

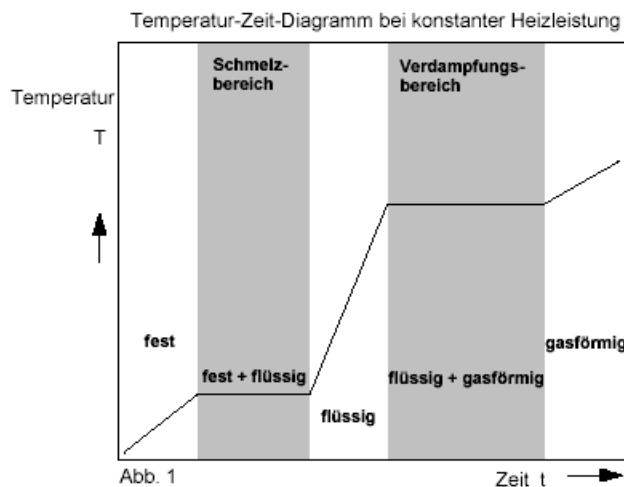
Solar Water Distillation

How it works

For those who know, a certain amount of energy is necessary to heat liquid water. This amount is 4.183 kJ (former: 1 kcal.) per K for 1 litre of water. In former British colonies the unit BTU is in use as well, the energy needed to heat 1 pound(!) of water by 1° Fahrenheit.

As shown at the following chart a physical unit called **enthalpy** has to be taken into consideration to vaporize the water. Hence 2257.1 kJ (540 kcal.) vaporizes 1 litre of water.

Temperature-Time-Diagram at constant Heating Power



Translation:

Temperatur	temperature
fest	solid
Schmelzbereich	melting zone
flüssig	liquid
Verdampfungsbereich	evaporating zone
gasförmig	steam
Zeit	time

How is it possible to distill water with the small amount of energy that comes from the sun? The answer is simple: the system has to solve the problem slowly. Drop by drop. Because the sun delivers enough energy to evaporate these small amounts of water.

To figure calculations by yourself in future, please refer to the following conversions:

1J (Joule) = 1/3600000 kWh (Kilowatt hours)

1kWh = 3.6 Million J = 3,600 kJ

°C = (°F - 32) * (5/9) note: 5/9 = .55555

°F = (°C * 1.8) + 32 note: 1.8 = 1 / .55555 or also 1/5 * 9

Please take into consideration, that 1 K (degree Kelvin) is of the same size as 1°C (degree Centigrade) but it starts counting at -273° Centigrade (the absolute minimum temperature). 0° Centigrade reflect the melting temperature, 100° Centigrade the boiling temperature of water.

Please do not hesitate to mail to bs_mueller@gmx.net to obtain further explanations.