

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 2.5 GRAMES 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	40.0%	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	13.0	5%	>5%	Calcium baths	1.385
Calcium phosphate Formula: CaH ₄ (PO ₄) ₂ M.W: 234	17.1	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	<0.02%	<0.075%	Low pH dessert gels. General acid systems	0.621
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