

Quiz 2

Name: _____

1. The complete oxidation of palmitate via combustion releases 2340 Cal per mole in the form of heat. The complete oxidation of palmitate via cellular oxidation releases 1384 Cal per mole in the form of heat. The first law of thermodynamics states that energy must be conserved. If cellular oxidation releases less heat, where does the rest of the energy go?

2. Reconsider the enthalpies of combustion worksheet from Monday. Diatomic nitrogen is four times more abundant than diatomic oxygen in the Earth's atmosphere. Nitrogen can undergo the same reduction reactions as oxygen; yet, very few organisms utilize diatomic nitrogen during cellular oxidation reactions. Why?

Bond Type	Bond Energy (Cal/mole)
C-C	83
C-H	99
C-O	86
O=O	118
C=O in CO ₂	191
C=O	178
O-H	111
N=N	225
N-H	93
C-N	65