

Fuels and Paraffin Wax

Introduction

Paraffin wax is an example of a saturated hydrocarbon.

It contains only the elements _____ and _____ and its bonds are all _____ covalent.

Assume paraffin is represented by the formula $C_{20}H_{42}$ (a.k.a. eicosane).

Most compounds of this type are quite unreactive, but they do burn and are widely used as fuels in various applications.

The burning of such compounds produces water vapor, carbon, carbon monoxide, and carbon dioxide in varying proportions, depending on the amount of oxygen available.

The amount of heat generated per mole of compound burned also depends on the oxygen available.

Enthalpy change of combustion of a fuel is a measure of the energy transferred when 1 mole of the fuel burns completely.

Write a balanced thermochemical equation for the complete combustion of paraffin wax, $C_{20}H_{42}$, the literature value for the enthalpy of combustion is $-13,360 \text{ kJ/mol}^{-1}$.

Your Task

You will be provided with paraffin wax.

Use your laboratory skills in experimental design and the vast knowledge of chemistry you have attained sitting in my classes to study paraffin wax.