

Specificity of Phase Diagrams with Molecular Compounds

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When compared to metals and inorganic compounds, molecular compounds offer particular features which will be examined during the lecture.

- 1) Number of systems.....
- 2) A large number of molecular compounds are chemically fragile.
- 3) Sequential ordering in the solid state (mesophases: i.e. liquid crystals)
- 4) Purification of the starting components could be a critical issue.
- 5) The propensity to crystallize could be low.
- 6) The crystal can be made of a large number of independent molecules.
- 7) Dynamic disorders or static disorder could be observed in the solid state.
- 8) Relatively high molecular mass: this introduces a great distortion between phase diagrams with solvents expressed in mass fraction and in mole fraction.
- 9) Most of the molecular compounds have several degrees of freedom in their conformations
- 10) Polymorphism is frequent and can reach large numbers (just think about water!)
- 11) Solvates, hetero-solvates, mixed solvates are frequent.
- 12) Specific bonds could exist e.g. steric interaction in host-guest associations., charge transfer,
- 13) Cocrystal, salts, hybrids salt-cocrystals, 'abnormal salts', ionic co-crystals, Clathrates, MOF, etc...
- 14) Miscibility gap in the liquid state are also frequent
- 15) Chirality is an important variable.
- 16) Racemization could blur the variable: enantiomeric excess.

Starting from pure elements like Nitrogen and Sulfur, the lecture will exemplify various features of this attractive world up to proteins.

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Preferred type of contribution:

☐ **Poster**

X Oral

NB : The final decision belongs to the Scientific Committee