



# On-Site Workshop: Predictive Formulation Science HSP & Its Applications

*Led by VLCI Experts*

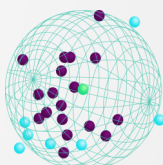


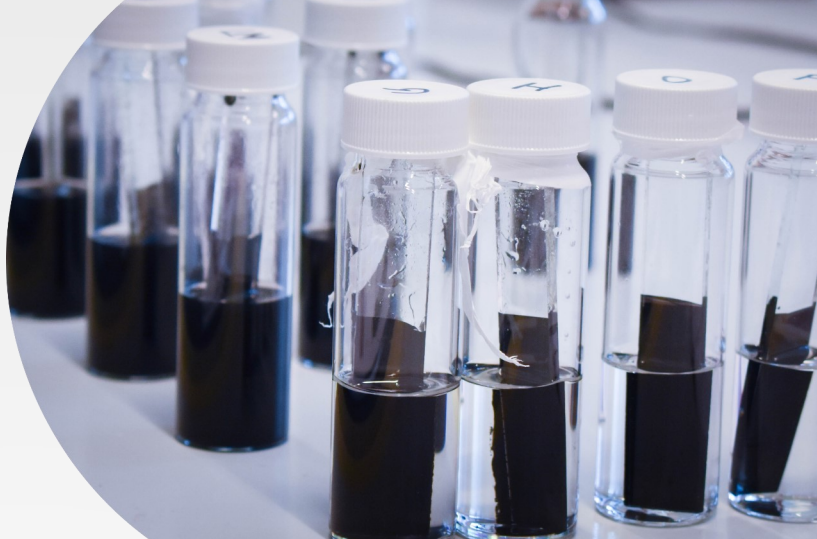
The predictive formulation science **Hansen Solubility Parameters** (HSP) is a very powerful tool for finding **matching ingredients**, resulting in **improved stability** and **efficacy** of end-products. The model is applicable to **solutions, dispersions** and in some cases **emulsions**, which basically includes all types of formulated products. Although it has been applied for many years, there is still a limited use of it in formulation developments and ingredients thereof. The equation of the science requires the input of (practical) parameters from the ingredients which, once generated, **can predict (in)compatible ingredients** to develop and optimize specific formulations. The ingredient's data generated from the model is **predictive** and **sustainable**: you can use them over and over, allowing to **move away from trial-and-error** and to use **digitalization** effectively for product developments. This is a very efficient way to enhance the properties of a formulation and to **reduce complexity, time** and **cost** of its development. When combined with High Throughput (HT) screening for automated, parallel and small-scale preparation of samples and end-products, further efficiency can be achieved. HSP find its use in a **wide variety of applications**; coatings, personal care, household, polymers, agrochemicals, EOR, pharmaceuticals, etc.



## Hansen Solubility Parameters (HSP)

Characterizes an ingredient/product by its **interaction parameters**;  $\delta D$  - dispersion forces,  $\delta P$  - Polarity, and  $\delta H$  - Hydrogen bonding. Based upon these, the product **compatibility and incompatibility can be predicted** with other ingredients to build up an entire formulation or improve an existing formulation.





## What you will learn in this workshop

- ◆ An introduction to the predictive science HSP and the ingredient parameters it requires, via [presentations](#) and [case studies](#) of their use in efficient product development.
- ◆ How to [determine the required ingredient parameters](#) via practical [sample preparation](#), [rating of samples](#) and the [use of software/apps](#).
- ◆ [Implementation of the parameters](#) to find matching ingredients, to make incompatible ingredients become compatible and to develop formulations based upon predictions.
- ◆ For which applications HSP can be used and [how the strategies aid effective implementation](#).
- ◆ [Interact with experts](#) and obtain as much knowledge as possible to [get started with the implementation of the predictive formulation science HSP in your own labs](#).



## Level required to attend this workshop

- ◆ A [basic understanding of ingredients and formulation](#); you know the function of several different ingredients, and how to use them to develop formulations.
- ◆ A [brief look at the predictive formulation science HSP](#):  
<https://www.stevenabbott.co.uk/practical-solubility/>
- ◆ And also [articles showcasing many different applications](#) on our website:  
<https://vlci.biz/our-work/>



## On-Site Workshop: Predictive Formulation Science HSP & Its Applications

- ◆ Duration: 1 day
- ◆ Cost: €3.500/day, excluding travel expenses, sample and shipment costs (for maximum 10 attendees)



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