Oil refinering using linear programming

Technology

INTRODUCTION My topic is oil refinering using linear programming, this is under petrochemical industries which mean it will deal more about chemicals, this is about optimising the cost using a modelling method inmathematicscalled linear programming. This is very important because it links what is done in petrochemical industries with mathematics.

Since there is a huge need of the products that are produced after petroleum refinering which are petrol, gasoline, oil, diesel and etc so in the near future refiners and government will have to make decision to increase local refinering capacity or upgrade and expand the existing refineries((SAPIA) executive director Avhapfani Tshifularo said so. Currently South Africa is unable to produce sufficient fuel so at forces it to import refined products. we can describe oil refinering as an industrial process plant where crude oil is processed and refined into more useful products which are petroleum naphtha, gasoline diesel fuel etc. rude oil that is processed can be defined as a natural occurring flammable liquid which consist of mixture of hydrocarbons of different molecular weight and other liquid organic compounds. In the oil refinering, different products are made and are said to be bases or components, which are alkalyte, platform ate, penexate and COD gasoline, these products are stored in tanks. These are the main products we have in refinering . the reason for blending the components is to minimise cost.

Since the type of product that is needed by the market is RON 95 when blending or mixing these components an octane booster must also be included. This is called gasoline blending which can be described as a fuel that is derived from petroleum crude oil; it is also blended or mixed with

different hydrocarbons which are estimated to be about 200. When blending the components we are trying to minimize the cost, because we take very expensive components which are alkylate and platform ate and mix with cheap components like penoxate and COD gasoline.

Linear programming is a reliable method in solving such problems; it is a very good technique in minimising the cost. When maximising the sale revenues we use linear model, 1 of the mathematical tool. We have to consider the availability of the components, their physical properties and the products needed by the market which is RON 95. The purpose of gasoline blending is to optimise the generation of valuable products such as gasoline wich I mentioned above and even to satisfy the demand for the market.