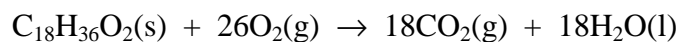


- Stearic acid, $C_{18}H_{36}O_2$, is a fatty acid common in animal fats and vegetable oils and is a valuable energy source for mammals. The net reaction for its metabolism in humans is:



Calculate ΔH° for this reaction given the following heats of formation.

Compound	$C_{18}H_{36}O_2(s)$	$CO_2(g)$	$H_2O(l)$
$\Delta_f H^\circ / \text{kJ mol}^{-1}$	-948	-393	-285

$\Delta H^\circ =$

If the combustion of stearic acid is carried out in air, water is produced as a vapour. Calculate the ΔH° for the combustion of stearic acid in air given that:



$\Delta H^\circ =$

Will ΔS be different for the two oxidation reactions? If so, how will it differ and why?

Calculate the mass of carbon dioxide produced by the complete oxidation of 1.00 g of stearic acid.

Answer: