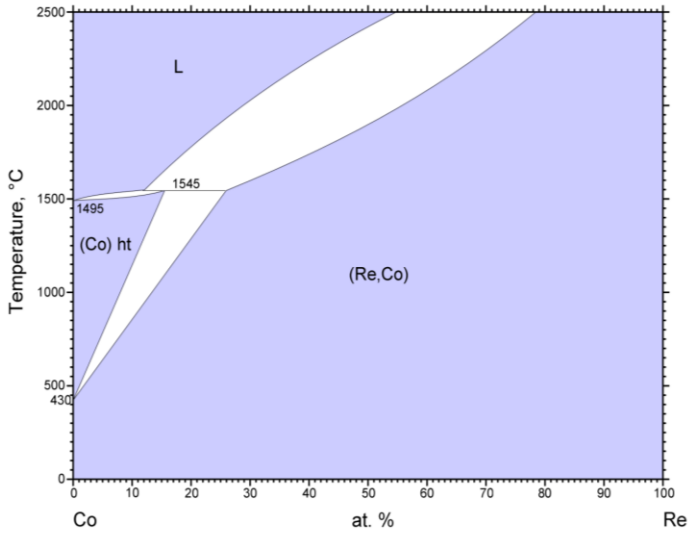
FAMSE - Exercise 03

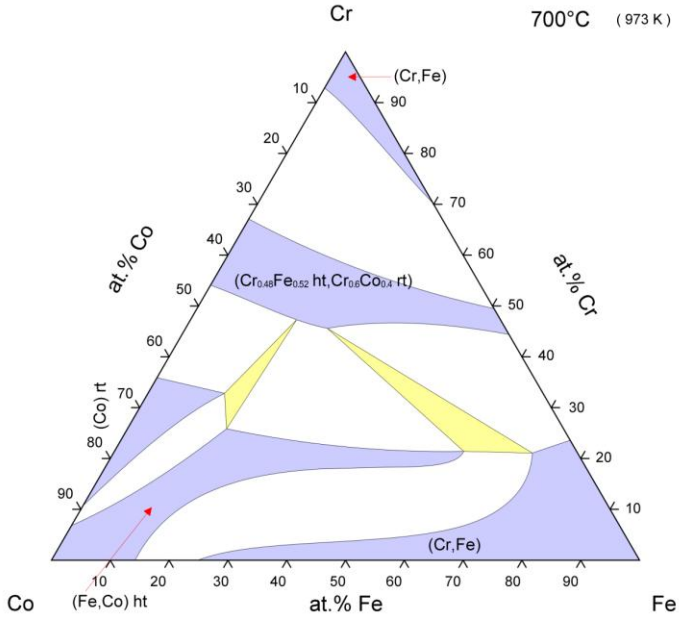
1. We have the binary Co-Re system and want to determine the lattice parameter of the solid solution at $X_{Co} = 0.5$ and $X_{Re} = 0.5$

   - Lattice parameters:
     - Re*: a = 0.251 nm, c = 0.407 nm
     - Co*: a = 0.276 nm, c = 0.440 nm



*Space group of Co (rt) and Re: $P6_3/mmc$

2. In the phase diagram, highlight a single-phase field, a two-phase field, and a three-phase field.



3.

a) The points α, β and γ mark the compositions of three different phases. Write down their compositions.

b) Calculate the phase fractions of all three phases at position point R in the ternary phase diagram.

c) Draw in the ternary diagram lines of constant elemental ratios: for A/B = 1/3 and $x_A = 0.5$