COURSE OVERVIEW PE0765

MEG (Monoethylene Glycol) Manufacturing Process Technology

Course Title
MEG (Monoethylene Glycol) Manufacturing Process Technology

Course Date/Venue
Please see page 2

Course Reference
PE0765

Course Duration/Credits
Five days/3.0 CEUs/30 PDHs

Course Description

This practical and highly-interactive course includes real-life case studies and exercises where participants will be engaged in a series of interactive small groups and class workshops.

Monoethylene Glycol (MEG) plays a significant role in industry due to its function as versatile intermediates in a wide range of applications—from polyester resin, textiles and films, consumer packaging and beverage bottles to aircraft deicing fluids. Monoethylene glycol (MEG) is one of the most important raw materials for industrial applications. MEG is important in the production of antifreezes, coolants, aircraft anti-icer and diecers and solvents. Moreover, MEG is often used in water-basedpaints,dry-wall compounds, glass cleaners, dyes, waxes and adhesives as well as a freezing point depressor to avoid damage by low-temperature extremes.

Monoethylene glycol in its pure form is an odorless, colorless, syrupy liquid with a sweet taste. In general terms MEG is produced from ethylene, via the intermediate ethylene oxide which it reacts with water to produce ethylene glycol. The highest yields of ethylene glycol occur at acidic or neutral pH with a large excess of water. Under these conditions, MEG yields of 90% can be achieved. The major by products are the ethylene glycol oligomers diethylene glycol, triethylene glycol and tetraethylene glycol. Due to its importance and fast growing demands as a result of its bulk uses and the availability of ethylene in GCC and other petrochemical centers several innovative technologies is developed and commercialized.

Course Objectives

Upon the successful completion of this course, each participant will be able to:-

- Apply and gain an in-depth knowledge on process development of different monoethylene glycol (MEG) technologies
- Discuss the advantages of new manufacturing technologies and employ the innovative steps which will have positive influence of the productivity and selectivity of different processes
- Apply the scientific background of process development on troubleshooting and gain knowledge on MEG manufacturing and technology transfer
- Compare between competitive production know-how and technology and describe the importance of process conditions on the purity of MEG
- Assess the techno-economical feasibility of selecting advanced practical processes and identify the feedstock availability and quality on the economics of the organization
- Recognize the importance of R&D and supporting QA laboratories
- Carryout material handling and waste disposal and discuss the importance of utilities and maintenance in MEG plants
- Monitor and follow global demand and supply for MEG

Exclusive Smart Training Kit - H-STK®

*Participants of this course will receive the exclusive "Haward Smart Training Kit" (**H-STK®**). The **H-STK®** consists of a comprehensive set of technical content which includes **electronic version** of the course materials conveniently saved in a **Tablet PC**.*

Who Should Attend

This course is intended for process, chemical, operation, design and production engineers and technical staff. Further, the course is suitable for environmental, laboratory, R&D and R&T staff including chemists, scientists, analysts, technologist, technicians and environmental professionals.

Course Date/Venue

Session(s)	Date	Venue
1	April 06-10, 2025	Boardroom 1, Elite Byblos Hotel Al Barsha, Sheikh Zayed Road, Dubai, UAE
2	June 15-19, 2025	Meeting Plus 9, City Centre Rotana, Doha Qatar
3	August 17-21, 2025	Al Khobar Meeting Room, Hilton Garden Inn, Al Khobar, KSA
4	October 20-24, 2025	Ajman Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE

Course Certificate(s)

Internationally recognized certificates will be issued to all participants of the course who completed a minimum of 80% of the total tuition hours.

Certificate Accreditations

Certificates are accredited by the following international accreditation organizations: -

- British Accreditation Council (BAC)

  Haward Technology is accredited by the **British Accreditation Council** for **Independent Further and Higher Education** as an **International Centre**. BAC is the British accrediting body responsible for setting standards within independent further and higher education sector in the UK and overseas. As a BAC-accredited international centre, Haward Technology meets all of the international higher education criteria and standards set by BAC.

- The International Accreditors for Continuing Education and Training (IACET - USA)

  Haward Technology is an Authorized Training Provider by the International Accreditors for Continuing Education and Training (IACET), 2201 Cooperative Way, Suite 600, Herndon, VA 20171, USA. In obtaining this authority, Haward Technology has demonstrated that it complies with the **ANSI/IACET 2018-1 Standard** which is widely recognized as the standard of good practice internationally. As a result of our Authorized Provider membership status, Haward Technology is authorized to offer IACET CEUs for its programs that qualify under the **ANSI/IACET 2018-1 Standard**.

  Haward Technology's courses meet the professional certification and continuing education requirements for participants seeking **Continuing Education Units** (CEUs) in accordance with the rules & regulations of the International Accreditors for Continuing Education & Training (IACET). IACET is an international authority that evaluates programs according to strict, research-based criteria and guidelines. The CEU is an internationally accepted uniform unit of measurement in qualified courses of continuing education.

  Haward Technology Middle East will award **3.0 CEUs** (Continuing Education Units) or **30 PDHs** (Professional Development Hours) for participants who completed the total tuition hours of this program. One CEU is equivalent to ten Professional Development Hours (PDHs) or ten contact hours of the participation in and completion of Haward Technology programs. A permanent record of a participant's involvement and awarding of CEU will be maintained by Haward Technology. Haward Technology will provide a copy of the participant's CEU and PDH Transcript of Records upon request.

Accommodation

Accommodation is not included in the course fees. However, any accommodation required can be arranged at the time of booking.

Course Instructor(s)

This course will be conducted by the following instructor(s). However, we have the right to change the course instructor(s) prior to the course date and inform participants accordingly:

Dr. Pete Ludovice, PhD, BSc, is a **Senior Chemical Engineer** with over **25 years** of extensive experience in **Plastics/Rubber Additives**, **Thermoplastics Processing**, **Plastic Materials**, **Polymer Science** and **Polyolefin** (**Polyethylene & Polypropylene**) **Engineering**. Further, he is also well-versed in **Chemical & Biomolecular Engineering**, **Bioengineering**, **Water Distribution System**, **Water Injection Treatment** and **Water Treatment Technology**. He is currently the **Senior Professor** of **Chemical & Biomolecular Engineering** in **Georgia Institute of Technology**, **USA** wherein he has designed numerous courses on various aspects of **polymer science** and **chemical engineering** that include **Applied Molecular Modelling**, **Numerical Modelling** of **Process Engineering**, and **Chemical Processes** using **Molecular Modelling** to characterize **Polymer Behaviour** and **Methods** for **Technical Innovation.**

Dr. Ludovice's research interests include **structure-property relationships** in **polymer materials** including a variety of polymers from basic vinyl polymers to high performance polymer and biological polymers. His researches have been funded by various industries and the **United States National Science Foundation**, the **Department of Energy**, the **Whitaker Foundation** and the **Office of Naval Research**. Further, he has gained his extensive experience through his prior challenging positions such as a **Polymer Product Manager** of **Molecular Simulations Inc**., a **Senior Scientist** for **NASA – Ames Research Center** (**USA**) and the **IBM – Almaden Research Center** (**USA**), a **Research Associate** for the **Institut für Polymere** at the **Eidgenössische Technische Hochschule** in **Zürich**, **Switzerland** and a **Principal Investigator** for 40 diverse international agencies.

Dr. Ludovice holds **PhD** and **Bachelor** degrees in **Chemical Engineering** from the **Massachusetts Institute of Technology**, **USA** and the **University of Illinois**, **USA** respectively. Further, he is a **Certified Instructor/Trainer** and an active member of the American Institute of Chemical Engineers (**AIChE**), Society of Plastics Engineers (**SPE**), Materials Research Society and the American Chemical Society. Moreover, he has published **numerous books** and **papers** circulated **internationally** and **delivered technical presentations** and **seminars** in several **international conferences**. He was also one of the inventors of the "**Self-Expanding Intraluminal Composite Prosthesis**" and the "**Pore-Forming Agents to Enhance Transdermal Delivery of Biological Agents**". Amongst all these achievements, he was **honoured** with **various awards** such as the "**Outstanding PhD Thesis Award**" by Georgia Institute of Technology, the "**Outstanding Professor of the Year**" by AIChE and the "**Sherwin Williams Award in Polymer Science**" by the American Chemical Society.

Training Methodology

All our Courses are including **Hands-on Practical Sessions** using equipment, State-of-the-Art Simulators, Drawings, Case Studies, Videos and Exercises. The courses include the following training methodologies as a percentage of the total tuition hours:-

30% Lectures
20% Practical Workshops & Work Presentations
30% Hands-on Practical Exercises & Case Studies
20% Simulators (Hardware & Software) & Videos

In an unlikely event, the course instructor may modify the above training methodology before or during the course for technical reasons.

Course Fee

Dubai	**US$ 5,500** per Delegate + **VAT**. This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.
Doha	**US$ 6,000** per Delegate + **VAT**. This rate includes Participants Pack (Folder, Manual, Hand-outs, etc.), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.
Al Khobar	**US$ 5,500** per Delegate + **VAT**. This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.
Abu Dhabi	**US$ 5,500** per Delegate + **VAT**. This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

Course Program

The following program is planned for this course. However, the course instructor(s) may modify this program before or during the course for technical reasons with no prior notice to participants. Nevertheless, the course objectives will always be met:

Day 1

0730 – 0800	*Registration & Coffee*
0800 – 0815	*Welcome & Introduction*
0815 – 0830	***PRE-TEST***
0830 – 0930	***Process Development of Different MEG Technologies***
0930 – 0945	*Break*
0945 – 1100	***Process Development of Different MEG Technologies (cont'd)***
1100 – 1230	***Advantages of New Manufacturing Technologies***
1230 – 1245	*Break*
1245 – 1420	***Advantages of New Manufacturing Technologies (cont'd)***
1420 – 1430	***Recap***
1430	*Lunch & End of Day One*

Day 2

0730 – 0900	***Innovative Steps in Different Processes*** *Productivity ● Selectivity*
0900 – 0915	*Break*
0915 – 1100	***Scientific Background of Process Development***
1100 – 1230	***Troubleshooting on Process Development***
1230 – 1245	*Break*
1245 – 1420	***MEG Manufacturing & Technology Transfer***
1420 – 1430	***Recap***
1430	*Lunch & End of Day Two*

Day 3

0730 – 0900	***Comparison between Competitive Production Know-How & Technology***
0900 – 0915	*Break*
0915 – 1100	***Importance of Process Conditions on the Purity of MEG***
1100 – 1230	***Techno-Economical Feasibility of Selecting Advanced Practical Processes***
1230 – 1245	*Break*
1245 – 1420	***Techno-Economical Feasibility of Selecting Advanced Practical Processes (cont'd)***
1420 – 1430	***Recap***
1430	*Lunch & End of Day Three*

Day 4

0730 – 0900	***Feedstock Availability & Quality on the Economics of the Company***
0900 – 0915	*Break*
0915 – 1100	***Feedstock Availability & Quality on the Economics of the Company (cont'd)***
1100 – 1230	***Importance of R&D & QA Laboratories***
1230 – 1245	*Break*
1245 – 1420	***Importance of R&D & QA Laboratories (cont'd)***
1420 – 1430	***Recap***
1430	*Lunch & End of Day Four*

Day 5

0730 – 0900	***Material Handling & Waste Disposal***
0900 – 0915	*Break*
0915 – 1045	***Material Handling & Waste Disposal (cont'd)***
1045 – 1215	***Importance of Utilities & Maintenance in MEG Plants***
1215 – 1230	*Break*
1230 – 1345	***Global Demand & Supply for MEG***
1345 – 1400	***Course Conclusion***
1400 – 1415	***POST-TEST***
1415 – 1430	*Presentation of Course Certificates*
1430	*Lunch & End of Course*

Practical Sessions

This practical and highly-interactive course includes real-life case studies and exercises:-

Course Coordinator

Mari Nakintu, Tel: +971 2 30 91 714, Email: mari1@haward.org