6.61, p 257

$C_3H_8(g) + 5O_2(g) \rightarrow 3CO_2(g) + 4H_2O(g)$; $\Delta H = -2043\ kJ$

Calculate grams propane necessary to provide 369 kJ of heat.

$Q = -369\ kJ \quad -2043\ kJ = mol\ C_3H_8$

$44.094\ g\ C_3H_8 = mol\ C_3H_8$

C_3H_8: C: 3×12.01
H: 8×1.008
44.094

$$-369\ kJ \times \frac{mol\ C_3H_8}{-2043\ kJ} \times \frac{44.094\ g\ C_3H_8}{mol\ C_3H_8} = 7.96\ g\ C_3H_8$$

6.57, p 257

$2NO(g) + O_2(g) \rightarrow 2NO_2(g)$; $\Delta H = -114\ kJ$

What is the enthalpy change per gram of NO?

$2\ mol\ NO = -114\ kJ$

NO: N: 1×14.01

O: 1×16.00

$30.01\ g\ NO = 1\ mol\ NO$

$$1\ g\ NO \times \frac{1\ mol\ NO}{30.01\ g\ NO} \times \frac{-114\ kJ}{2\ mol\ NO} = -1.90\ kJ/g\ NO$$