

Alternative Refrigerants: CO₂, HC and Ammonia in Refrigeration and Air Conditioning Technology

Sarajevo - September 3-7, 2018



*Training Provider: Centro Studi Galileo
Expert Trainer: Mr. Gianfranco Cattabriga*

September 3, 2018

09.00 - 13.00

UE regulations and standards
The path to international protocols and consequent HFC phase-out
Generals on HFC refrigerants, lubricants and alternative refrigerants
Real Alternatives and E-Learning features
DISCUSSION

14.00 - 18.00

Generals on fundamental of refrigeration
Cooling system and its main components
Good components selection
The relevance of vacuum, charge and monitoring
Generals on leak detection and maintenance
DISCUSSION

September 4, 2018

09.00 - 13.00

HC refrigerants, why ?
R290, R600 as next refrigerants replacing HCF fluids
HC properties and performance
DISCUSSION

14.00 - 18.00

Components and instruments for HC refrigerants
Safety standards, safety precautions
Tools and instruments for HC refrigerants
Vacuum, charge, recovery
Maintenance and troubleshooting
DISCUSSION

September 5, 2018

09.00 - 13.00

R744 a very old "innovative" refrigerant
The p-h chart and possible cooling cycles
The limits of cooling cycles
How are structured the different R744 circuits
DISCUSSION

14.00 - 18.00

The gas cooler
The restrictions for R744
Tools and instruments for R744
Vacuum, charge, recovery
Maintenance and troubleshooting
DISCUSSION

September 6, 2018

09.00 - 13.00

Ammonia as new refrigerants, why ?
Ammonia p-h chart
Safe standards
Safe handling of ammonia
Ammonia properties and performance
DISCUSSION

14.00 - 18.00

Ammonia cooling circuit, special requirements
Tools and instruments for ammonia
Vacuum, charge, recovery
Leak detection
Different sort of applications with ammonia
DISCUSSION

Theoretical assessment with distribution of concerning *Real Alternatives* certificate

Distribution of certificate of *Centro Studi Galileo* attendance

September 7, 2018

Visit to local brewery
Open discussion about brewery CO₂ plant