



Rankine Cycle Working Fluids for CC-OTEC Application

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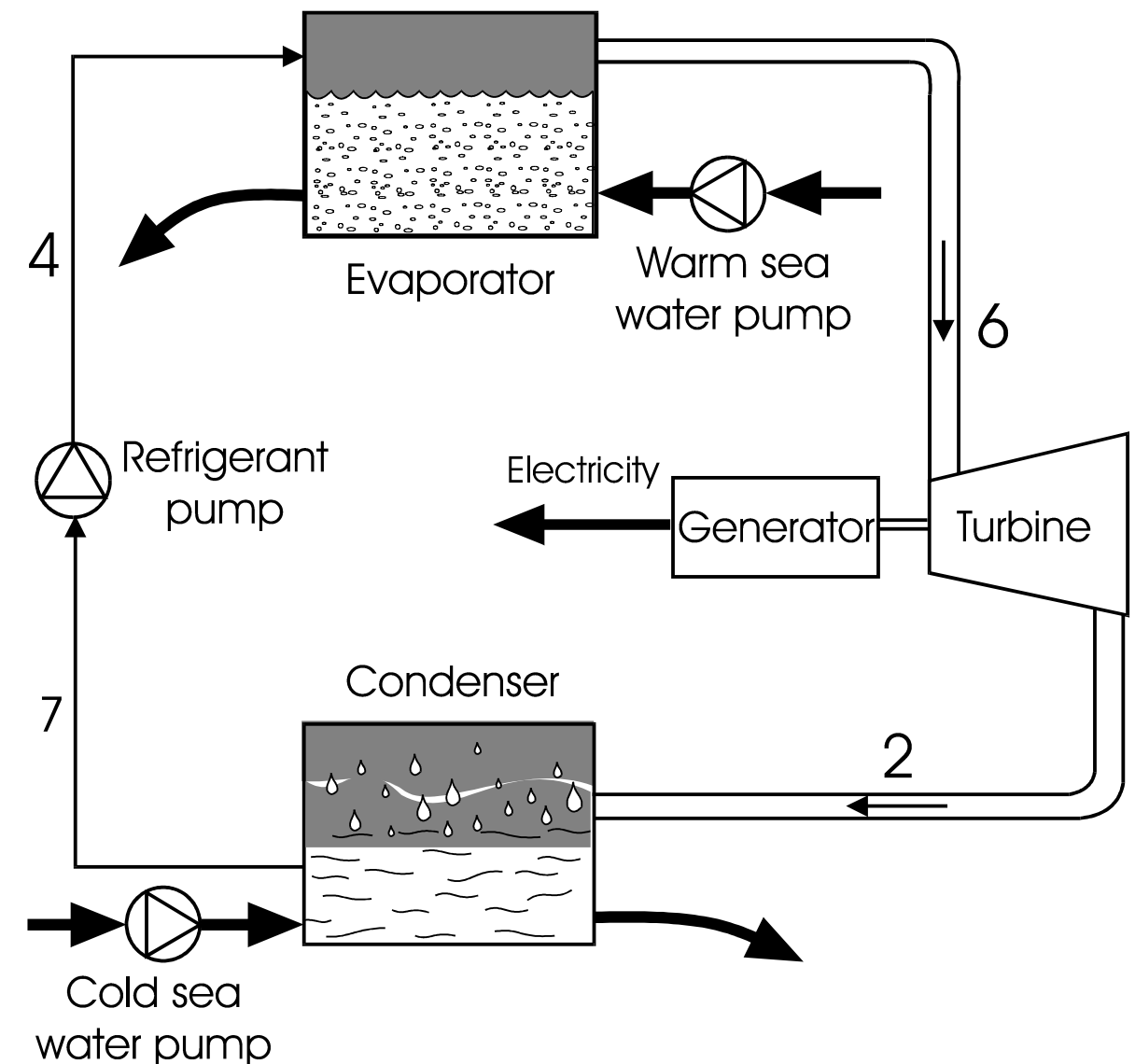
Ho-Saeng Lee, Hyeon-Ju Kim

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Seoul, Korea

CC-OTEC plant

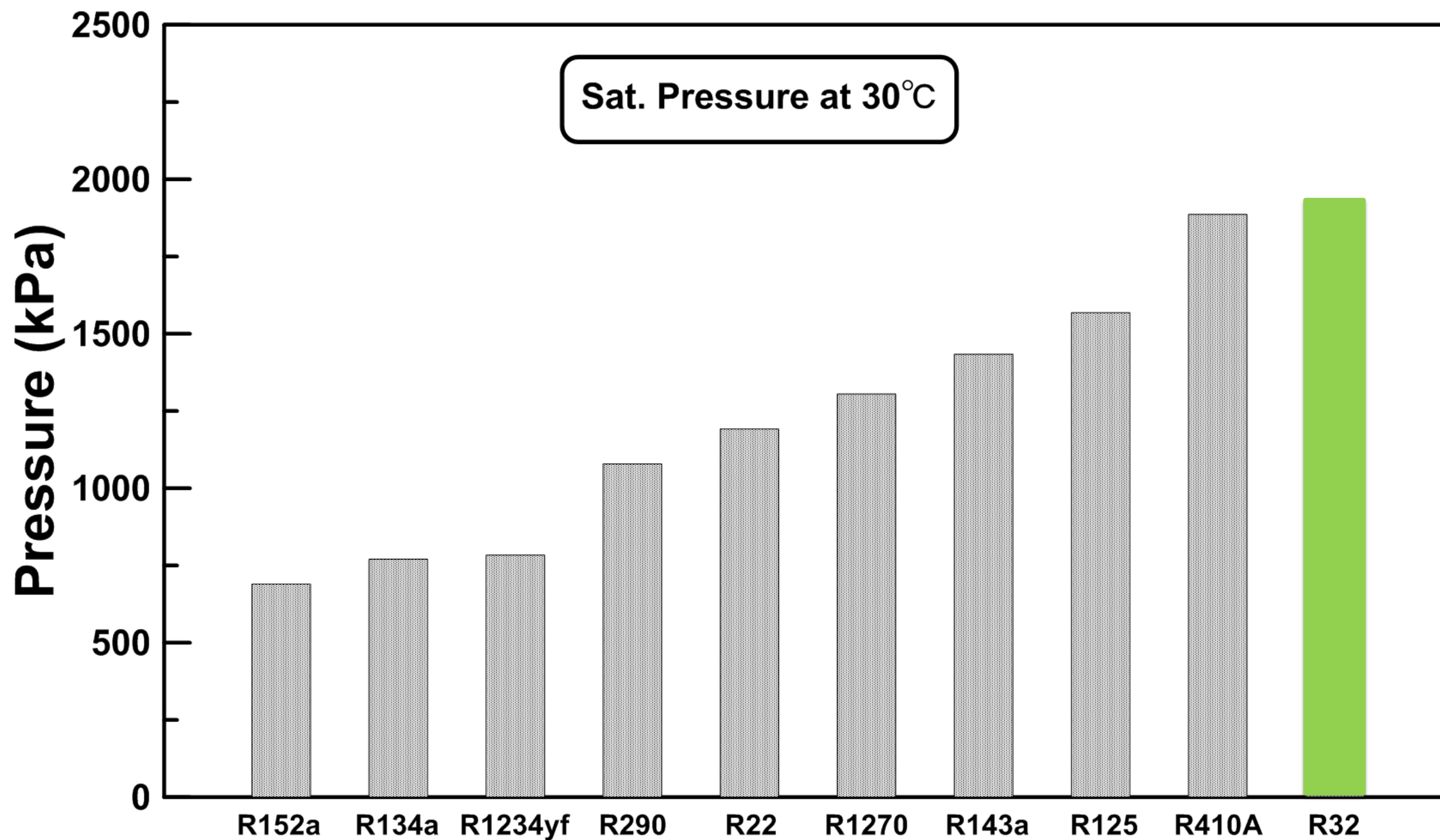
- * **Boiler, condenser, turbine**
- * **Initial cost**
- * **Size of the equipment**
- * **Working fluids**
 - * **Toxicity**
 - * **ODP**
 - * **GWP**
 - * **Vapor pressure**



Refrigerant Shift

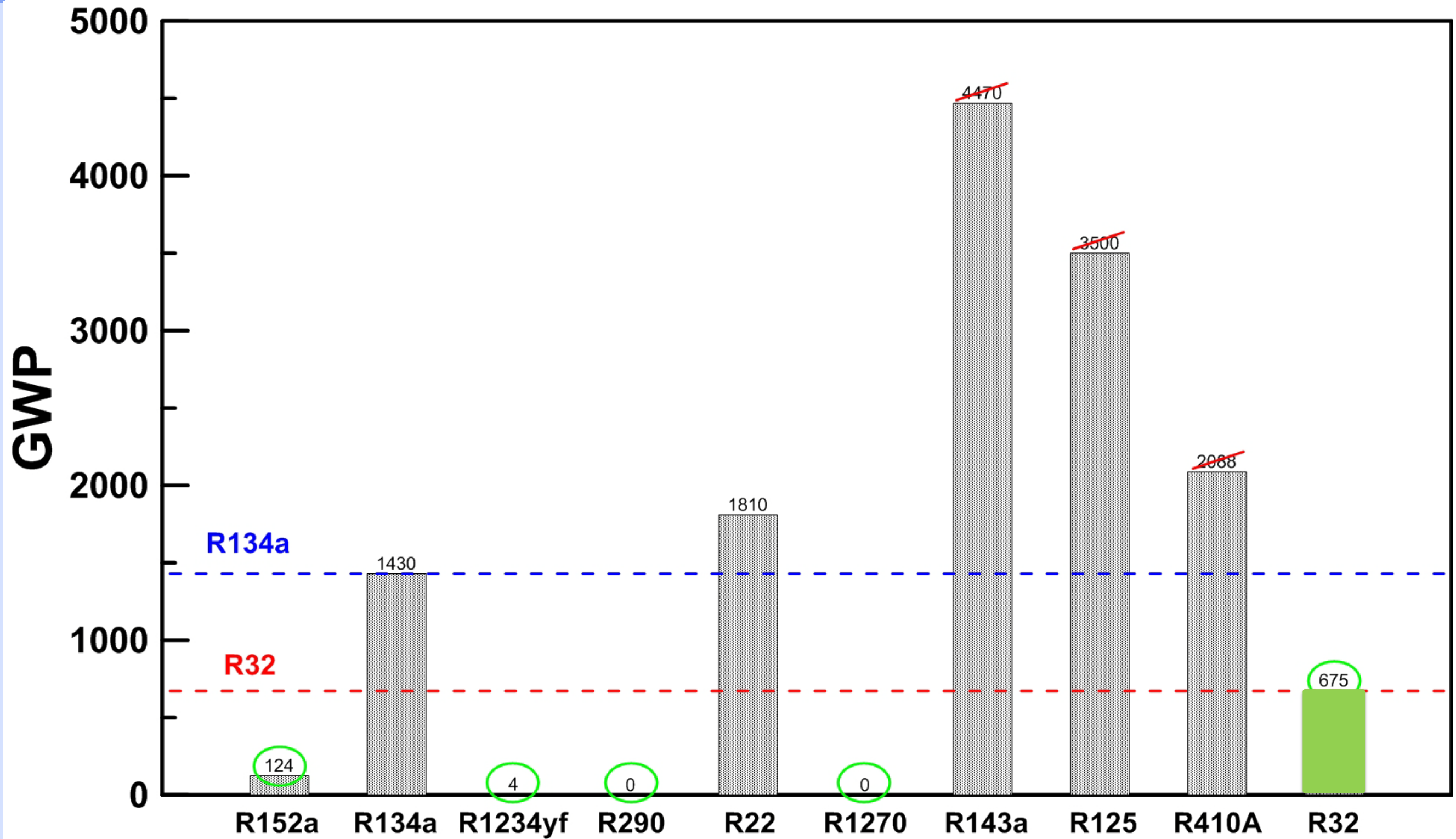
- * **Before 1930s – mainly natural fluids**
 - * Hydrocarbons, CO₂, NH₃ etc.
- * **After 1930s - Man made chemicals**
 - * CFCs
 - * HCFCs
 - * HFCs
- * **After 2000 – Natural and low GWP fluids**
 - * Hydrocarbons, NH₃, R152a, R32, R1234yf etc.

Vapor pressure



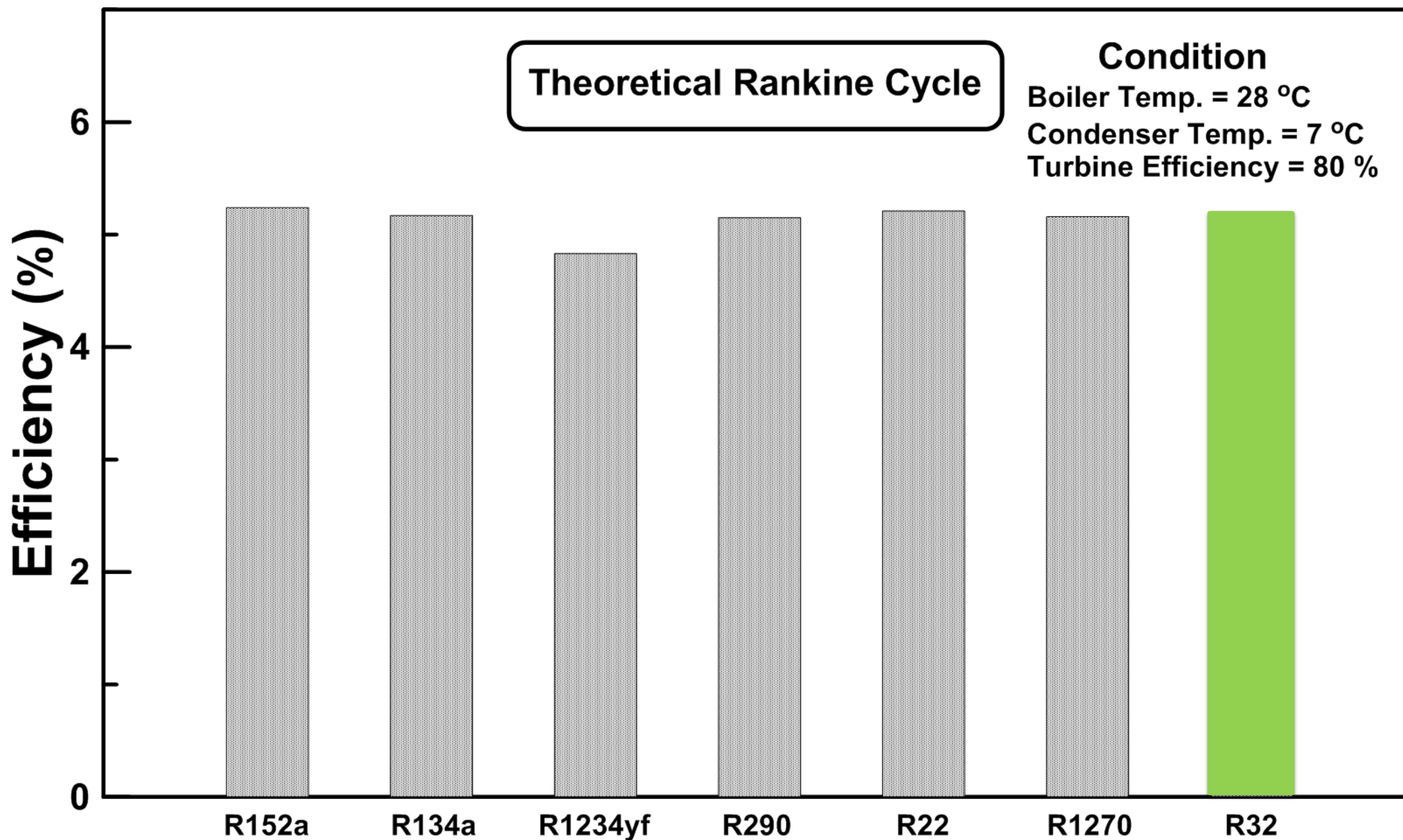
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GWP

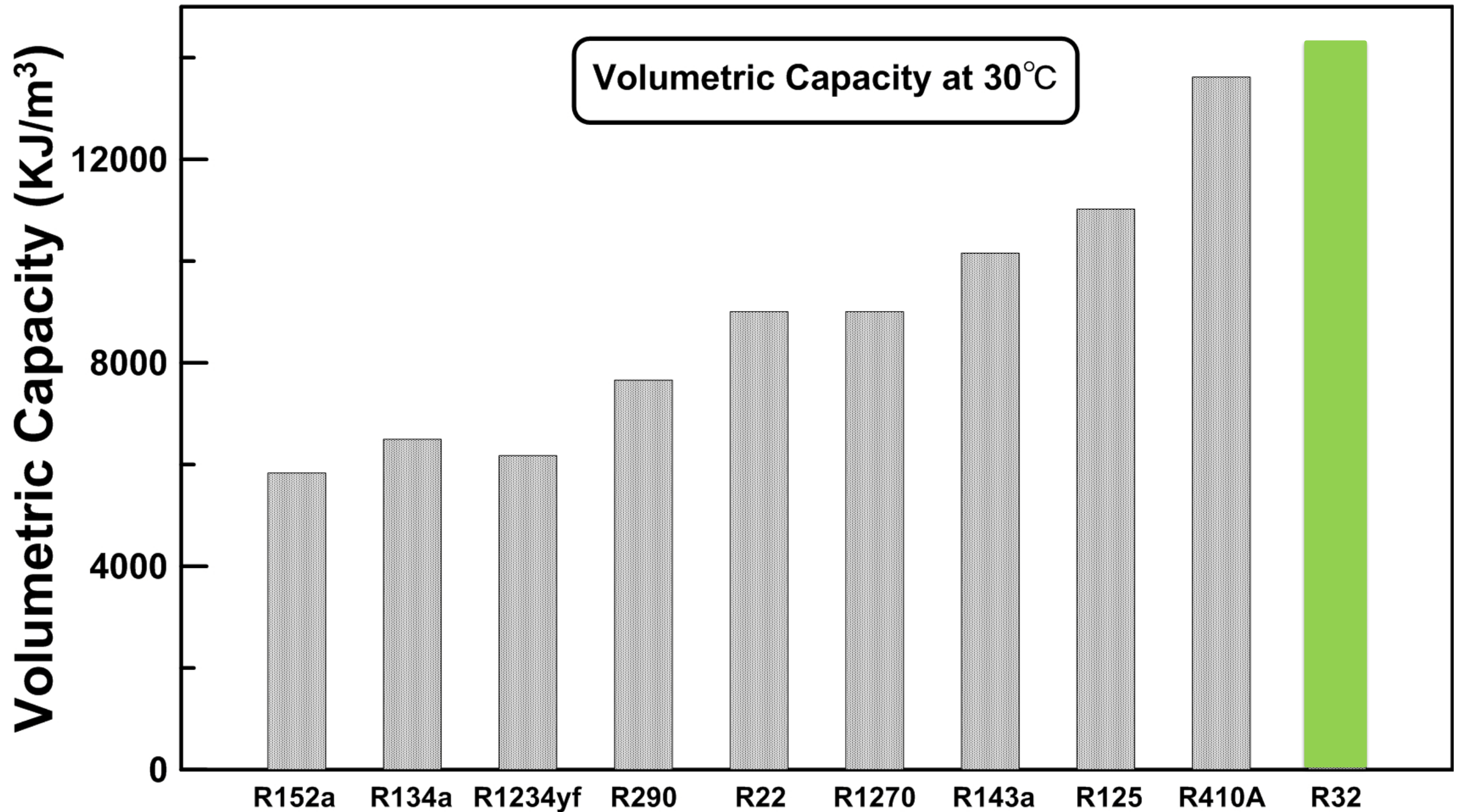


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Efficiency

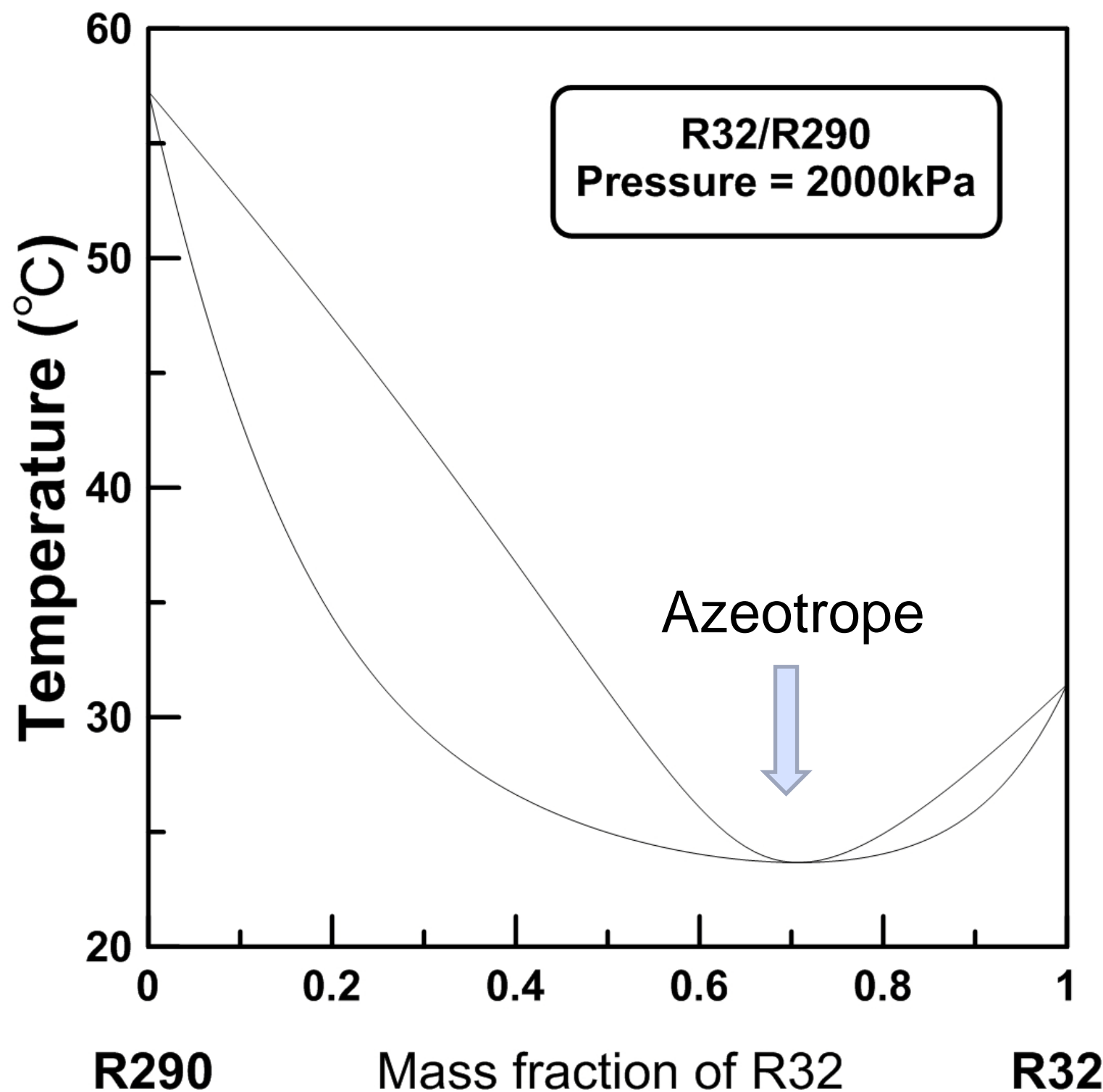


Equipment size



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R32/R290



- * **Similar efficiency**
- * **High pressure**
- * **Smaller volume**
- * **Good size reduction**