

Right or Wrong

Ahmed argues the entropy of a piece of steel decreases as it cools. Jan thinks this is a violation of the second law of thermodynamics (i.e. the increase of entropy principle). Who is right and why?

Answer: Ahmed, because the entropy of the surroundings will increase more.

Explanation: Ahmed is right. The temperature of the surrounding air is lower than the temperature of the steel and therefore the entropy of the surrounding air increases even more during that process than the entropy of the steel decreases. This makes the total entropy change, steel plus surroundings, positive in agreement with the second law of thermodynamics.