

Assume : Flow
rate = 100 gms /
sec ~ 100 cc /sec
~ 6 litres / min.

Specific Heat =
4.18 / J / g / K

Thermal conductivity
= 0.606 W/m.k

Case 1. Water.

+80 Deg C

Heater Matrix

$V = 0.5 \text{ Cp @ } 60 \text{ deg C.}$

Heat liberated by matrix =
 $4.18 \times 100 \times 60 \text{ J.} = 25,080 \text{ J}$

20 Deg C

Case 2. EWC.

+80 Deg C

Heater Matrix

$V = 8.4 \text{ Cp @ } 60 \text{ deg C.}$

Heat liberated by matrix =
 $2.51 \times 100 \times 60 \text{ J.} = 15,060 \text{ J}$

20 Deg C

Case 3. EWC
prediction.

+ ? Deg C

Heater Matrix

$V = 0.5 \text{ Cp @ } 60 \text{ deg C.}$

To achieve same heat output as
in Case 1 The inlet temp; must
be ...

$T \text{ Deg C} = 25,080 / 2.51 \times 100$
= 119.9 Deg C.

Specific Heat =
2.51 / J / g / K

Thermal conductivity
= 0.206 W/m.k

20 Deg C