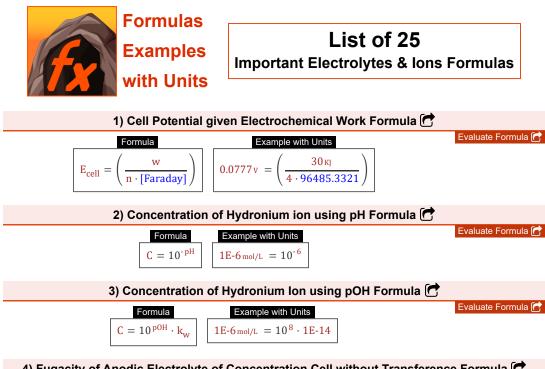
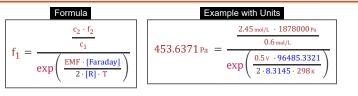
# Important Electrolytes & Ions Formulas PDF



#### 4) Fugacity of Anodic Electrolyte of Concentration Cell without Transference Formula 🕝



#### 5) Fugacity of Cathodic Electrolyte of Concentration Cell without Transference Formula 🕝

Evaluate Formula (

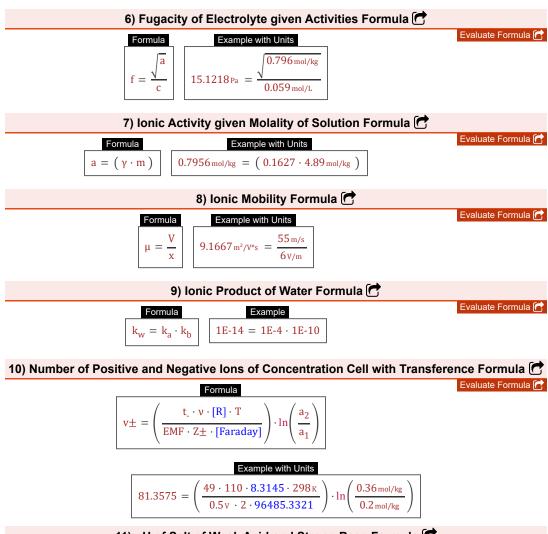
$$f_{2} = \left( \exp\left(\frac{\text{EMF} \cdot [\text{Faraday}]}{2 \cdot [\text{R}] \cdot \text{T}} \right) \right) \cdot \left(\frac{\text{c}_{1} \cdot \text{f}_{1}}{\text{c}_{2}} \right)$$

Formula

#### Example with Units

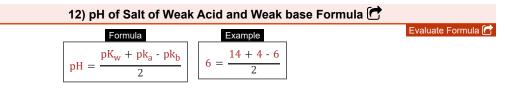
$$1.9E+6_{Pa} = \left(exp\left(\frac{0.5v \cdot 96485.3321}{2 \cdot 8.3145 \cdot 298\kappa}\right)\right) \cdot \left(\frac{0.6_{mol/L} \cdot 453.63_{Pa}}{2.45_{mol/L}}\right)$$



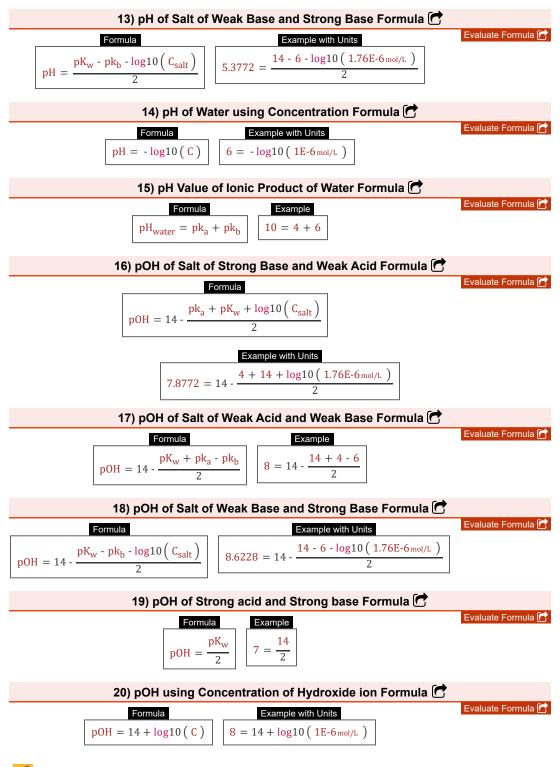


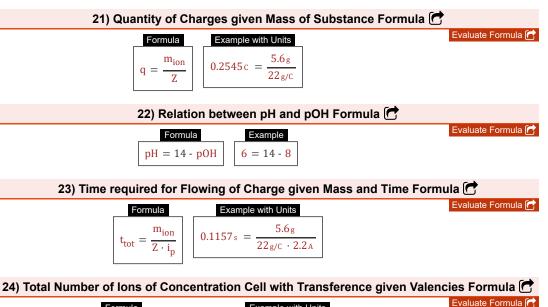
#### 11) pH of Salt of Weak Acid and Strong Base Formula

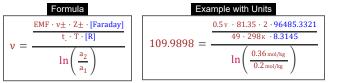
Formula	Example with Units	Evaluate Formula 🕝
$pH = \frac{pK_{w} + pk_{a} + \log 10(C_{salt})}{2}$	$6.1228 = \frac{14 + 4 + \log 10 \left( 1.76\text{E-}6  \text{mol/L} \right)}{2}$	



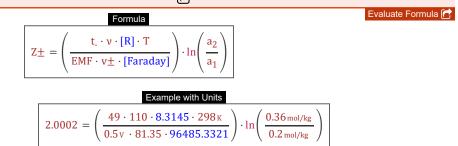








25) Valencies of Positive and Negative Ions of Concentration Cell with Transference Formula





# Variables used in list of Electrolytes & lons Formulas above

- a Ionic Activity (Mole per Kilogram)
- **a<sub>1</sub>** Anodic Ionic Activity (Mole per Kilogram)
- a2 Cathodic Ionic Activity (Mole per Kilogram)
- C Actual Concentration (Mole per Liter)
- C Hydronium Ion Concentration (Mole per Liter)
- **c<sub>1</sub>** Anodic Concentration (Mole per Liter)
- C2 Cathodic Concentration (Mole per Liter)
- Csalt Concentration of Salt (Mole per Liter)
- Ecell Cell Potential (Volt)
- EMF EMF of Cell (Volt)
- f Fugacity (Pascal)
- f1 Anodic Fugacity (Pascal)
- f2 Cathodic Fugacity (Pascal)
- ip Electric Current (Ampere)
- ka Constant of Ionization of Acids
- k<sub>b</sub> Constant Of Ionization Of Bases
- k<sub>w</sub> Ionic Product of Water
- **m** Molality (Mole per Kilogram)
- mion Mass of lons (Gram)
- **n** Moles of Electron Transferred
- **pH** Negative Log of Hydronium Concentration
- pH<sub>water</sub> Negative Log of H+ Conc. for Ionic Pdt. of H<sub>2</sub>O
- pka Negative Log of Acid Ionization Constant
- pkb Negative Log of Base Ionization Constant
- pK<sub>w</sub> Negative Log of Ionic Product of Water
- pOH Negative Log of Hydroxyl Concentration
- q Charge (Coulomb)
- T Temperature (Kelvin)
- t\_ Transport Number of Anion
- ttot Total Time Taken (Second)
- V Speed of lons (Meter per Second)
- v± Number of Positive and Negative lons

## Constants, Functions, Measurements used in list of Electrolytes & lons Formulas above

- constant(s): [Faraday], 96485.33212 Faraday constant
- constant(s): **[R]**, 8.31446261815324 Universal gas constant
- Functions: exp, exp(Number) n an exponential function, the value of the function changes by a constant factor for every unit change in the independent variable.
- Functions: In, In(Number) The natural logarithm, also known as the logarithm to the base e, is the inverse function of the natural exponential function.
- Functions: log10, log10(Number) The common logarithm, also known as the base-10 logarithm or the decimal logarithm, is a mathematical function that is the inverse of the exponential function.
- Functions: sqrt, sqrt(Number) A square root function is a function that takes a non-negative number as an input and returns the square root of the given input number.
- Measurement: Weight in Gram (g) Weight Unit Conversion
- Measurement: Time in Second (s)
  Time Unit Conversion
- Measurement: Electric Current in Ampere (A) Electric Current Unit Conversion
- Measurement: Temperature in Kelvin (K) Temperature Unit Conversion
- Measurement: Pressure in Pascal (Pa) Pressure Unit Conversion
- Measurement: Speed in Meter per Second (m/s)
  Speed Unit Conversion
- Measurement: Energy in Kilojoule (KJ) Energy Unit Conversion
- Measurement: Electric Charge in Coulomb (C) Electric Charge Unit Conversion
- Measurement: Electric Field Strength in Volt per Meter (V/m)

Electric Field Strength Unit Conversion 🕝



- W Work Done (Kilojoule)
- X Potential Gradient (Volt per Meter)
- Z Electrochemical Equivalent of Element (Gram Per Coulomb)
- Z± Valencies of Positive and Negative Ions
- Y Activity Coefficient
- µ Ionic Mobility (Square Meter per Volt per Second)
- V Total number of lons

- Measurement: Electric Potential in Volt (V) Electric Potential Unit Conversion
- Measurement: Molar Concentration in Mole per Liter (mol/L) Molar Concentration Unit Conversion
- · Measurement: Molality in Mole per Kilogram (mol/kg) Molality Unit Conversion
- Measurement: Mobility in Square Meter per Volt per Second (m²/V\*s) Mobility Unit Conversion
- · Measurement: Electrochemical Equivalent in Gram Per Coulomb (g/C) Electrochemical Equivalent Unit Conversion 🕝



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- Important Concentration of Electrolyte
  Important Ionic Strength Formulas Formulas 🕝
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- Important Electrochemical Cell Formulas 🕝
- Important Electrolytes & Ions Formulas 🕝
- Important EMF of Concentration Cell Formulas (

- Important Equivalent Weight Formulas (
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- Important Tafel Slope Formulas
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🛐 Subtract fraction 🕝

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