



Soil Loss Equation Formulas

Calculators!

Examples!

Conversions!

Bookmark calculatoratoz.com, unitsconverters.com

Widest Coverage of Calculators and Growing - 30,000+ Calculators! Calculate With a Different Unit for Each Variable - In built Unit Conversion! Widest Collection of Measurements and Units - 250+ Measurements!

Feel free to SHARE this document with your friends!

Please leave your feedback here...





List of 17 Soil Loss Equation Formulas

Soil Loss Equation C

Modified Universal Soil Loss Equation 🚰

1) Crop Management Factor given Sediment Yield from Individual Storm 🗹

fx
$$\mathbf{C} = rac{\mathbf{Y}}{11.8 \cdot \left(\left(\mathbf{Q}_{\mathrm{V}} \cdot \mathbf{q}_{\mathrm{p}}
ight)^{0.56}
ight) \cdot \mathbf{K} \cdot \mathbf{K}_{\mathrm{zt}} \cdot \mathbf{P}}$$

ex
$$0.61 = rac{135.7332 \mathrm{kg}}{11.8 \cdot \left((19.5 \mathrm{m}^3 \cdot 1.256 \mathrm{m}^3/\mathrm{s})^{0.56}
ight) \cdot 0.17 \cdot 25 \cdot 0.74}$$

2) Peak Rate of Runoff given Sediment Yield from Individual Storm 🕑

$$\label{eq:qp} \textbf{Q}_{p} = \frac{\left(\frac{Y}{11.8\cdot K\cdot K_{zt}\cdot C\cdot P}\right)^{\frac{1}{0.56}}}{Q_{V}}$$
 Open Calculator **C**
$$1.256 \text{m}^{3}/\text{s} = \frac{\left(\frac{135.7332 \text{kg}}{11.8\cdot 0.17\cdot 25\cdot 0.61\cdot 0.74}\right)^{\frac{1}{0.56}}}{19.5 \text{m}^{3}}$$



2/10

3) Sediment Yield from Individual Storm 🕑

$$\mathbf{K} = 11.8 \cdot \left(\left(\mathrm{Q}_{\mathrm{V}} \cdot \mathrm{q}_{\mathrm{p}}
ight)^{0.56}
ight) \cdot \mathrm{K} \cdot \mathrm{K}_{\mathrm{zt}} \cdot \mathrm{C} \cdot \mathrm{P}$$
 Open Calculator C

ex
$$135.7332 \mathrm{kg} = 11.8 \cdot \left((19.5 \mathrm{m}^3 \cdot 1.256 \mathrm{m}^3/\mathrm{s})^{0.56}
ight) \cdot 0.17 \cdot 25 \cdot 0.61 \cdot 0.74$$

4) Storm Runoff Volume given Sediment Yield from Individual Storm 🕑

fx
$$Q_V = rac{\left(rac{Y}{11.8\cdot K\cdot K_{zt}\cdot C\cdot P}
ight)^{rac{1}{0.56}}}{q_p}$$

ex 19.5m³ =
$$\frac{\left(\frac{135.7332 \text{kg}}{11.8 \cdot 0.17 \cdot 25 \cdot 0.61 \cdot 0.74}\right)^{\frac{1}{0.56}}}{1.256 \text{m}^3/\text{s}}$$

5) Support Cultivation Practice given Sediment Yield from Individual Storm

$$\label{eq:P} \begin{split} & \textbf{K} \end{tabular} \textbf{P} = \frac{Y}{11.8 \cdot \left(Q_V \cdot q_p \right)^{0.56} \cdot K \cdot K_{zt} \cdot C} & \textbf{Open Calculator C} \\ & \textbf{ex} \end{tabular} \\ & \textbf{0.74} = \frac{135.7332 \text{kg}}{11.8 \cdot \left(19.5 \text{m}^3 \cdot 1.256 \text{m}^3/\text{s} \right)^{0.56} \cdot 0.17 \cdot 25 \cdot 0.61} \end{split}$$

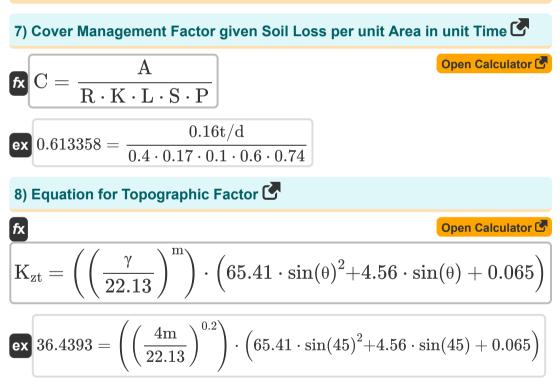


Open Calculator

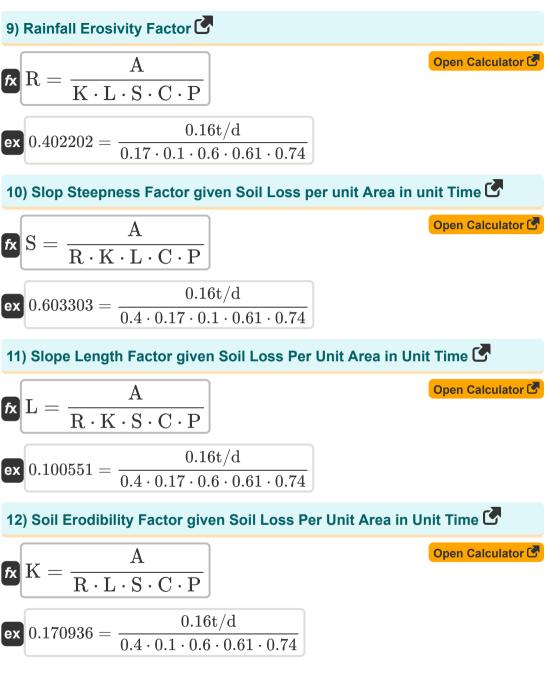
6) Topographic Factor given Sediment Yield from Individual Storm

$$\label{eq:Kzt} \begin{split} & \textbf{K}_{zt} = \frac{Y}{11.8 \cdot \left(\left(Q_V \cdot q_p \right)^{0.56} \right) \cdot K \cdot C \cdot P} \end{split} \\ & \textbf{Open Calculator for the second states of the second states of$$

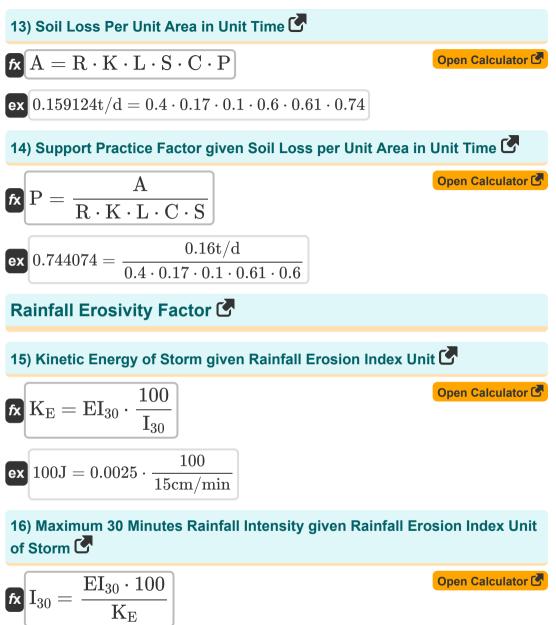
Universal Soil Loss Equation C











ex $15 \text{cm/min} = \frac{0.0025 \cdot 100}{100 \text{J}}$





17) Rainfall Erosion Index Unit of Storm 🕑







Variables Used

- A Soil Loss Per Unit Area in Unit Time (Ton (metric) per Day)
- C Cover Management Factor
- El₃₀ Rainfall Erosion Index Unit
- **I₃₀** Maximum 30-Minutes Rainfall Intensity (Centimeter per Minute)
- K Soil Erodibility Factor
- **K**_E Kinetic Energy of the Storm (*Joule*)
- K_{zt} Topographic factor
- L Slope Length Factor
- m Exponent Factor
- P Support Practice Factor
- **q**p Peak Rate of Runoff (Cubic Meter per Second)
- Q_V Runoff Volume (Cubic Meter)
- R Rainfall Erosivity Factor
- Slope-Steepness Factor
- Y Sediment Yield from an Individual Storm (Kilogram)
- Y Field Slope Length (Meter)
- **θ** Angle of Slope



Constants, Functions, Measurements used

- Function: **sin**, sin(Angle) Sine is a trigonometric function that describes the ratio of the length of the opposite side of a right triangle to the length of the hypotenuse.
- Measurement: Length in Meter (m) Length Unit Conversion
- Measurement: Weight in Kilogram (kg) Weight Unit Conversion
- Measurement: Volume in Cubic Meter (m³) Volume Unit Conversion
- Measurement: Speed in Centimeter per Minute (cm/min)
 Speed Unit Conversion
- Measurement: Energy in Joule (J) Energy Unit Conversion
- Measurement: Volumetric Flow Rate in Cubic Meter per Second (m³/s) Volumetric Flow Rate Unit Conversion
- Measurement: Mass Flow Rate in Ton (metric) per Day (t/d) Mass Flow Rate Unit Conversion





Check other formula lists

- Prediction of Sediment
 Distribution Formulas
- Soil Loss Equation Formulas

Feel free to SHARE this document with your friends!

PDF Available in

English Spanish French German Russian Italian Portuguese Polish Dutch

3/29/2024 | 9:31:25 AM UTC

Please leave your feedback here ...



