

Preparing Motor Gasolines for Salt Cavern Storage
up to 10 years

J. W. Joachim Koenig
ERDÖLBEVORRATUNGSVERBAND (EBV)
Jungfernstieg 38
20354 Hamburg/Germany

Chairman, Ladies and Gentlemen

Storage of liquid hydrocarbons in salt caverns has a relatively long history going back to the mid 1950ies in England, when the UK government started to store crude oil during the "Suez Crisis". In the following 40 years military and government or entity stock holding organizations and companies have used old salt mines and solution mined cavities to store mainly crude oil.

At a relatively early stage companies and EBV-Germany tested salt caverns for distillate use and for some military use - mainly in the former eastern bloc and Middle East - the application was extended to turbo jet fuel of both the gasoline as well as the kerosene type. Usual storage times were under 3 years for jet, significantly longer at times for diesel/light heating oils. Sweden started in the later 1960ies to store "straight run" diesel and gasolines (leaded) in rock caverns, some of which is still in place today.

Due to the quality sensitivity and the high value of finished gasolines (generally well above jet fuels) gasoline storage was hardly ever attempted elsewhere for any substantial length of time. There were early storage cases of naphtha as chemical feed stocks.

Gasoline when stored over several years exhibits instability problems due to gum formations resulting from chemical polymerisation and condensation reactions. Those gums block carburators or form resins in injector systems, in severe cases block filters. In rare cases it can deteriorate biologically.