



Author Instructions

Système International (SI) Conversion Factors for Selected Laboratory Components

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Conventional units of measure are preferred, with Système International (SI) units expressed secondarily (in parentheses). To convert values from conventional units to SI units, multiply by the conversion factor.

Component	Conventional Unit	Conversion Factor	SI Unit
Acetaminophen	µg/mL	6.62	µmol/L
Acetoacetic acid	mg/dL	0.098	mmol/L
Acetone	mg/dL	0.172	mmol/L
Acid phosphatase	units/L	1.0	U/L
Alanine	mg/dL	112.2	µmol/L
Alanine aminotransferase (ALT)	units/L	1.0	U/L
Albumin	g/dL	10	g/L
Alcohol dehydrogenase	units/L	1.0	U/L
Aldolase	units/L	1.0	U/L
Aldosterone	ng/dL	0.0277	nmol/L
Alkaline phosphatase	units/L	1.0	U/L
Aluminum	ng/mL	0.0371	µmol/L
Aminobutyric acid	mg/dL	97	µmol/L
Amitriptyline	ng/mL	3.61	nmol/L
Ammonia (as NH ₃) (Dual report)	µg/dL	0.587	µmol/L
Amylase	units/L	1.0	U/L
Androstenedione	ng/dL	0.0349	nmol/L
Angiotensin I	pg/mL	0.772	pmol/L
Angiotensin II	pg/mL	0.957	pmol/L
Anion gap	mEq/L	1.0	mmol/L
Antidiuretic hormone	pg/mL	0.923	pmol/L
Antithrombin III	mg/dL	10	mg/L

α_1 -Antitrypsin (Dual report)	mg/dL	0.184	μ mol/L
Apolipoprotein A	mg/dL	0.01	g/L
Apolipoprotein B	mg/dL	0.01	g/L
Arginine	mg/dL	57.4	μ mol/L
Asparagine	mg/dL	75.7	μ mol/L
Aspartate aminotransferase (AST)	units/L	1.0	U/L
Bicarbonate	mEq/L	1.0	mmol/L
Bilirubin (Dual report)	mg/dL	17.1	μ mol/L
Blood gases (arterial)			
Paco ₂	mm Hg	1.0	mm Hg
pH	pH units	1.0	pH units
Pao ₂	mm Hg	1.0	mm Hg
Bromide	mg/dL	0.125	mmol/L
C-peptide	ng/mL	0.333	nmol/L
C1 esterase inhibitor	mg/dL	10	mg/L
C3 complement	mg/mL	0.01	g/L
C4 complement	mg/mL	0.01	g/L
Calcitonin	pg/mL	1.0	ng/L
Calcium (Dual report)	mg/dL	0.25	mmol/L
	mEq/L	0.50	mmol/L
Carbon dioxide	mEq/L	1.0	mmoI/L
Carboxyhemoglobin	% of hemoglobin saturation	0.01	Proportion of hemoglobin saturation
Carotene	μ g/dL	0.0186	μ mol/L
Ceruloplasmin	mg/dL	10	mg/L
Chloride	mEq/L	1.0	mmol/L
Cholesterol (Dual report)	mg/dL	0.0259	mmol/L
Citrate	mg/dL	52.05	μ mol/L
Copper	μ g/dL	0.157	μ moI/L
Coproporphyrins (urine)	μ g/24 hr	1.527	nmol/d
Corticotropin (ACTH)	pg/mL	0.22	pmol/L
Cortisol	μ g/dL	27.59	nmol/L
Cotinine	ng/mL	5.68	nmol/L
Creatine	mg/dL	76.26	μ mol/L

Creatine kinase (CK)	units/L	1.0	U/L
Creatinine (Dual report)	mg/dL	88.4	μmol/L
Creatinine clearance (Dual report)	mL/min	0.0167	mL/s
Cyanide	mg/L	23.24	μmol/L
Dehydroepiandrosterone (DHEA)	ng/mL	3.47	nmol/L
Desipramine	ng/mL	3.75	nmol/L
Diazepam	μg/mL	3.512	μmol/L
Digoxin (Dual report)	ng/mL	1.281	nmol/L
Epinephrine	pg/mL	5.46	pmol/L
Erythrocyte sedimentation rate	mm/h	1.0	mm/h
Estradiol (Dual report)	pg/mL	3.671	pmol/L
Estriol	ng/mL	3.467	nmol/L
Estrone	ng/dL	37	pmol/L
Ethanol (ethyl alcohol)	mg/dL	0.217	mmol/L
Ethylene glycol	mg/L	16.11	μmol/L
Ferritin	ng/mL	2.247	pmol/L
α -Fetoprotein	ng/mL	1.0	μg/L
Fibrinogen	mg/dL	0.0294	μmol/L
Fluoride	μg/mL	52.6	μmol/L
Folate	ng/mL	2.266	nmol/L
Follicle-stimulating hormone	mIU/mL	1.0	IU/L
Fructose	mg/dL	55.5	μmol/L
Galactose	mg/dL	55.506	μmol/L
Glucagon	pg/mL	1.0	ng/L
Glucose (Dual report)	mg/dL	0.0555	mmol/L
Glutamine	mg/dL	68.42	μmol/L
γ -Glutamyltransferase (GGT)	units/L	1.0	U/L
Glycated hemoglobin (glycosylated hemoglobin A _{1c} , A _{1c})	% of total hemoglobin	0.01	Proportion of total hemoglobin
Glycerol (free)	mg/dL	108.59	μmol/L
Glycine	mg/dL	133.3	μmol/L
Haptoglobin	mg/dL	0.10	μmol/L
Hematocrit	%	0.01	Proportion of 1.0

Hemoglobin (whole blood) Mass concentration	g/dL	10.0	g/L
High-density lipoprotein cholesterol (HDL-C) (Dual report)	mg/dL	0.0259	mmol/L
Histidine	mg/dL	64.45	μmol/L
Homocysteine (total)	mg/L	7.397	μmol/L
Human chorionic gonadotropin (HCG)	mIU/mL	1.0	IU/L
Hydroxybutyric acid	mg/dL	96.05	μmol/L
Hydroxyproline	mg/dL	76.3	μmol/L
Immunoglobulin A (IgA)	mg/dL	0.01	g/L
Immunoglobulin D (IgD)	mg/dL	10	mg/L
Immunoglobulin E (IgE)	mg/dL	10	mg/L
Immunoglobulin G (IgG)	mg/dL	0.01	g/L
Immunoglobulin M (IgM)	mg/dL	0.01	g/L
Insulin	μIU/mL	6.945	pmol/L
Iron, total (Dual report)	μg/dL	0.179	μmol/L
Iron binding capacity, total (Dual report)	μg/dL	0.179	μmol/L
Isoleucine	mg/dL	76.24	μmol/L
Isopropanol	mg/L	0.0166	mmol/L
Lactate (lactic acid)	mg/dL	0.111	mmol/L
Lactate dehydrogenase	units/L	1	U/L
Lactate dehydrogenase isoenzymes (LD ₁ -LD ₅)	%	0.01	Proportion of 1.0
Lead (Dual report)	μg/dL	0.0483	μmol/L
Leucine	mg/dL	76.237	μmol/L
Lipase	units/L	1.0	U/L
Lipids (total)	mg/dL	0.01	g/L
Lipoprotein (a)	mg/dL	0.0357	μmol/L
Lithium	mEq/L	1.0	mmol/L
Low-density lipoprotein cholesterol (LDL-C) (Dual report)	mg/dL	0.0259	mmol/L
Luteinizing hormone (LH, leutropin)	IU/L	1.0	IU/L
Lysine	mg/dL	68.5	μmol/L
Magnesium (Dual report)	mg/dL	0.411	mmol/L
	mEq/L	0.50	mmol/L

Manganese	ng/mL	18.2	nmol/L
Methanol	mg/L	0.0312	mmol/L
Methemoglobin	% of total hemoglobin	0.01	Proportion of total hemoglobin
Methionine	mg/dL	67.02	μmol/L
Myoglobin	μg/L	0.0571	nmol/L
Nicotine	mg/L	6.164	μmol/L
Nitrogen, nonprotein	mg/dL	0.714	mmol/L
Norepinephrine	pg/mL	0.00591	nmol/L
Ornithine	mg/dL	75.67	μmol/L
Osmolality	mOsm/kg	1.0	mmoI/kg
Osteocalcin	μg/L	0.171	nmol/L
Oxalate	mg/L	11.1	μmol/L
Parathyroid hormone	pg/mL	1.0	ng/L
Phenobarbital	mg/L	4.31	μmol/L
Phenylalanine	mg/dL	60.54	μmol/L
Phenytoin	μg/mL	3.96	μmoI/L
Phosphorus (Dual report)	mg/dL	0.323	mmol/L
Plasminogen	mg/dL	0.113	μmol/L
	%	0.01	Proportion of 1.0
Plasminogen activator inhibitor	mIU/mL	1.0	IU/L
Platelets (thrombocytes)	$\times 10^3/\mu\text{L}$	1.0	$\times 10^9/\text{L}$
Potassium	mEq/L	1.0	mmoI/L
Pregnanediol (urine)	mg/24h	3.12	μmoI/d
Pregnanetriol (urine)	mg/24 h	2.97	μmol/d
Progesterone	ng/mL	3.18	nmol/L
Prolactin	μg/L	43.478	pmol
Proline	mg/dL	86.86	μmol/L
Prostate-specific antigen	ng/mL	1.0	μg/L
Protein, total	g/dL	10.0	g/L
Prothrombin	g/L	13.889	μmol/L
Prothrombin time (protime, PT)	s	1.0	s
Protoporphyrin, erythrocyte	μg/dL	0.01777	μmol/L
Pyruvate	mg/dL	113.6	μmoI/L
Quinidine	μg/mL	3.08	μmol/L

Red blood cell count	$\times 10^6/\mu\text{L}$	1.0	$\times 10^{12}/\text{L}$
Renin	pg/mL	0.0237	pmol/L
Reticulocyte count	% of RBCs	0.01	Proportion of 1.0
Salicylate	mg/L	0.00724	mmol/L
Serine	mg/dL	95.2	$\mu\text{mol}/\text{L}$
Serotonin (5-hydroxytryptamine)	ng/mL	0.00568	$\mu\text{mol}/\text{L}$
Sodium	mEq/L	1.0	mmol/L
Somatomedin-C (insulinlike growth factor)	ng/mL	0.131	nmol/L (coagulation factor II)
Somatostatin	pg/mL	0.611	pmol/L
Taurine	mg/dL	79.91	$\mu\text{mol}/\text{L}$
Testosterone (Dual report)	ng/dL	0.0347	nmol/L
Theophylline	$\mu\text{g}/\text{mL}$	5.55	$\mu\text{mol}/\text{L}$
Thiocyanate	mg/L	17.2	$\mu\text{mol}/\text{L}$
Threonine	mg/dL	83.95	$\mu\text{mol}/\text{L}$
Thyroglobulin	ng/mL	1.0	$\mu\text{g}/\text{L}$
Thyrotropin (thyroid-stimulating hormone, TSH)	mIU/L	1.0	mIU/L
Thyroxine, free (T_4) (Dual report)	ng/dL	12.87	pmol/L
Thyroxine, total (T_4) (Dual report)	$\mu\text{g}/\text{dL}$	12.87	nmol/L
Transferrin	mg/dL	0.01	g/L
Triglycerides (Dual report)	mg/dL	0.0113	mmol/L
Triiodothyronine			
Free (T_3) (Dual report)	pg/dL	0.0154	pmol/L
Resin uptake	%	0.01	Proportion of 1.0
Total (T_3) (Dual report)	ng/dL	0.0154	nmol/L
Troponin I (cardiac)	ng/mL	1.0	$\mu\text{g}/\text{L}$
Troponin T (cardiac)	ng/mL	1.0	$\mu\text{g}/\text{L}$
Tryptophan	mg/dL	48.97	$\mu\text{mol}/\text{L}$
Tyrosine	mg/dL	55.19	$\mu\text{mol}/\text{L}$
Urea nitrogen (Dual report)	mg/dL	0.357	mmol/L

Uric acid	mg/dL	59.48	μmol/L
Valine	mg/dL	85.5	μmol/L
Vasoactive intestinal polypeptide	pg/mL	1.0	ng/L
Vitamin A (retinol)	μg/dL	0.0349	μmoI/L
Vitamin B ₆ (pyridoxine)	ng/mL	4.046	nmol/L
Vitamin B ₁₂ (cyanocobalamin)	pg/mL	0.738	pmol/L
Vitamin C (ascorbic acid)	mg/dL	56.78	μmol/L
Vitamin D			
1,25-Dihydroxyvitamin D	pg/mL	2.6	pmol/L
25-Hydroxyvitamin D	ng/mL	2.496	nmol/L
Vitamin E	mg/dL	23.22	μmoI/L
Vitamin K	ng/mL	2.22	nmol/L
Warfarin	μg/mL	3.247	μmol/L
White blood cell count	×10 ³ /μL	1.0	×10 ⁹ /L
White blood cell differential count (number fraction)	%	0.01	Proportion of 1.0
Zinc	μg/dL	0.153	μmoI/L

The information in this table is from the following sources:

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Dual Report

Because of the continued use of conventional units in many laboratories in the United States, some of the more common analytes currently are dual reported (identified as "Dual report" in this table), with the SI value and unit listed first, followed by the conventional value and unit. Analytes with a 1-to-1 conversion between SI and conventional units or with a conversion factor that is a multiple of 10 usually are not dual reported. Information on how to convert from SI units to conventional units may be given in the text, in a table footnote, or in a figure legend (eg, to convert ethanol from millimoles per liter to milligrams per deciliter, divide millimoles per liter by 0.217).

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