$\ell = 1.5$ cm

$\Delta T = 200\,°C - 20\,°C = 180\,°C$

A = surface area of a cylinder (no ends)
  = circumference · length
  = $(800\ cm)(5000\ cm)$
  = 4.0×10^6 cm² (leave in cm² since k is in cm)

$K = .200$ cal/cm·°C·s

$$H = \frac{k\,A \cdot \Delta T}{\ell} = \frac{(.200\ cal/cm\,°C\,s)(4 \times 10^6\ cm^2)(180\,°C)}{1.5\ cm}$$

$$\boxed{H = 9.6 \times 10^7\ cal/sec}$$