INTRODUCTION TO CAPILLARY GC

AVANS+, SPECIALIST IN DEVELOPPING PEOPLE AND ORGANIZATIONS
With more than 200 bachelor's, post bachelor's and Master degree programs is Avans+ the leading trainer for professionals. Personal contact and acquisition of practically applicable knowledge are central in our approach.

OBJECTIVE INTRODUCTION TO CAPILLARY GC
During this course you will learn all the knowledge and skills you need for the correct execution of analyzes with capillary gas chromatography. Here you will gain insight into the basic principles of capillary GC, the construction of instruments, injection and detection and with the applications of the many types of columns for capillary GC. You will not only learn this in theory, but you will also be applying it yourself during the practical sessions, which will be carried out on different brands of GCs.

TARGET GROUP
You have recently started working with capillary GC and have little or no experience. You would like to have a better understanding of the separating principles, equipment and types of columns for GC analyses. You would also like to know more about different types of injection techniques and detectors for capillary GC.

PROGRAM

During this course you will get acquainted with the following subjects:

+ Chromatography:
  Topics: terminology for capillary GC, the principle of the separation process, retention, resolution, selectivity, resolution, peak asymmetry and linear gas velocity.
+ Instrumentation for GC:
  - gas system The pressure / flow regulation, filters and pipes are discussed. We also handle injection techniques including direct injection, split, splitless and on-column injection.
  - injectors Principles and applications of direct, split, splitless and on-column injection. We handle this both in theory and in practice.
  - detectors You will be introduced to flame ionization detector (FID), TCD, electron capture detector (ECD), flame photometric detector (FPD) and nitrogen phosphor detector (NPD).
+ Qualitative and quantitative analysis
  Topics: peak identification, sample preparation, detector response, calibration, external standard, internal standard, standard addition and normalized% method.
+ Columns for GC
  Topics: the stationary phase characterization, stationary phase choice, amount of stationary phase, sample capacity and overload, minimum and maximum column temperature, bleeding, WCOT, Wide-Bore and PLOT columns, column conditioning and storage.
+ Operational parameters
  Topics: the principles of the properties and choice of GC columns, the effect of length, diameter, film thickness, gas speed, type of carrier gas and temperature programming on the separation and the analysis time.

METHODOLOGY

Interactive theory lectures and practical session alternate constantly. Relevant experiments are performed in small groups under personal, expert supervision and with state-of-the-art instruments. The first day you will perform a startup of a GC instrument independently, assess all relevant modules and parts and install a column. Bases on the resulting test chromatogram, you will assess whether the system and the column function as desired.
The subsequent days, the practical sessions focus mainly on the use of different types of capillary columns. You will also optimize a temperature program yourself. During the practical sessions you regularly change equipment, in order to become acquainted with different types of instruments.
We test your progress with questionnaires and assignments.

DURATION

The course lasts 3 consecutive days. Regularly it is scheduled twice a year.

CERTIFICATE

At completing this course, you will receive a certificate of attendance.

FINAL RESULT

After finishing this course, you are able to start a gas chromatograph independently. You can assess the status and quality of the system on the basis of a test chromatogram. You will get a good overview of the structure of the GC, the properties of various injectors and detectors and of the most commonly used GC columns.
After successfully completing the course you will receive a certificate of participation.

COURSE LOCATION AND DATES

The actual information you can find on www.avansplus.nl.

STUDY COSTS AND SUBSCRIPTION

The actual prices can be found on www.avansplus.nl.
On the website you can subscribe for this course.

MORE INFORMATION?

Do you have questions about the course or are you interested in an in-company training?
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