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| Variable | Physical quantity | Physical unit |
|  | Amount of the substance | mol |
|  | Change of the amount of substance; molar flow | mol.s‑1 |
|  | Volume | m3 |
|  | Density | kg.m‑3 |
|  | Mole fraction of the substance | mol.mol‑1 |
|  | Molarity of the substance | mol.m‑3 |
|  | Molality of the substance | mol.kg‑1 |
|  | Molar mass of the substance | kg-1.mol-1 |
|  | Molar volume of the substance | m3.mol-1 |
|  | Mole fraction based activity of the substance | 1 |
|  | Change of heat energy; heat flow | J.s‑1 |
|  | Molar enthalpy of the formation of the substance | J.mol‑1 |
|  | Molar entropy of the formation of the substance | J.K-1.mol‑1 |
|  | Temperature | K |
|  | Forward rate coefficient of chemical reaction | s‑1 |
|  | Dissociation coefficient based on mole fractions | 1 |
|  | Henry’s law coefficient as liquid to gas ratio | 1 |
|  | Forward rate coefficient of Henry’s law | mol.s‑1.m‑2 |
|  | Mole fraction based activity coefficient of substance | 1 |
|  | Stoichiometry coefficient in the chemical reaction | 1 |
|  | Electrical charge of one particle of the substance | C |
|  | Surface | m2 |
|  | Permeability of the membrane for substance A | mol.s‑1.Pa‑1.m‑2 |
|  | Ratio of specific form of side s inside general form G | 1 |
|  | Change of volume or volumetric flow | m3.s‑1 |
|  | Pressure | Pa |
|  | Osmotic pressure | Pa |
|  | Donnan’s equilibrium ratio of monovalent ion | 1 |
|  | Relative heat energy; relative total enthalpy | J |
|  | Mass | kg |
|  | Change of mass; mass flow | kg.s-1 |
|  | Specific heat capacity at constant pressure | J.kg‑1.K‑1 |
|  | Heat conductance of heat convection | J.K‑1.s‑1.m‑2 |
|  | Enthalpy of vaporization | J.mol-1 |
|  | Hydraulic compliance of space with elastic walls | m3.Pa‑1 |
|  | Vertical height between two points | m |
|  | Hydraulic conductance | m3.Pa‑1.s‑1 |
|  | Hydraulic inertia | Pa.s2.m‑3 |
|  | Size of cell population; number of cells | 1 |
|  | Change of cell population; flow of cells | s‑1 |
|  | Change of population per one cell | s‑1 |
| g ≈ 9.8067 | Gravity acceleration | m.s-2 |
| R = 8.3144621(75) | Gas constant | J.K‑1.mol‑1 |
| F = 96485.3399(2) | Faraday constant | C.mol‑1 |

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| Chemical equations | |
|  | Amount of substance A |
|  | Mole fraction of the substance A |
|  | Mole fraction based activity of the substance A |
|  | Chemical reaction  *vR1R1 + vR2R2 + ... <-> vP1P1 + vP2P2 +…* |
|  | Dissociation coefficient of the chemical reaction |
|  | Enthalpy change of the reaction |
|  | Heat energy flow from the reaction |
|  | Entropy change of the reaction |
|  | Ideal gas equation |
|  | Henry’s law |
|  | Electroneutral changes |
|  | Passive transport of A through the membrane with area S and permeability PA |
|  | Osmotic pressure for permeant A |
|  | Equilibrium of the form A from the independent sides *s* in the group G |
|  | Kirchhoff’s junction rule for molar flows |

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| Thermal equations | |
|  | Heat accumulation |
|  | Temperature |
|  | Heat convection through surface S |
|  | Change of heat by vaporization of water |
|  | Ideal radiator (e.g. microcirculation) |
|  | Kirchhoff’s junction rule for heat flows |

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| Population equations | |
|  | Size of population |
|  | Change of population |
|  | Kirchhoff’s junction rule for population flows |

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| Hydraulic equations | |
|  | Volume accumulation |
|  | Pressure in container with elastic walls (e.g. blood or lymph vessels) |
|  | Hydraulic conductance/resistance |
|  | Pascal’s law |
|  | Idealized hydraulic valve |
|  | Hydraulic inertia |
|  | Kirchhoff’s junction rule for volumetric flows |