



# Lyophilisation Fundamentals:

Hands-on Practical Training for the  
Pharmaceutical Industry



**biopharma  
group**



August 25th-27th 2020

Limerick, Ireland



# Course Overview

*This is a special collaboration between Biopharma and PMTC, useful for anyone in research or the pharma industry, involved in lyophilisation.*

*The programme has been constructed to satisfy those who are new to freeze drying by offering a one day overview but also adding the following two days for those wanting to experience the practical aspects of the theory.*

*Delegates run a freeze drying cycle, use the analytical equipment and critique the finished lyophilised product. There will be guest speakers from various areas of the lyo industry to deliver different points of view.*

## Day One

### Welcome & Course Opening

- Introduction to Freeze Drying Technology
- Fundamentals of Freezing and Drying
- Formulation Basics and Characterisation Methods

### Lunch (included)

- Cycle Development approaches, including overview of Quality by Design
- Scaling up the process
- Analysing the product-moisture, thermal properties, physical

## Day Two

### Recap of Day One

- Hands-on experience of product characterisation: FDM/DSC
- Formulation preparation, filling, loading, programming the freeze-dryer, starting cycle

### Lunch (included)

- Process monitoring and analytical technologies
- Review of cycle status in the lab
- Guest Speaker #1
- Guest Speaker #2

### Dinner as a group (included)

## Day Three

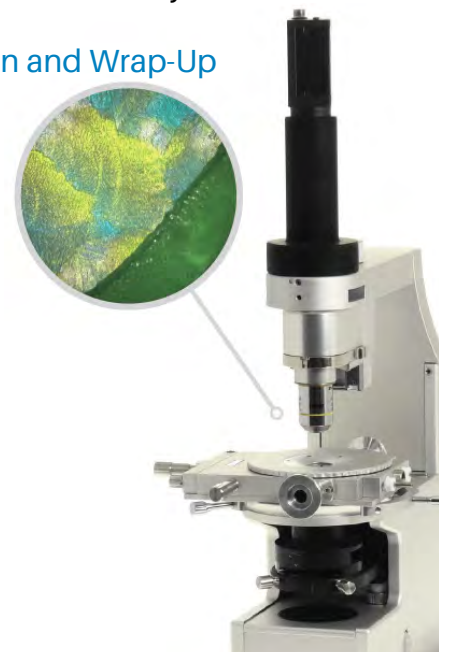
### Review of ongoing cycles: product visual assessment exercise

- Guest Speaker #3
- Terminate Cycles
- Analysis of lyo-cakes: TGA, SEM, mechanical properties, DSC

### Lunch (included)

- Tour of the PMTC facility

### Final Q&A session and Wrap-Up







## Is this course right for you?

If you're interested in:

- Biotechnology
- Pharmaceuticals
- Freeze Drying Formulation and Cycle Development
- Diagnostic Industries

## Meet the Experts:

### *Dr. David Egan*

Dr David Egan works as a Senior Research Fellow in the PMTC at the University of Limerick. His two main areas of research are Pharmaceutical OSD manufacture including power flow and compaction; and the Lyophilisation of Pharmaceutical liquid materials. Beginning with a Degree in Materials Science from Limerick, he undertook his Masters on Non-Proliferation of nuclear materials while working at the EU Joint Research Centre (JRC) in Belgium. Returning to Limerick he completed his PhD with a study of materials for Planar Transformers for high frequency switch mode power supplies. Next was a decade in industry working with ultra-hard materials. (Diamond & cBN) During this time he developed many innovative products and processes for use in the stone cutting, mining and exploration industries. He is Inventor / co-Inventor on 21 patents based on his work during this time. 2014 saw the move to the PMTC and the beginning of work in Lyophilisation. In the last 6 years, he has been awarded over €1.3M in funding to undertake research to develop a deeper knowledge of and provide solutions for industrial processes. He has 65 published articles and mentored multiple Industrial Masters and PhDs while undertaking his research at the University.



### *Dr. Kevin Ward*

Dr Kevin Ward entered the world of freeze-drying in 1993 when he embarked on a PhD in the lyophilisation of proteins and liposomes. After working in the pharmaceutical industry and in vaccine development, he joined Biopharma in 2000. As R&D Director, he has built up a team of 9 dedicated freeze-drying scientists, worked on over 3000 projects for more than 500 client companies across the globe, developed 3 analytical instruments, run more than 200 training courses, and successfully secured funding for 15 collaborative research projects. He has appeared on BBC television for his team's work on cell preservation and been an advisor to the BBC for one of their popular science shows.



### *Dr. Andrew Bright*

Andrew joined BTL in January 2018 as Senior Scientist. He received his Ph.D. from the University of Bradford investigating freeze dried vaccine formulations with the thesis title "Mechanistic Insights into the Stabilisation of Biopharmaceutical Using Glycine Derivatives" and also holds a MChem in Chemistry with Pharmaceutical and Forensic Science. Andrew previously worked for 2 years as a Senior Scientist at Pfizer within liquid formulations specialising in freeze dried formulation design, process development, and scale up.



Option 1:  
Day 1 Only,  
€330 per person

Breaks and lunch provided

Option 2:  
Three Day Event,  
€1,995 per person\*

August 25th-27th 2020  
PMTTC/ Bernal Research Institute  
Analog Devices Building

University of Limerick,  
Castleroy, Limerick  
V94 TQPX

*BOOK NOW!*

Contact David Egan

David.Egan@ul.ie

+353 61213364

or

<http://bit.ly/TrainingCoursesBookingForm>

Please note that the cost of accommodation is not included in the course fee  
and that bedroom bookings must be made by the participants.

A list of local hotels will be provided with the registration confirmation.

\*fees include morning and afternoon breaks, lunch, one dinner and full lecture notes

