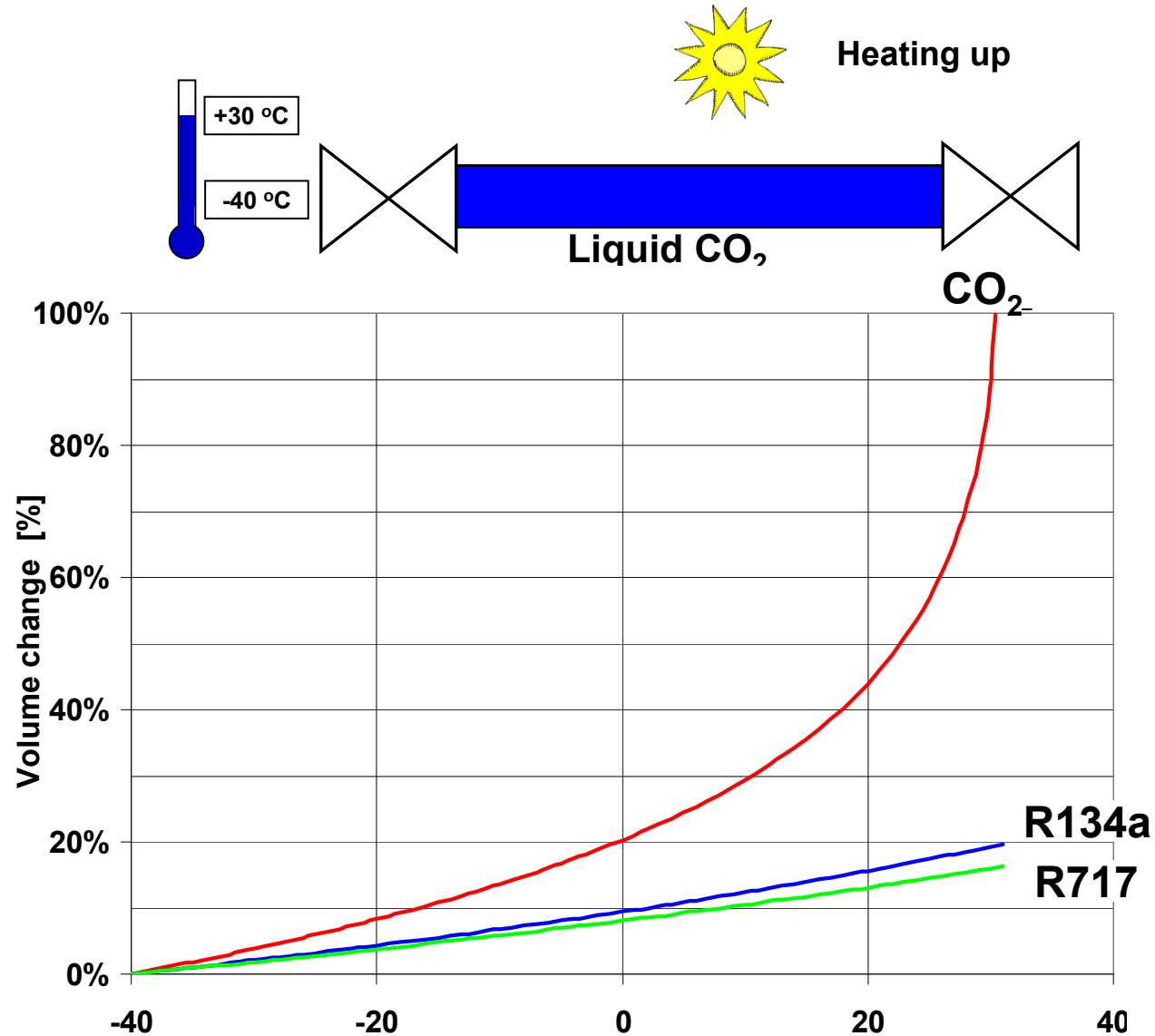
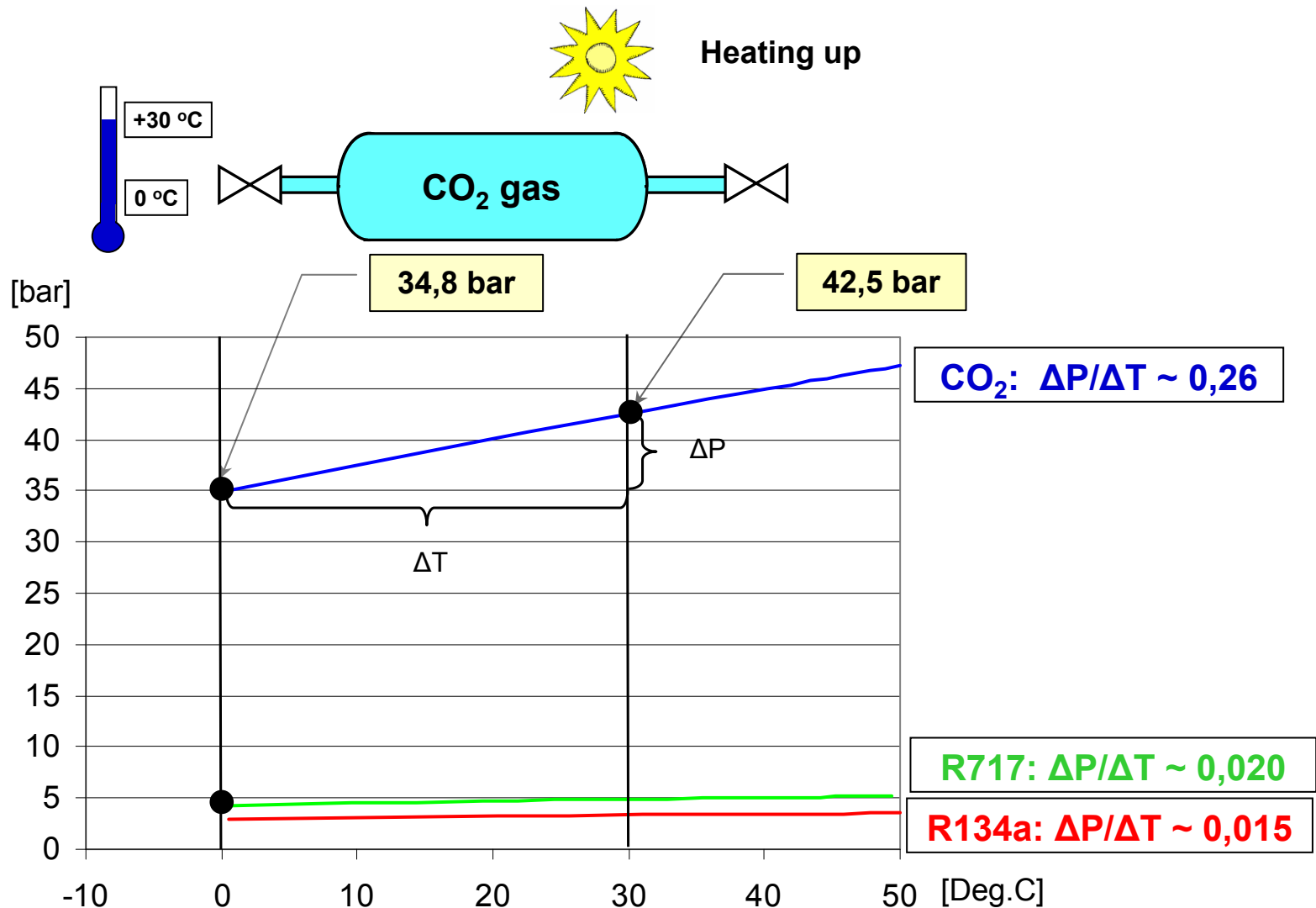


CO₂ design safety Unintended pressure increase

CO₂ “trapped liquid at -40 [Deg. C]



CO₂ gas “trapped at 0 °C



Design pressure is depending of:

- **Pressure during operation**
- **Pressure during "stand still":**
- **Temperature requirements for defrosting**
- **Pressure tolerances for safety valves (10 – 15 %)**

Design pressure / temperature for CO₂



Design
pressure

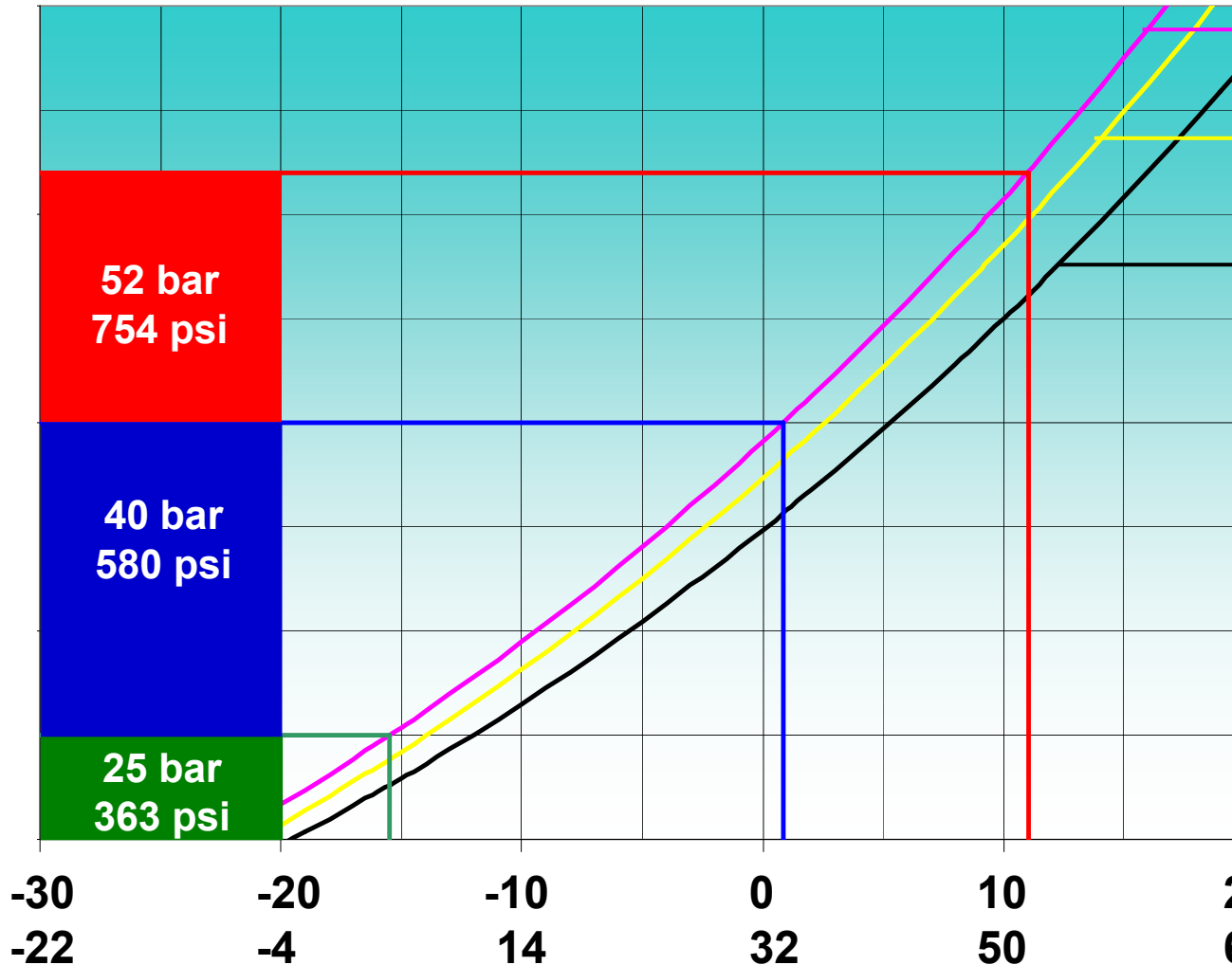
bar psi
60 870

50 725

40 580

30 435

20 290



Design pressure
"p" + 15%
(barg / psig)

"p" + 10%
(barg / psig)

"Saturated"
pressure "p"
(bara / psia)

52 bar
754 psi

40 bar
580 psi

25 bar
363 psi

-30
-22

-20
-4

-10
14

0
32

10
50

20
68

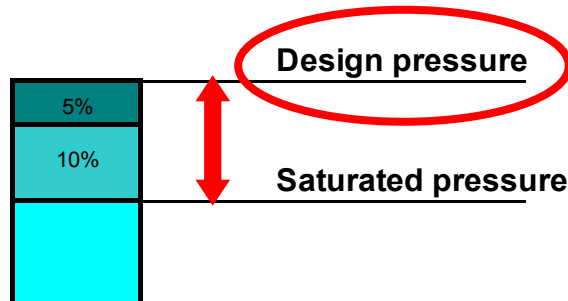
Deg °C
Deg °F

Design pressure

Practical limit: $PS \geq P_{\text{saturated}} + 15\%$

Pressure peaks

Safety valve



Safety Relief Valves

