

Conversion Factors¹ (Vitamins)



DSM

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Vitamin A = mcg Retinol Equivalent = mcg RE

1 mcg RE	=	3.333 IU	Vitamin A
	=	1.147 mcg	Vitamin A Acetate
	=	1.832 mcg	Vitamin A Palmitate
	=	6 mcg	β-Carotene ²
	=	1 mcg	Retinol
1 IU Vitamin A	=	0.344 mcg	Vitamin A Acetate
	=	0.550 mcg	Vitamin A Palmitate
	=	1.8 mcg	β-Carotene ²
	=	0.3 mcg	RE
	=	0.3 mcg	Retinol
1 mg Vitamin A Acetate	=	872 mcg	RE
	=	872 mcg	Retinol
	=	2906 IU	Vitamin A
	=	1.597 mg	Vitamin A Palmitate
1 mg Vitamin A Palmitate	=	546 mcg	RE
	=	546 mcg	Retinol
	=	1820 IU	Vitamin A
	=	0.626 mg	Vitamin A Acetate
1 mg β-Carotene	=	167 mcg	RE
	=	167 mcg	Retinol
	=	556.6 IU	Vitamin A ²
	=	1667 IU	β-Carotene ²
1 IU β-Carotene	=	0.6 mcg	β-Carotene ²

Vitamin E = mg α-TE = mg α-Tocopherol Equivalent d:natural; dl:synthetic

1 mg α-TE	=	1.49 IU	
	=	1.49 mg	dl-α-Tocopheryl Acetate
	=	1.36 mg	dl-α-Tocopherol
	=	1.10 mg	d-α-Tocopheryl Acetate
	=	1 mg	d-α-Tocopherol
1 IU Vitamin E	=	1 mg	dl-α-Tocopheryl Acetate
	=	0.91 mg	dl-α-Tocopherol
	=	0.74 mg	d-α-Tocopheryl Acetate
	=	0.67 mg	d-α-Tocopherol
1 mg d-α-Tocopherol	=	1 mg	α-TE
	=	1.49 IU	
1 mg d-α-Tocopheryl Acetate	=	0.91 mg	α-TE
	=	1.36 IU	
1 mg dl-α-Tocopherol	=	0.74 mg	α-TE
	=	1.10 IU	
1 mg dl-α-Tocopheryl Acetate	=	0.67 mg	α-TE
	=	1 IU	

Vitamin D = mg Vitamin D₃ = Cholecalciferol

1 IU Vitamin D ₃	=	0.025 mcg	Cholecalciferol
1 mg Cholecalciferol	=	40000 IU	Vitamin D ₃
1 mcg Cholecalciferol	=	40 IU	Vitamin D ₃

Vitamin B₁ = Thiamine Base

1 mg Thiamine Base	=	1.2710 mg	Vitamin B ₁ HCl Anh
	=	1.3379 mg	B ₁ HCl (Commercial Product)
	=	1.2336 mg	Thiamine Mononitrate
1 mg Vitamin B ₁ HCl Anh	=	0.7867 mg	Thiamine Base
1 mg B ₁ HCl (Commercial Product)	=	0.7474 mg	Thiamine Base
1 mg Thiamine Mononitrate	=	0.8106 mg	Thiamine Base
1 mg B ₁ HCl (Commercial Product)	=	0.9500 mg	Vitamin B ₁ HCl Anh

Vitamin B₂ = Riboflavin

1 mg Vitamin B ₂	=	1 mg	Riboflavin
1 mg Riboflavin	=	1.4286 mg	Riboflavin-5'-Phosphate Sodium (Commercial Product)
1 mg Riboflavin-5'-Phosphate Sodium (Commercial Product)	=	0.7000 mg	Riboflavin
1 mg Riboflavin	=	1.3667 mg	Riboflavin-5'-Phosphate Sodium
1 mg Riboflavin-5'-Phosphate Sodium	=	0.7317 mg	Riboflavin

Vitamin PP (Nicotinic Acid/Niacin) = Niacin Equivalent (NE) = Vitamin B₃

1 mg Nicotinic Acid/Niacin	=	1 mg	Niacin Equivalent (NE)
	=	1.008 mg	Nicotinamide
	=	4.114 mg	Romax Anh
1 mg Niacin Equivalent (NE)	=	60 mg	Tryptophan
1 mg Nicotinamide	=	0.992 mg	Nicotinic Acid/Niacin
	=	4.082 mg	Romax Anh
1 mg Romax	=	0.235 mg	Nicotinamide
	=	0.233 mg	Nicotinic Acid/Niacin

Vitamin B₅ (D-Calcium Pantothenate/Panthenol)

1 mg Pantothenic Acid	=	1.1204 mg	Calcium Pantothenate (Commercial Product)
	=	1.0880 mg	Calcium Pantothenate Anh
	=	1.100 mg	Sodium Pantothenate
	=	0.936 mg	Panthenol
1 mg Calcium Pantothenate (Commercial Product)	=	0.8925 mg	Pantothenic Acid
1 mg Calcium Pantothenate Anh	=	0.9191 mg	Pantothenic Acid
	=	0.8610 mg	Panthenol
1 mg Panthenol	=	1.068 mg	Pantothenic Acid
	=	1.161 mg	Calcium Pantothenate
	=	1.181 mg	Sodium Pantothenate

Vitamin B₆ = Pyridoxine base

1 mg Pyridoxine Base	=	1.2155 mg	Pyridoxine HCl
1 mg Pyridoxine HCl	=	0.8227 mg	Pyridoxine Base

Folic Acid

1 mg Folic Acid (Commercial Product)	=	0.9050 mg	Folic Acid Anh
1 mg Folic Acid Anh	=	1.1045 mg	Folic Acid (Commercial Product)

Ascorbic Acid

1 mg Ascorbic Acid	=	1.124 mg	Sodium Ascorbate
	=	1.210 mg	Calcium Ascorbate
	=	2.360 mg	Ascorbyl Palmitate
	=	1.360 mg	Romax Anh
1 mg Calcium Ascorbate	=	0.826 mg	Ascorbic Acid
1 mg Sodium Ascorbate	=	0.889 mg	Ascorbic Acid
1 mg Ascorbyl Palmitate	=	0.425 mg	Ascorbic Acid
1 mg Romax Anh	=	0.735 mg	Ascorbic Acid

1 For use in determining ingredient composition or ingredient legend calculation – Included compensation for market forms which are not 100% potency (especially for the water soluble vitamins).

2 Based on the relationship: 1 IU of β-Carotene = 0.6 μg β-Carotene = 0.1 μg Retinol=0.333 IU of Vitamin A activity (FAO/WHO, Rome 1988).

For water soluble vitamins, the conversion factors are based on molecular weight of compounds. Potency of marketed forms is not considered.