

Conversions

Conversion of Milligrams (mg) to Milliequivalents (mEq)

mg → mEq

$$\text{mEq} = \frac{\text{mg} \times \text{valence}}{\text{Atomic weight}}$$

mEq → mg

$$\text{mg} = \frac{\text{mEq} \times \text{atomic weight}}{\text{Valence}}$$

mg → mmol

$$\text{mmol} = \frac{\text{mg}}{\text{Atomic weight}}$$

Mineral Element	Chem. Symbol	Atomic Weight	Valence	Mg	mEq	mMol
Calcium	Ca	40	2	20	1	0.5
Chlorine	Cl	35.5	1	35	1	1
Magnesium	Mg	24.3	2	12	1	0.5
Phosphorus	P	31	2	31	2	1
Potassium	K	39	1	39	1	1
Sodium	Na	23	1	23	1	1

Temperatures

Normal Temperature = 98.6 F or 37 C

Normal Neonatal Temperature:

- Skin = 36-36.5 C & 96.8-97.7 F
- :Axillary = 36.5-37 C & 97.7-98.6 F

$$\frac{(F - 32)}{1.8} = C$$

F	C
98.6	37
100	37.8
101	38.4
102	38.9
103	39.5
104	40.0

IU Equivalents

Vitamin E:

RRR-alpha-tocopherol (or D-alpha-tocopherol)

1 International Unit of vitamin E = 0.67mg

Vitamin A:

0.3 RE = 1 IU 1 RE = 1 mcg Retinol = 3.33 International Units

1 International Unit of vitamin A = 0.6 mcg (beta-carotene)

Vitamin D:

1 mcg cholecalciferol = 40 IU vitamin D

1 International Unit of vitamin D = 0.025 mcg

Measurements

1 gallon = 16 cups	1 liter = 1000 mL	1 kg = 2.2 lb
1 gallon = 4 quarts	15 mL = 1 Tbsp	1 lb = 454 g
1 quart = 2 pints	5 mL = 1 tsp	.0041866 kJ = 1 kcal
1 pint = 2 cups	30 mL = 1oz = 28g	1 kcal = 4.184 kJ
1 cup = 16 Tbsp	1 quart = 0.946 liter	1 inch = 2.54 cm
1 Tbsp = 3 tsp = 14.8 mL		

Conversion Factors for Major Minerals

- 1 mEq Na = 1 mmol Na = 23 mg Na
- 1 g Na = 43 mEq Na = 43 mmol Na
- 1 mEq K = 1 mmol K = 39 mg K
- 1 g K = 26 mEq K = 26 mmol K
- 1 mEq Cl = 1 mmol Cl = 35 mmol Cl
- 1 g Cl = 29 mEq Cl = 29 mmol Cl
- 1 mEq Ca = 0.5 mmol Ca = 20 mg Ca
- 1 g Ca = 50 mEq Ca = 25 mmol Ca
- 1 mEq Mg = 0.5 mmol Mg = 12 mg Mg
- 1 g Mg = 82 mEq Mg = 41 mmol Mg
- 1 mmol P = 2 mEq HPO₃ = 31 mg P

Major Mineral Content in Various Compounds and Solution

- 1 g NaCl = 393 mg Na = 17 mEq Na
- 1000 mL saline = 9 g NaCl = 3.5 g Na = 151 mEq Na
- 1000 mL lactated Ringer's solution = 3 g Na = 130 mEq Na
- 1 g KCL = 524 mg K = 13 mEq K
- 1 g calcium gluconate = 93 mg Ca = 4.6 mEq Ca
- 1 g CaCO₃ = 400 mg Ca = 20 mEq Ca
- 1 mL Fe dextran (Imferon) = 50 mg Fe
- 1 g MgSO₄ = 98 mg elemental Mg

Conversion Table for Na/NaCl

	mEq sodium (Na ⁺)	Mmol Sodium	Mg Sodium	Mg salt (NaCl)
1/8 teaspoon salt	13	13	300	750
1/4 teaspoon salt	29	26	600	1500
1/2 teaspoon salt	52	52	1200	3000
3/4 teaspoon salt	78	78	1800	4500
1 teaspoon salt	104	104	2400	6000

Reference:

Texas Children's Hospital. Texas Children's Hospital Pediatric Nutrition Reference Guide. 12th ed. Houston, TX: Texas Children's Hospital; 2019.