

MINISTRY OF ENERGY AND MINERAL RESOURCES

Steps taken in process of phasing out leaded gasoline

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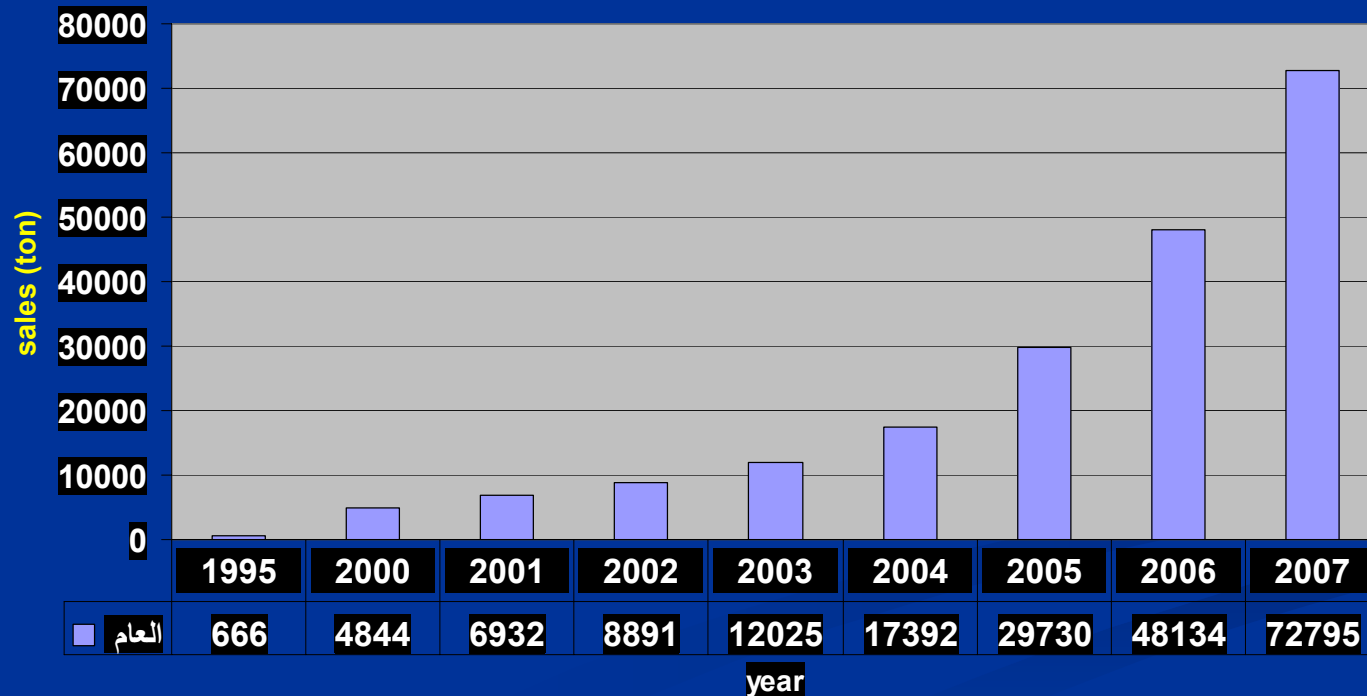
SOURCES OF SUPPLY OF OIL PRODUCTS

Jordan Petroleum Refinery has been established as a sole source in the Kingdom to provide oil products by refining crude oil and its derivatives, deal under the concession agreement awarded since 1958 for a period of fifty years, the concession ended at the beginning of March this year.

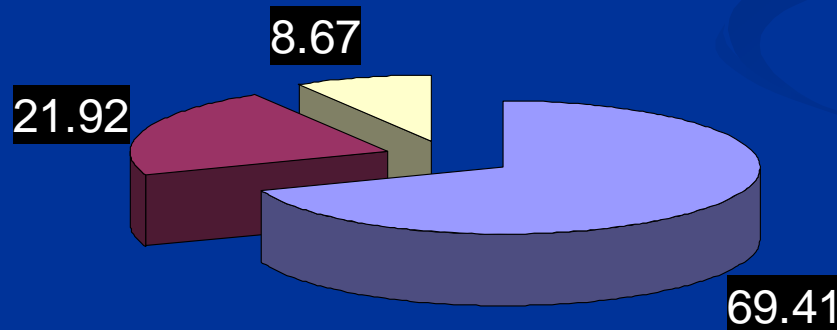
TYPES OF GASOLINE IN CIRCULATION

- During the concession agreement with the refinery , three types of gasoline have been used in the Kingdom, according to standard specifications identified in Jordan as follows: -
 - Regular gasoline containing lead with Octane number. of 87.
 - Super gasoline contains lead with octane number of 95.
 - Unleaded gasoline with octane number of 92.
- Production of unleaded gasoline in Jordan began in 1995 in limited quantities and high price because of the limited quantities produced by refinery.

DEVELOPMENT OF THE CONSUMPTION OF UNLEADED GASOLINE IN THE KINGDOM FOR THE YEARS (1995-2007)



Percentage of unleaded gasoline in the total consumption of gasoline of all kinds



■ Regular gasoline ■ Super gasoline ■ Unleaded gasoline

- The Standard specifications in Jordan , specified the use of fourth ethyl lead (150 mg / liter) for regular and Super gasoline as a maximum, and (5 mg / liter) for unleaded gasoline.
- The main objective of adding fourth ethyl lead or any oxygenate compound to the gasoline is to increase the octane number of gasoline, as the figure to increase octane in gasoline feature, is a good index of what might happen in the engine of sound (Knocking) during combustion, and thereby increase the octane number of gasoline reflects the quality of the performance of gasoline and behavior during the process of the combustion in the engines..

- As a result of the desire of the Ministry of Energy and natural resources to observe aspects of environmental health and safety activities in the downstream petroleum sector, and the repeated and multiple claims by the Ministry of Environment, the Ministry of Health, Jordan Institute for Standards and Metrology, and the United Nations environmental program to phase out the different kinds of lead in gasoline and to shift towards the use of unleaded gasoline, a study in this regard has been carried out by both the Ministry of Energy and Mineral Resources and Jordan Petroleum Refinery Company, and concluded that :-

STUDY RECOMMENDATIONS

- The absence of units to improve the quality of oil products within the structure impeded the refinery to produce oil products (gasoline, diesel and fuel oil) that is compatible with the standard specifications and requirements. Moreover Jordan refinery installation of units to improve the specifications of gasoline and diesel to match the new specifications, requires immediate investment of (240) million U.S \$ (according to prices in 2004) without any increase of the refinery production capacity, all consulting firms commissioned a feasibility study for refinery expansion project considered that investment in installation of units to improve specs. is not favorable regardless of any justification cited in this regard.

STUDY RECOMMENDATIONS

- The alternative available to phase out lead in the gasoline is to use (MTBE)) as it is being used in Europe and many Arab countries and others. And Jordanian standard permits the use of (MTBE).
- The Jordanian standard specifications limited the use of All oxygenate. Variable rates ranging between (3 - 15)% max., among these materials is (MTBE).

ISSUANCE OF THE RESOLUTION

- The study which was prepared by the Ministry of Energy and Mineral Resources and Jordan Petroleum Refinery Company was submitted to the Cabinet Council, the distinguished Cabinet Council decided at its meeting on 6 / 6 / 2006 approving the use of MTBE to raise the octane number of gasoline instead of using lead, will also form a committee comprising representatives of the Ministry of Energy and Mineral Resources, Ministry of Finance, Ministry of Health, Ministry of Environment and Jordan Petroleum Refinery Company and The Association of gasoline stations to assess the status of oil products tanks at gasoline stations and develop mechanisms to replace the faulty tanks, and to develop recommendations on the funding mechanism.

- The committee assigned to assess the development of tanks in the gas stations has prepared a draft report thereon, as concluded by a number of recommendations as follows :-
 - A proposal for the assessment of tanks for the storage of gasoline containing (MTBE) and the required cost, as well as the financing alternatives.
 - The owners of gas stations to be responsible for any leakage and to follow-up on the status of the tanks and report any leakage which might occur.
 - Requiring owners of the gas stations in the event of any leaking from the gasoline tank in the future either by removing this tank from service (mechanically isolated) or replace it with a double wall tank.

- Appointing the Jordan Institute for Standards and Mythology to issue a Jordanian specification standard regarding gasoline stations and their accessories, including gasoline tanks of the double wall.
- As a result of the implementation coincided with the Ministry of Energy and Mineral Resources of the restructuring of the oil sector and open the market to competition which included a study of the environmental assets of the sector and action to be taken, the Ministry of Energy and Mineral Resources has committed itself to implement the decision of the Cabinet to use (MTBE) to increase the number of octane for gasoline instead of using lead,

and adopt recommendations regarding the privatization adviser dealing with the subject of ground tanks located in the stations and who suggested giving it a transition period to correct the situation and to read as follows :-

- Tanks less than 8 years old are to be replaced during a period of 10 years.
- Tanks of (8-12) years old are to be replaced during a period of 8 years.
- Tanks with more than 13 years old are to be replaced within 5 years.

- On June 1, 2006 the Ministry has amend the instruction regarding licensing the gasoline stations to use tanks with a double wall so as to avoid any leakage of oil products which may affect the environment, safety and health.
- The Ministry has prepared a draft of a law regulating the Downstream petroleum products sector to oblige operators to ensure consumer protection and public safety and the environment with respect to all operations regarding oil products and oil installations and in conformity with Jordanian laws, regulations and technical specifications.
- On Feb. 8, 2008 the using of lead with gasoline was stopped completely and was replaced with (MTBE) and two types of unleaded gasoline were introduced, the first with 90 octane number and the other with 95 octane number.

FUTURE MINISTRY PLANS TO REDUCE THE PERCENTAGE OF SULFUR IN THE DIESEL

- Jordan produces diesel sulfur content of between (9000 - 11000) parts of a million.
- The standard specification for diesel sulfur content allows 350 parts of a million.
- A decision was issued by the distinguished Council of Ministers to exempt Jordan Petroleum Refinery Company from complying with the standard specification regarding the Diesel until the Refinery is ready.

FUTURE MINISTRY PLANS TO REDUCE THE PERCENTAGE OF SULFUR IN THE DIESEL

- **The Ministry of Energy and Mineral Resources Stipulated on the Jordan Petroleum Refinery Company that the sulfur content in the imported diesel should not exceed 5000 parts of a million until the end of the refinery expansion project.**
- **Sulfur content in the diesel will be reduced to 50 parts of a million upon the completion of the Refinery expansion project.**
- **Based on recent trends and recommendations of the United Nations Environmental Program, the Ministry in coordination with the Institute of Standards and Mythology will adopt a new standard for diesel with sulfur content equivalent to 50 parts of a million.**