

Life Cycle Assessment of roads

Calculate the total energy, emissions and mass of different materials shown in the cross-section of a road. The road is 1km long and has a width of 5m. The asphalt mix consists of 5% binder and 95% aggregate and has a specific gravity of 2,35. The specific gravity of base material is 2,5 and that of sub-base material is 2,4.

5 cm ABT11
10cm AG 22

<i>Asphalt concrete Layer</i>	Energy consumed 30MJ/tonne And CO ₂ emissions are 10g/MJ
<i>10cm Base Course</i> $E = 480 \text{ MPa}, \nu = 0,35$	Energy consumed 50MJ/tonne And CO ₂ emissions are 30g/MJ
<i>30cm Sub base Course</i> $E = 120 \text{ MPa}, \nu = 0,35$	Energy consumed 20MJ/tonne And CO ₂ emissions are 50g/MJ