THE TRANSITION TO ALTERNATIVE TECHNOLOGY: THE EUROPEAN EXPERIENCE

Wednesday, 6 November 2019 | 8:00 - 10:00 | Iran room
The **Universal Training Kit** for Alternative Refrigerants: Transferring Knowledge through a Flexible Tool”

Ayman Eltalouny  
Coordinator International Partnerships – OzonAction, Law Division  
UN Environment Programme (UNE)
<table>
<thead>
<tr>
<th>A. Institutional (Public Sectors)</th>
<th>A. Technical (Private, Non-Governmental)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. NOUs (Environmental Authorities)</td>
<td>1. Servicing workshops, companies and technicians</td>
</tr>
<tr>
<td>2. Energy / Climate</td>
<td>2. Refrigerants’ importers, wholesalers and distributors</td>
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<td>3. Customs, Enforcement, Boarder controls</td>
<td>3. Training Institutes and Centers</td>
</tr>
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<td>4. Standardization Authorities</td>
<td>4. Engineers, plants/facility managers and operators</td>
</tr>
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<td>5. Industry Authorities</td>
<td>5. Consultants and consulting firms</td>
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<td>7. Research Institutes &amp; Universities</td>
<td>7. Research Institutes &amp; Universities</td>
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<td>8. Housing and Buildings Authorities</td>
<td>8. Engineering groups</td>
</tr>
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<td>10. Marine/Fisheries/Agriculture/Ports, Others</td>
<td></td>
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<td>11. Chambers of Trade and Industry</td>
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</tbody>
</table>

Support to Different Stakeholders At Local Level
Universal Training Kit
on Sound Management of Refrigerants
(In cooperation with AREA)

HFCs Outlook
Scenario Model for A5 countries
(In cooperation with EPEE)

National Certification Program
based on F0Gas Certification
(In cooperation with ATF)
Other Examples of Partnering

- **AHRI**: Refrigerant Driving License (RDL)
- **ASHRAE**: E-Learning, Award, Events, Guides and more
- **Global Food Cold Chain Council**: Model for Cold Chain Database
- **IIF**: Technology Awareness for Cold Chain Sectors
- **JRAIA**: Risk Assessment Model for flammable Refrigerants
AREA-UNEP
Universal Training Kit on Alternative Refrigerants
Design a specialized “Universal Training Kit on Alternative Refrigerants” for the use of training institutes and centres in developing countries with the aim of offering state-of-art information and knowledge on the best practices and techniques in managing and handling future, mainly flammable, refrigerants in sound and safe manners by different stakeholders of the RSS sectors.
Why we need the Universal Training Kit

- Montreal Protocol training programs lacks sustainability after projects end
- Refrigerants-focused Vs. Application-focused Training Programs
- Traditional training manuals; cumbersome exercise
- It’s not only ppt and background technical materials
- Accessibility and Flexibility to extract exact need
# Outline of the Kit

<table>
<thead>
<tr>
<th>Colours and Icons</th>
<th>#</th>
<th>Module</th>
<th>Duration (hrs)*</th>
<th>T/P</th>
<th>Master Trainers and technians</th>
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</thead>
<tbody>
<tr>
<td><strong>ORANGE</strong></td>
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<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>A</td>
<td></td>
<td>Environmental &amp; global policy background</td>
<td>1</td>
<td>T</td>
<td>x</td>
</tr>
<tr>
<td>B</td>
<td></td>
<td>Refrigerants Classification and Types</td>
<td>1</td>
<td>T</td>
<td>x</td>
</tr>
<tr>
<td>C</td>
<td></td>
<td>Lubricants for different refrigerant groups</td>
<td>1</td>
<td>T</td>
<td>x</td>
</tr>
<tr>
<td>D</td>
<td></td>
<td>Refrigerants selection for different applications</td>
<td>2</td>
<td>T</td>
<td>x</td>
</tr>
<tr>
<td>E</td>
<td></td>
<td>Identification, transport, storage and Safe handling of refrigerants and refrigerants containers</td>
<td>2</td>
<td>T/P</td>
<td>x</td>
</tr>
<tr>
<td>F</td>
<td></td>
<td>Best Practices for servicing with non flammable fluorinated refrigerants, Recovery, Brazing, Evacuation, Charging, Leak Checking</td>
<td>2</td>
<td>T/P</td>
<td>x</td>
</tr>
<tr>
<td>G</td>
<td></td>
<td>International and local policies, Standards and Codes</td>
<td>2</td>
<td>T</td>
<td>x</td>
</tr>
<tr>
<td>H</td>
<td></td>
<td>Labelling and Record Keeping</td>
<td>1</td>
<td>T</td>
<td>x</td>
</tr>
</tbody>
</table>

| **BLU**           |   | Hydrocarbons | | | | |
| R600a R290        |   | Use of R-290 in small applications air-conditioning | 15  | T/P | x |
| R600a R290        |   | Use of R-600a/R290 in small applications refrigeration | 15  | T/P | x |

| **GREEN**         |   | Low-GWP HFC/HFO | | | | |
| A                 |   | Use of Low-GWP HFC/HFOs in small applications air-conditioning | 15  | T/P | x |
| B                 |   | Use of Low-GWP HFC/HFOs in commercial air-conditioning | 15  | T/P | x |
| C                 |   | Use of Low-GWP HFC/HFOs in commercial/industrial refrigeration | 15 | T/P | x |
| D                 |   | Use of Low-GWPHFC/HFOs in transport refrigeration*** | 15 | T/P | x |

| **ORANGE**        |   | Maximizing Energy Efficiency in Servicing and Managing RAC Applications | | | |
| A                 |   | Maximizing Energy Efficiency in Managing RAC plants | 10 | T | |
| B                 |   | Maximizing Energy Efficiency in Servicing commercial air-conditioning | 5 | T/P | x |
| C                 |   | Maximizing Energy Efficiency in Servicing commercial refrigeration | 5 | T/P | x |

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SMALL MEDIUM Domestic/light Commercial Workshops

Commercial A/C (Large Service Companies and Workshop)

Commercial Refrigeration

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### Colours and Icons:
- **ORANGE**: Small/Medium Domestic/light Commercial Workshops
- **BLU**: Commercial A/C (Large Service Companies and Workshop)
- **GREEN**: Commercial Refrigeration

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### Module Details:
- **A**: Environmental & global policy background
- **B**: Refrigerants Classification and Types
- **C**: Lubricants for different refrigerant groups
- **D**: Refrigerants selection for different applications
- **E**: Identification, transport, storage and Safe handling of refrigerants and refrigerants containers
- **F**: Best Practices for servicing with non flammable fluorinated refrigerants, Recovery, Brazing, Evacuation, Charging, Leak Checking
- **G**: International and local policies, Standards and Codes
- **H**: Labelling and Record Keeping
- **A**: Use of R-290 in small applications air-conditioning
- **B**: Use of R-600a/R290 in small applications refrigeration
- **A**: Use of Low-GWP HFC/HFOs in small applications air-conditioning
- **B**: Use of Low-GWP HFC/HFOs in commercial air-conditioning
- **C**: Use of Low-GWP HFC/HFOs in commercial/industrial refrigeration
- **D**: Use of Low-GWPHFC/HFOs in transport refrigeration***
- **A**: Maximizing Energy Efficiency in Managing RAC plants
- **B**: Maximizing Energy Efficiency in Servicing commercial air-conditioning
- **C**: Maximizing Energy Efficiency in Servicing commercial refrigeration
What will be the format of the final materials

1. Pre-Assessment test (to be taken before the training start)
2. Post training assessment
3. Venue requirements for training (Equipment, Tools, Aids, Consumables, etc.)
4. Instructors minimum qualification
5. Guide for the instructor
6. Checklists and procedures to start and hold a training course
7. Supporting Syllabus, Textbook, Manuals, Tables, charts
8. PowerPoint presentations for instructors
9. Hand-out Material for the attendees
### Universal Training Kit; Documents Generating Matrix

<table>
<thead>
<tr>
<th>Area</th>
<th>Module</th>
<th>Duration</th>
<th>TP</th>
<th>Required documentation and documents’ codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yellow</td>
<td>A</td>
<td>Use of R-290 in small applications refrigeration</td>
<td>T/P</td>
<td>N</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>Use of R-600a/R220 in small applications refrigeration</td>
<td>T/P</td>
<td>N</td>
</tr>
</tbody>
</table>

### Select the courses you want to request *

- Master Train-the-Trainers for small A/C applications ([More](#))
- Master Train-the-Trainers for small Ref applications
- Master Train-the-Trainers for small applications
- Training of A/C servicing technicians on Sound management (with A3 refrigerants)
- Training of A/C servicing technicians on Sound management (with mildly A2L refrigerants & non-flammables)
- Training of A/C servicing technicians on Sound management (with A3 & A2L refrigerants)
- General Course on Refrigerant Management
- General Course on Refrigerant Knowledge (without hands-on)
- I would like to choose the modules individually and create a custom course
Universal Training Kit on Alternative Refrigerants

This product, developed in cooperation with AREA, is a specialised “Universal Training Kit on Alternative Refrigerants” for the use of training institutes and centres in developing countries with the aim of offering state-of-the-art information and knowledge on the best practices and techniques in managing and handling future, mainly flammable, refrigerants in sound and safe manners by different stakeholders of the RSS sectors.

Read more>>
Universal Training Kit on Alternative Refrigerants

About you / Choose the course

About you

Name *

Email *

Organisation/training school *  

Role *

Country

Auto suggest country names according to UN determination

Select the courses you want to request *

- Master Train-the-Trainers for small A/C applications (More)
- Master Train-the-Trainers for small Ref applications.
- Master Train-the-Trainers for small applications.
- Training of A/C servicing technicians on Sound management (with A3 refrigerants)
- Training of A/C servicing technicians on Sound management (with mildly A2L refrigerants & non-flammables)
- Training of A/C servicing technicians on Sound management (with A3 & A2L refrigerants)
- General Course on Refrigerant Management
- General Course on Refrigerant Knowledge (without hands-on)
- I would like to choose the modules individually and create a custom course

Next
About you / Choose the course

About you

Name *
Ayman

Email *
ayman.eltalouney@un.org

Organisation/training school *
OzonAction

Role *
Programme Officer

Country
Autosuggest country names according to UN denomination

Select the courses you want to request *

- Master Train-the-Trainees for small A/C applications (More)
- Master Train-the-Trainees for small Ref applications
- Master Train-the-Trainees for small applications
- Training of A/C servicing technicians on Sound management (with A3 refrigerants)
- Training of A/C servicing technicians on Sound management (with midly A2L refrigerants & non-flammables)
- Training of A/C servicing technicians on Sound management (with A3 & A2L refrigerants)
- General Course on Refrigerant Management
- General Course on Refrigerant Knowledge (without hands-on)
- I would like to choose the modules individually and create a custom course

Next
This will prompt automatic communication with the respective NOU to verify that the applicant represent a local accredited training institute and access to the Universal Training Kit can be granted.
AREA-UNEP
Universal Training Kit

Material Development (completed)
Review and Layout (end of 2019)
Platform Development (end of 2019)
Pilot Launching (Jan 2020)
Full Launch (April 2020)
Thank you