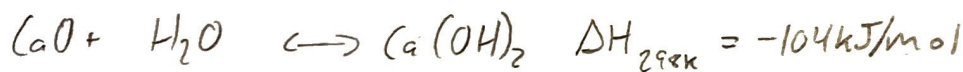
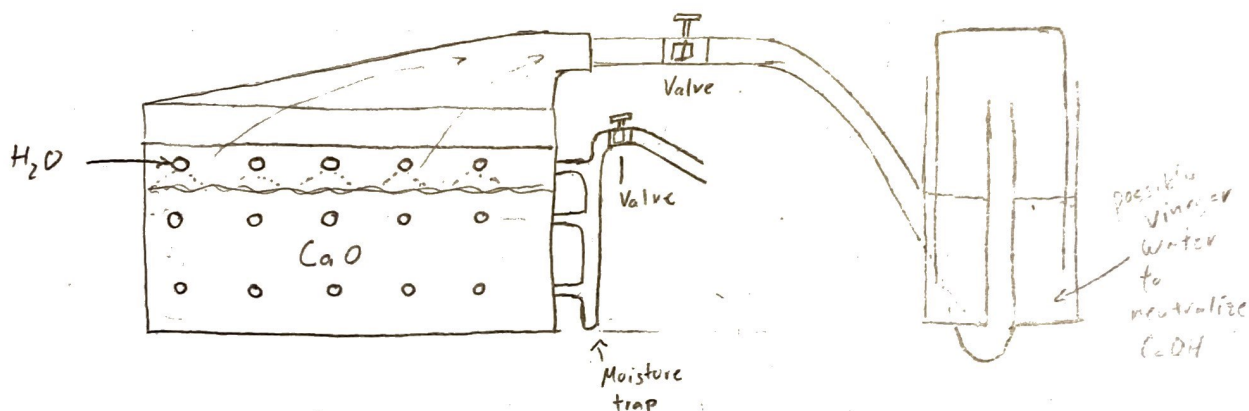


Microwave a steak 5-7 min, 1kw, so $300 \text{ kW}\cdot\text{s} < 1 \text{ kWh}$
 $3.6 \text{ MJ} = 1 \text{ kWh}$

Whole Meal $\sim 2 \text{ MJ}$ to be safe?
 1 L of water from 20°C to 100°C - $.183 \text{ kWh} = .659 \text{ MJ}$
 $1 \text{ MW}\cdot\text{s} = 1 \text{ MJ}$

$1 \text{ L water} + 1 \text{ sirloin steak} = 1 \text{ MJ}$
 $\text{Grilled Tomatoes} + \text{Rice} \approx 1 \text{ MJ}$
 substitute for kabob per Business Insider

$\sim 2 \text{ MJ} \rightarrow \text{w/ } 30\% \text{ efficiency, need } 6 \text{ MJ stored}$



So 104 kJ/mol of heat released

Need 2 MJ , Lets go for 6 to be safe

$$\frac{104 \text{ kJ}}{1 \text{ mol}} \cdot \frac{1 \text{ MJ}}{1000 \text{ kJ}} = .104 \text{ MJ/mol} \quad 6 \text{ MJ} \cdot \frac{1 \text{ mol}}{.104 \text{ MJ}} = 57.69 \text{ mol}$$

$$\begin{aligned} 1 \text{ mol CaO} &= 56 \text{ g} \times 57.69 = 3230.46 \text{ g} = 3.23 \text{ kg} \approx 4 \text{ kg} \\ 1 \text{ mol H}_2\text{O} &= 18 \text{ g} \times 57.69 = 1038.42 \text{ g} = 1.038 \text{ kg} \approx 1.5 \text{ kg} \end{aligned} \quad \left. \begin{array}{l} \text{Round up} \\ \end{array} \right\} 5.5 \text{ kg}$$

$$3.34 \text{ g/cm}^3$$

1.5 L of water

$$3230.46 \text{ g} \cdot \frac{1 \text{ cm}^3}{3.34 \text{ g}} = 967.26 \text{ cm}^3 = .967 \text{ L} \rightarrow \text{up to } \approx 1.25 \text{ L GO w/ margin}$$

Erythritol: $330^\circ\text{C} = 626.9^\circ\text{F}$

$$\Delta H_f = 340 \text{ J/g}$$

$$17.65 \text{ kg} \cdot \frac{1000 \text{ g}}{1 \text{ kg}} \cdot \frac{1 \text{ cm}^3}{1.45 \text{ g}} \cdot \frac{1 \text{ L}}{1000 \text{ cm}^3} = 12.2 \text{ L}$$

\downarrow
 17 L overhead

$$6 \text{ MJ} \cdot \frac{10^6 \text{ J}}{1 \text{ MJ}} \cdot \frac{1 \text{ g}}{340 \text{ J}} \cdot \frac{1 \text{ kg}}{1000 \text{ g}} = 17.65 \text{ kg Needed}$$

$25 \text{ kg w/ overhead} = 17 \text{ L w/ overhead}$