

A Concept of Adaptation of a Part of a Polish Salt Mine for an Underground Petroleum Storage Reservoir

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1. Required cavern parameters

When Poland entered the world market of petroleum and petroleum-derived fuels a need occurred for storage capacities compliant with the annual national demand and consumption. In order to meet investors' expectations CHEMKOP has developed a concept of such storage facilities in salt deposits all over our country. Two basic options have been prepared: stores in leached caverns (3 locations) and a store in a classical underground mine. Below the mine option is discussed as the most interesting in technical and economic terms.

For the designing needs the following parameters of the store have been established based on data obtained from an investor:

- Stored product: petroleum
- Character of the store: strategic
- Store capacity: phase I: 0.5 mio t of petroleum (app. 580 thousand m³)
phase II: 1.0 mio t of petroleum (app. 1 160 thousand m³)
- Injection efficiency: 1,000 t/h (app. 1160 m³/h)
- Withdrawal efficiency: 2,000 t/h (app. 2320 m³/h)

Also, the following assumptions were made:

- One type of petroleum stored;
- Parameters of the stored petroleum:

Density:	862 kg/m ³
Viscosity:	10 CSt
Explosiveness:	II B
Explosion risk category:	Z1, Z2
Temperature class:	T3