

SIDE EVENT
THE TRANSITION TO ALTERNATIVE TECHNOLOGY:
THE EUROPEAN EXPERIENCE

AREA Support in Training and Certification Implementation
The EU LIFE Programme for Alternative Refrigerant Training

Speaker:

Marco Buoni

**President AREA Air Conditioning and Refrigeration
European Association**



AREA



The indisputable voice of European RACHP contractors

- Funded in 1988 in Brussels, Belgium
- Represents RACHP contractors
- AREA in figures:
 - 26 national member associations
 - 23 countries from EU and beyond
 - > 13,000 companies (mainly SMEs)
 - +/- 110,000 work force
 - +/- € 23 bn annual turnover



Design, installation, maintenance and repair of all Refrigeration, Air Conditioning and Heat Pumps RACHP systems

Priorities

Where do we stand?

- Gaps following the EU increase in use of Alternative Refrigerants: **Training, Recovery and recycling, Retrofitting, Availability**
- **APP** on EN378
- **Guidelines** on pre-charged equipment, recycling, retrofitting

What are the challenges that need to be tackled?

- More Training: **Manuals, Real Alternatives**
- Certification: Should be **Mandatory** also for **Alternative Refrigerants**,
- **Illegal trade** Southern (Italy-Greece) and Eastern Europe (Poland), coming from Turkey, China
- Guidelines, Use the **right tools** and equipment, **no retrofitting** with flammables

Other regions in the world get inspiration from the F-Gas Regulation?

- **International cooperation in capacity buildings**, similarities in article 5 countries
- **UT-KAR (Universal Training Kit for Alternative Refrigerants)**
- **RDL (Refrigerant Driving Licence)**
- **Certification Schemes in line with F-gas regulation** (we are already working in Albania, Bahrain, Gambia, Kuwait, Tunisia, Turkey many more...)

What's next?

- **Common** training and certification schemes, for mutual recognition worldwide
- **Increase awareness** on good practices, recovery, safety
- Move globally to **Low GWP refrigerants**, keeping High **Energy Efficiency**
- **Safety and standards** (in particular for flammables) **EN13313, EN378 ...**



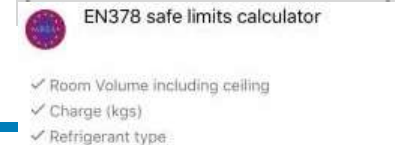
Technical Bulletin

Refrigerant Gas Recycling and the F-Gas Phase Down



1. DELIVERY OF TECHNICAL DOCUMENTATION

The objective of this technical bulletin is to provide information on the latest developments in the field of refrigerant gas recycling and the F-gas phase down. The bulletin is intended for all stakeholders in the industry, including manufacturers, distributors, and end-users. It provides a comprehensive overview of the current state of the market and the challenges facing the industry. The bulletin also provides a list of technical documents and standards that are relevant to the industry. The bulletin is available in both English and Chinese.



EN378 safe limits calculator

- ✓ Room Volume including ceiling
- ✓ Charge (kgs)
- ✓ Refrigerant type

Open Calculator

Available in 15 languages for 18 countries





Programme for the day:
1 Introduction to Real Alternatives
2 Background to the use of natural refrigerants
3 Flammable refrigerants – an introduction
4 Flammability and other safety hazards
5 Cylinders and cylinder handling
6 Working safely
7 Service procedures
8 Reducing leak potential
9 Application of flammable refrigerants
10 System design differences

The training provider course guide details the theory and practical topics included in a one day flammable refrigerants training session for technicians experienced in handling non flammable refrigerants such as HFCs and who have a good understanding of system operation.

Scope of the flammable refrigerants training includes:

- *Hydrocarbon (HC) refrigerants R290, R1270, R600a;*
- *HFC R32;*
- *HFO refrigerants R1234ze, R1234yf;*
- *HFO blends such as R454A.*

Comprehensive Training Equipment Specifications



- Personal protective equipment
- Electrically safe dry powder or CO₂ fire extinguisher
- Hydrocarbon gas leak monitor
- Extension lead so electrical equipment can be switched on / off outside the 3m safe area;
- A flammable refrigerant training and test system
- Suitable recovery machine and suitable recovery cylinder
- Flammable refrigerant cylinders with suitable cylinder adaptors
- Scales for weighing cylinders
- A2L ready vacuum pump if an A2L system is to be used
- Fixed leak detection and Ex rated ventilation
- Suitable flammable refrigerant leak detector.

- *The resources listed are **in addition to** standard tools and equipment such as gauge manifold set, pressure testing equipment, brazing equipment and hand tools that the training centre should already have.*

A Standardised Practical Assessment & Marking Criteria

- Task 1 Plan for work on a flammable refrigerant system
- Task 2 Prepare work area
- Task 3 Refrigerant Recovery
- Task 4 Component replacement
- Task 5 Pressure testing for strength and tightness, and evacuation
- Task 6 Charging
- Task 7 Completion
- Assessment Records

The assessment should be recorded on the record sheets provided. If an essential activity is not carried out correctly the assessment must be repeated. If a non essential activity is not carried out correctly the proper procedure should be discussed with the candidate.

The overall aim of the assessment is for the tasks to be completed safely, with minimum refrigerant emission and with minimum refrigerant and system contamination

Train the REAL Alternatives trainer programme



- REAL Alternatives 4 Life recently held its trainer study days as part of our Train the Trainer programme to extend knowledge on the use of alternative refrigerants in November/December at Prozon in Warsaw, Poland, IKKE in Duisburg Germany, ATF Casale Italy, K-HLIM Belgium. During two days delegates had the opportunity to experience carbon dioxide and hydrocarbons training - both theoretical and practical at well equipped Training Centres.
- **500 technicians worldwide have the Real Alternatives certificate after a practical and theoretical exam**



- Only available to those who passed assessments by a licensed training provider
 - Flammable refrigerant (HC, HFO & R32): theory and practice
 - Carbon Dioxide: theory and practice
 - Carbon Dioxide: theory only





Sign up for updates at the Project website (multilingual)

www.realalternatives4life.eu

Twitter @REAL_AIts_EU

REAL Alternatives
@REAL_AIts_EU

European project to develop blended learning resources for alternative refrigerants covering carbon dioxide, hydrocarbon, ammonia and HFOs

REAL Alternatives
BLENDED LEARNING FOR ALTERNATIVE REFRIGERANTS

Language: English (UK)

HOME ABOUT REAL ALTERNATIVES REGISTER FOR DOWNLOADS REGISTER FOR NEWS CONTACT US

Multilingual programme will cover 14 + languages

E-LEARNING
E-LIBRARY
FREE GUIDES
CPD
DUTCH
FRENCH
GERMAN
ITALIAN
POLISH
CROATIAN
CZECH
FINNISH
PORTUGUESE
ROMANIAN
SLOVAKIAN
SPANISH
TURKISH

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Tweets by @REAL_AIts_EU

REAL Alternatives Retweeted
hydrocarbons21.com @hydrocarbons21 @centrogalileo received a #Chinese delegation of 15 professors for a #training course on #efficiently refrigerants hydrocarbons21.com/articles/7773/

Embed View on Twitter

e-learning assessments training courses
trainer training certification alternative refrigerants

Co-funded by:

Training and certification worldwide



- Together with the UN implementing agencies UNEP, UNIDO, UNDP over the past few years AREA has been deeply involved in helping developing countries through **training RSS technicians** to install, repair, maintain and design RAC systems and **numerous Certification Sessions in Africa and Asia.**
- **Pics from top: Rwanda, Former Soviet Unit Rep, Benin, Gambia, and also Ghana, Tunisia, Eritrea, Montenegro, Saudi Arabia, Turkey... etc...).**



Assessing training centers in article 5 countries

- Gambia
- Rwanda
- Kuwait, Bahrain, Qatar
- Maldives
- Grenada (Caribbean) ...

→ Good equipment,

→ Propose a package, tools, training and certification (pushing for including in the legislation) to make it sustainable



Conclusions



- EU is doing the first step and it is a success even if with difficulties
- Warning on retrofitting with flammables – taking the short route
- Recovery and Recycling and Reclaiming is key
- Training and certification is Key
- Use the right tools
- EU is happy to assist article 5 countries and it is doing already

Thank You!

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