

Commonly Used Calcium Salts in Alginate/Calcium Reactions

Calcium Salt	%Ca	Solubility in H ₂ O		Common Uses	Amount (GM) of Calcium Salts req'd to react stoichiometrically with 2.5g Sodium Alginate
		Cold	Hot		
Calcium acetate (monohydrate) Formula: Ca(CH ₃ COO) ₂ ·H ₂ O M.W: 176.18	22.75	27%	23%	Calcium bath or spray	0.791
Calcium chloride Formula: CaCl ₂ M.W: 110.99	36.11	40%	59%	Calcium bath or spray	0.498
Calcium citrate Formula: Ca ₃ (C ₆ H ₅ O ₇) ₂ ·4H ₂ O M.W: 570.50	21.08	0.09%	>0.09%	Acidic system	0.854
Calcium carbonate Formula: CaCO ₃ M.W: 100.09	40.04	0.0015%	0.0019%	Dessert gels	0.450
Calcium gluconate Formula: Ca(C ₆ H ₁₁ O ₇) ₂ ·H ₂ O M.W: 448.39	8.94	3.2%	16.6%	Puddings, pie fillings	2.013
Calcium lactate Formula: Ca(C ₃ H ₅ O ₃) ₂ ·5H ₂ O M.W: 308.30	13.00	5%	>5%	Calcium baths	1.385
Calcium lactate Formula: Ca(C ₃ H ₅ O ₃) ₂ ·5H ₂ O M.W: 308.30	17.10	Very soluble. Decomposition to free H ₃ PO ₄ and di or tribasic salts.		Rarely used in algin systems	1.053
Calcium phosphate monobasic Formula: Ca(H ₂ PO ₄) ₂ ·H ₂ O M.W: 252.09	15.90	Very soluble. Decomposition to free H ₃ PO ₄ and di or tribasic salts.		Rarely used in algin systems	1.132
Dicalcium phosphate anhydrous Formula: CaHPO ₄ M.W: 136.10	29.00	<0.02%	<0.075%	Low pH dessert gels. General acid systems.	0.621

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Dicalcium phosphate dihydrate Formula: CaHPO ₄ ·2H ₂ O M.W: 172.10	23.29	0.02%	0.075%	Low pH dessert gels. General acid systems. Faster calcium release.	0.773
Tricalcium phosphate Formula: Ca ₃ (PO ₄) ₂ M.W: 310.20	38.76	0.002-0.003%	Decomposes	Low pH dessert gels fabricated fruit, general use acid systems. Slower than dicalcium phosphate for release of calcium.	0.464
Calcium sulphate anhydrous Formula: CaSO ₄ M.W: 136.15	29.44	0.20%	0.16%	Puddings, pie fillings, flans, custards.	0.611
Calcium sulphate dehydrate Formula: CaSO ₄ ·2H ₂ O M.W: 172.18	23.28	0.27%	0.20%	Puddings, pie fillings, flans, custards. Faster calcium release.	0.773