1500	>900	-
Bacillus cereus	1600	800	300	100
Burkholderia cepacia	600	350	200	200
Escherichia coli	1400	700	350	140
Staphylococcus epidermidis	2000	900	350	150
Staphylococcus aureus	2000	1000	300	110

All the Parabens have low aqueous solubility, but will dissolve in most systems at temperatures above 60°C. When considering the solubility of Parabens, we recommend dissolving short-chained Parabens (such as Methylparaben) in the aqueous phase and longer-chained Parabens in the oil phase. If all the Parabens must be introduced to the water phase, pre-heating of the water is recommended. In the event that heating is undesirable, we recommend using Paraben sodium salts.

SOLUBILITY (GR/100GR) 25° C

	Methyl	Ethyl	Propyl	Butyl
Water 15° C	0.16	0.07	0.023	0.015
Water 25° C	0.25	0.12	0.04	0.15
Water 80° C	3.2	0.86	0.45	0.15
Ethanol 10%	0.5	-	0.1	-
Ethanol 50%	18	-	18	-
Ethanol 100%	52	72	95	200
Propylene Glycol 100%	22	22	26	-
Propylene Glycol 50%	2.7	-	0.9	-
Glycerine	1.7	0.6	0.4	0.4
Peanut oil	1.0	-	1.4	-

INCI

Methylparaben
Ethylparaben
Propylparaben
Butylparaben

CAS

99-76-3
120-47-8
94-13-3
94-26-6

Appearance

White, dry powder

Solubility

Soluble in propylene glycol, phenoxyethanol, ethanol etc., limited solubility in water