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INTERNATIONAL REFRIGERATION LEGISLATION IMPLEMENTATION IN ROMANIA

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Abstract: *These instructions are formulated for presenting the template used for editing the articles for the scientific journal Bulletin of the Transilvania University of Braşov. The material presents the camera ready form of the articles. The abstract should synthetically outline all the pertinent results, in a short but intelligible form. The abstract should begin through clearly stating the purpose of the paper and should end by formulating the most important conclusions. There will be used short, direct and complete sentences, written in a single paragraph, without "tab"-s. The abstract will have 7...10 lines.*

Key words: *3…5 significant key words.*

1. Introduction

The establishment of this Code of Practice (CGP) by Romanian General Association of Refrigeration- (AGFR) is part of the project implemented by UNIDO (The United Nation Industrial Development Organization): "The National CFC Phase-out (NCPP) of Romania" and one of the recognized actions required to reduce CFC demand in the servicing sector in Romania.

Sweden through Sida/SEI (Stockholm Environment Institute) assisted the Ministry of Environment (ME) in preparing the NCPP where all the remaining use of CFCs to be addressed is in the refrigeration and air-conditioning/servicing sector. The NCPP was developed in collaboration with UNIDO as the lead agency for the implementation of the NCPP. Also, UNIDO has previously assisted Romania in the implementation of a Refrigerant Management Plan (RMP).

Romania has ratified the Vienna Convention for the Preservation of Ozone Layer, the Montreal Protocol on ozone depleting substances and its Amendment adopted in London in 1993, followed by ratification of the Copenhagen and the Montreal Amendment in 2000 and 2001, respectively. The Beijing Amendment, including HCFC requirements, is currently under an approval process.

Romania is a high volume consuming country that has no remaining production of CFC and does not export any CFC. The CFC consumption, as defined under the Montreal Protocol, is therefore equal to its import.

The CFC consumption in Romania has decreased due to a number of activities in the manufacturing and servicing sector, as identified in the original Country Programe (CP), the Refrigerant Management Plan

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(RMP) but also due to the general economic situation in Romania in the period since the original CP was compiled in 1995. During this period the industry in Romania has been in a state of transition from state to private ownership. As a consequence, with an expected improvement of economic situation, fluctuations in CFC consumption could occur. For this reason the Government is concerned about potential growth in the consumption as the economy begins to stabilize and the activity in these sectors increases.

2. A Code of Good Practice

It was an important step in the phase-out program for Romania to establish a CoP. Adoption of the code it is also an important factor in establishing a workforce of an international standard and since it will support the introduction of standards and directives that are EU requirements.

In EU there is an ongoing process of harmonizing all member states technical standards and this includes significant areas of what is normally included in the CoP in each country. All member states will have to up-date their codes and standards to all "Harmonized standards". In the area of refrigeration air-conditioning the EN-378 part 1-4 play an important roll as well as the new directives on HFC.

Codes of Practice are usually drawn up by representatives from the trade and then supported or endorsed by the relevant government agency. A code of practice does not normally have a specific legal status, but will often clarify how general statements in legislation should be interpreted in specific situations.

Compliance with a CoP will often be used by end-users and consultants to specify a minimum standard for a project to avoid them having to cover all details in contracts.

A CoP usually covers areas where international and national standards do not give clear or detailed guidelines or where these are difficult to interpret for a technician in the field. The refrigeration and air-conditioning sector and specifically the installation and service sectors are areas where there is a need to establish a CoP to create "a level playing field" for technicians that offer services to equipment owners that often lack the skills required to evaluate technicalities. The CoP can be used as a reference by service providers to explain and justify why a certain procedure is done and discourage unfair competition from companies that are taking short-cuts.

The code of Good Practice is to be linked to the Romanian legislation and to provide for further details of the general legal requirements with respect to design and procedures for maintenance.

The development of the Code of Practice is a joint effort of the industries involved, working in close cooperation with the authorities. For this process a national consultant that initiate the work (AGFR), coordinate the input from the trade and is a channel to communicate with the Government.

3. Objectives

3.1 Long Term objective

The overall objective of the project implemented by UNIDO, was to assist the government of Romania in their work, by implementing the activities in the servicing sector as specified in the NCPP in order to reduce the CFC consumption as required in the National legislation and as a minimum under the Montreal Protocol, without the risk for illegal imports of CFCs.

3.2 Short Term objective

The project implemented by UNIDO, objectives were to:

- Develop and establish a Code of Practice in Romania for the refrigeration servicing sector jointly with the trade and relevant authorities as proposed in the NCPP. The CoP met the EU requirements on a national CoP and will include all refrigerants.
- Establish and maintain a Clearing House function for the discussions with the trade and for the administration of the CoP.

4. Expected project outputs

Following project implemented by UNIDO, outputs were expected:

- A Code of Practice for the refrigeration servicing sector accepted and agreed upon by the trade in Romania and relevant government authorities.
- A Clearing House for optimal contact with and involvement of the trade in the NCPP activities, including a web page for information dissemination.

5. Results

The Code of Practice (CoP) consistent with legal requirements and accepted industry/trade practice in Romania proposed legislative text to support the national CoP. Because in 842/2006 EU Regulation was written about the minimum requirements for the specialists and companies, on July 2007 was improved first draft of CoP with the prescriptions from Regulation 842/2006 article 5. The deadline to finalize the CoP was established with SEI and international consultant to be in 2009 when the minimum requirements of the 842/2006 EU Regulation, article 5, will be partly solved. This is written on Chapter 6 of CoP "Technician Training Programs".

For a better understanding it is presented below the table of Contents of this Code of Practice:

5.1. Ozone depletion overview, health and environmental effects, global problem.

This chapter follow Standards SR EN 378, SR ISO 5149/98, F-GAS regulations-REGULATION (EC) No 842/2006 and ASHRAE. Also were summarizes data for refrigerants and specifically those addressed in other sections. It consists in discussions about thermo physical (both thermodynamic and transport) properties as well as heat transfer, compatibility and safety data. The chapter also provides similar information for heat transfer fluids (sometimes referred to as "secondary refrigerants") for air-conditioning, heat pump and refrigeration systems.

5.2. Alternative refrigerants

Five important different refrigerant options for the vapor compression cycle (in addition to various non vapor compression methods):

- Ammonia (R-717);
- Hydrofluorocarbons (HFCs, HFC-blends with 400 and 500 number designation);
- Hydrocarbons and blends (HCs, e.g. HC-290, HC-600, HC-600a etc.);
- Carbon dioxide (CO2, R-744);
- Water (R-718).

None of the above mentioned refrigerants is perfect; all have both advantages and disadvantages that should be considered by governments, equipment manufacturers and equipment users.

Romania is an ammonia traditional user. Making analyze on Romanian refrigeration market during the last five years it can be conclude that most important application were ammonia was used, was food industry.

5.3. Refrigerant conservation

Refrigerant conservation as an effort to extend the life span of used refrigerant by establishing measures to **recover, recycle, and reuse refrigerants.**

5.4. Monitoring and record keeping

UE legislation to follow are SR EN 378/1-4, F-GAS regulations- REGULATION (EC) No 842/2006 and the main subjects presented in this chapter are: preventive inspection and maintenance (the regular preventive inspection and maintenance of larger refrigeration systems helps to ensure their reliability and continued efficiency).

5.5. Safety requirements

The air conditioning, refrigeration, ventilation, central monitoring and control installation shall comply with all regulations on safety aspects.
UE legislation to follow SR EN 378/1-4, F-GAS regulations- REGULATION (EC) No 842/2006.

Low- and high-pressure refrigerants need to be handled as compressed gases, and refrigerant containers are pressure vessels, which require particular safety considerations. Safety-related issues are also described in SREN 378 1-4, on handling and storage of refrigerants.

5.6. Technician training programs

A person who services refrigeration and air conditioning equipment shall successfully complete the training programmer and shall be awarded a confirming certificate.
Permission

In order to perform activities/perform maintenance, service, repair defined by the By - Law legal or natural person should obtain permission from the national authority**.**

UE legislation to follow SR EN 378/1-4, Article 5 REGULATION (EC) No 842/2006 with Regulations. 303, 307, 308/ 2008 so.

The EC established minimum requirements in respect of training and certification, and member states will set requirements on this basis.
Were organized different training levels.

5.7. Legislation, standardization

In Romania was implemented the environment, refrigeration and air-conditioning EU legislation with the recommendation of using natural refrigerants and first of all ammonia as a very eco-efficient alternative. There are presented the most important EU Regulations implemented in Romania.

- Environmental
  ODS Regulation (EC) No 2037
  F-Gas Regulation (EC) No 842/2006 (with Regulations 303, 307, 308/ 2008 so).
- Technical
  Machine Directive (MD)
  Low Voltage Directive (LVD)
  Electromagnetic compatibility (EMC)
  Pressure Equipment Directive (PED)
  Equipment used in potentially flammable environment (ATEX)
- Energy efficiency
- Energy Performance in buildings (EPBD); EN15240 Ventilation for buildings - Energy performance of buildings - Guidelines for inspection of air-conditioning systems.

In 2009 the activities include:

- A signing ceremony with the representatives from the WG, arranged in order to formalize the agreement between the authorities and the trade.
- New developments within EU in the refrigeration field, such as the F-gas and MAC directives.

Activities for the Clearing House: develop the web page (www.agfro.ro) for the dialogue with the trade and other interested stakeholders (the web page was established, for information activities, in December 2008).

6. Conclusions

The establishment of this Code of Good Practice (CGP) by Romanian General Association of Refrigeration- (AGFR) is part of the project implemented by UNIDO (The United Nation Industrial Development Organization): "The National CFC Phase-out (NCPP) of Romania" and one of the recognized actions required to reduce CFC demand in the servicing sector in Romania.

Some activities above were done with the assistance from an international refrigeration consultant (IC) within his contract with the Stockholm Environment Institute (SEI). Also, Sweden through Sida/SEI (Stockholm Environment Institute) assisted the Ministry of Environment (ME) in preparing the NCPP. Romanian General Association of Refrigeration- AGFR (NC) was responsible for requesting assistance of the IC and managing his time taking into consideration the limited time available by the IC for these activities. The NC (AGFR) worked in close collaboration with the MESD, suppliers/distributors, and representatives from the trade and other relevant government agencies.

The NC (AGFR) ensured that the work was made in close collaboration with the ME and that due consideration was made in particular with regard to the project to initiate infrastructure to reclaim refrigerants, the review of the legislation and other relevant legislation and the training program.

The Romanian CoP was presented and disseminated on national and international conferences.

Since Romania is a country "In transition" but also starting 2007 as a member of EU seeking to update its own legislation and to implement new European regulations. The Romanian Code of Good Practice will be used in conjunction with international legal instruments and national legislation related to all refrigerants and will be developed more in the next future and agreed upon by relevant representatives from the trade and relevant authorities.

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