SNS COLLEGE OF TECHNOLOGY
Vazhiampalayam, Coimbatore-35
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INTRODUCTION TO FUELS

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- INTRODUCTION
- CHARACTERISTICS OF GOOD FUELS
- CLASSIFICATION OF FUELS
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Fuel is a combustible substance, containing carbon as the main constituent which on burning gives large amount of heat. During the process of combustion, carbon, hydrogen, etc., combine with oxygen with a liberation of heat.

Charcoal

LPG

Kerosene, petrol

INTRODUCTION

- THE CALORIFIC VALUE OF A FUEL DEPENDS MAINLY ON THE AMOUNT OF CARBON AND HYDROGEN

$$C + O_2 \longrightarrow CO_2 + 94 \text{ k cals.}$$

$$2H_2 + O_2 \longrightarrow 2H_2O + 68.5 \text{ k cals.}$$

Fossil fuels are those, which have been derived from fossil remains of plant and animal life.

The main source of fuel is coal and crude petroleum oil.

All conventional fossil fuels whether solid, liquid or gaseous (coal, petroleum or Natural gas) contain basically carbon and / or hydrogen. The fuels on combustion in presence of oxygen in the air release heat energy.

REQUIREMENTS OF A GOOD FUEL

- High calorific value.
- Moderate ignition temperature.
- Low contents of non-combustible matters.
- Low moisture content.
- Free from objectionable and harmful gases like CO, SOx, H2S.
- Moderate velocity of combustion.
- Combustion should be controllable.
- Easy to transport and readily available at low cost.

CLASSIFICATION OF FUELS

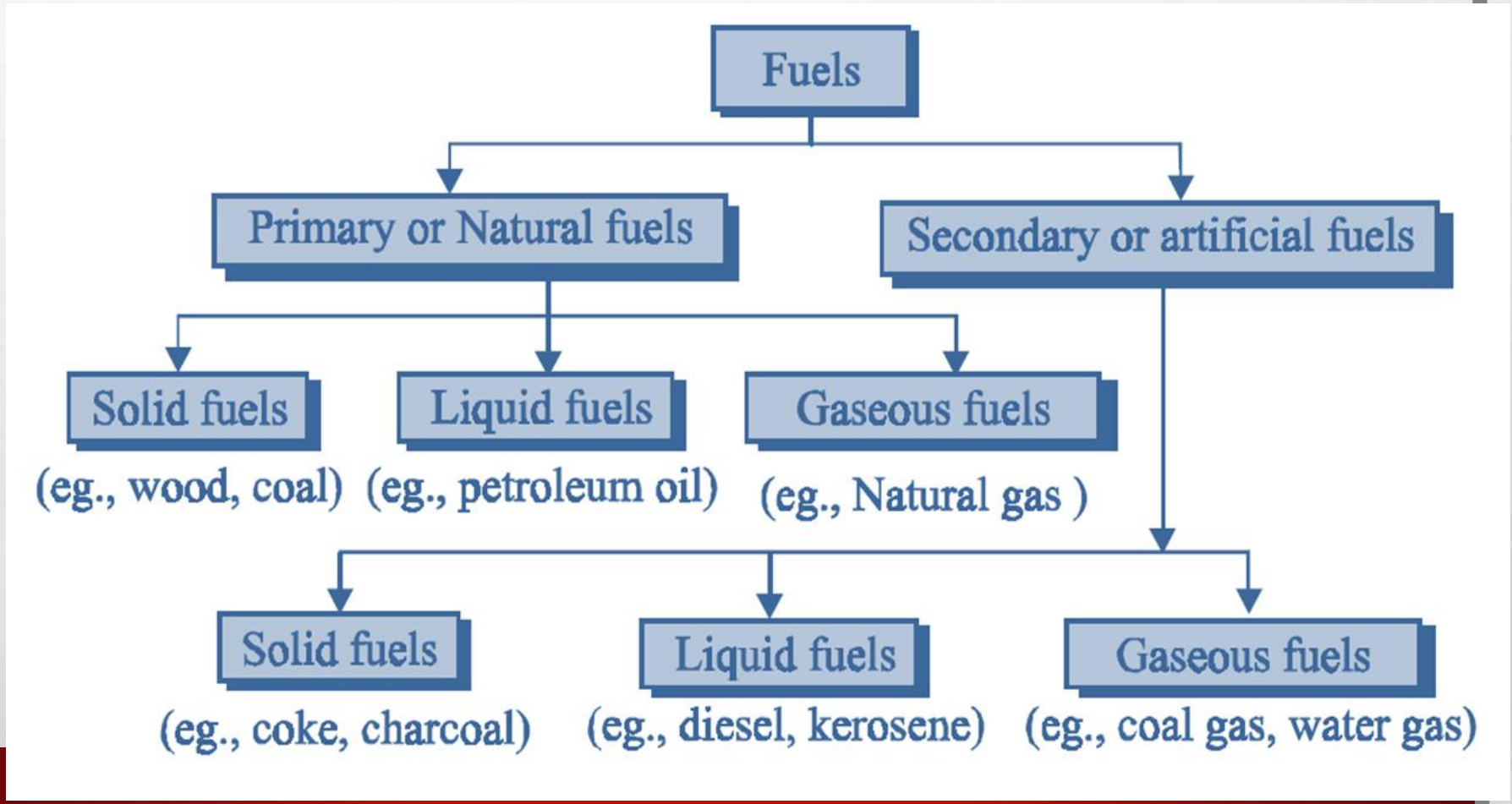
Fuels are classified into following types based on occurance

(i) Primary or Natural fuels - These are found in nature.
Eg., coal, petroleum, natural gas
(ii) Secondary or Artificial fuels - These are derived from primary fuels.
Eg., coke, gasoline

They are classified into three types based on physical state

(i) Solid fuels eg., coal, coke.
(ii) Liquid fuels eg., gasoline, diesel.
(iii) Gaseous fuel eg., coal gas, natural gas.

CLASSIFICATION OF FUELS



A COMPARATIVE STUDY OF SOLID, LIQUID AND GASEOUS FUEL

Property	Solid fuel	Liquid fuel	Gaseous fuel
Calorific value	Due to air and moisture content calorific value is low	Calorific value is higher than solid fuels	Highest calorific value than solid and liquid fuels
Combustion	slow	quick	rapid
Thermal efficiency	least	higher	highest
Ignition temperature	highest	moderate	low

A COMPARATIVE STUDY OF SOLID, LIQUID AND GASEOUS FUEL

Property	Solid fuel	Liquid fuel	Gaseous fuel
Cost of production	low	high	high
pollution	Release smoke, dust and soothe particles	Clean and free from dust and soothe particles	Clean and no smoke or dust particles
Fire hazard	Least risk	more risk	Highly inflammable, most risky

THANK YOU