

12.1 **Process For Converting Oil Shale into Petroleum**

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A process for converting oil shale into petroleum is disclosed. The process includes the steps of pulverizing oil shale and then preparing a mixture of pulverized oil shale, water and ethyl alcohol in a sealed vessel. The mixture in the sealed vessel is then heated to a temperature of at least 465°F for a period of time which is sufficient to cause the oil shale and ethyl alcohol to combine to produce a second mixture of petroleum and water. The water is then separated from the petroleum.

The process can be applied for mined oil shale or for in situ operations. The process consumes no water. Water is used only as a medium to float off the petroleum. Anhydrous alcohol is not required. The alcohol content of the water mixture should be ten to thirty percent.

Theoretically the petroleum yield can be 105 percent of the original kerogen weight because the alcohol combines with the kerogen. In practice the yield will be less than 100 percent in order to allow carbon to drop out of the mixture. The carbon can then be burned to create the heat required to complete the above described process. When complete conversion of the kerogen is attempted one barrel of ethyl alcohol will yield 6.16 barrels of petroleum. When carbon is allowed to drop out the yield of petroleum to alcohol increases.

US Patent Number 7,264,711 Granted September 4, 2007