ANNUAL MEETING OF THE REGIONAL OZONE NETWORK
FOR EUROPE & CENTRAL ASIA, YEREVAN, ARMENIA, 26-28 May 2015

Accident prevention and emergency preparedness – a matter of system design, training and rigorous application of good practices rather than refrigerant choice

MEDIA BRIEFING

The gradual phase-out of ozone layer depleting and global warming gases under the Montreal Protocol, such as hydrochlorofluorocarbons (HCFCs), and the increasing recognition of the significant contribution of fluorinated greenhouse gases, such as hydrofluorocabons (HFCs), to climate change, has been boosting the use of flammable, toxic and high-pressure alternatives which are ozone-layer and climate-friendly at the same time. Accident prevention and emergency preparedness is a pre-requisite to overcome the fears and barriers to the widespread introduction of these alternatives in developing economies.

During the annual meeting of the Regional Ozone Network for Europe & Central Asia (ECA network) in Yerevan, Armenia, 26-28 May 2015, international experts pointed out that accidents happen mainly because of lack of training, the poor design of refrigeration & air-conditioning systems, irresponsible company management or unprofessional behaviour of service technicians, often ignoring good practices, safety standards or retrofitting systems to flammable refrigerants which are not designed for that purpose. And they informed the meeting participants on how these challenges have been addressed in other countries.

Many accidents are not related to the choice of the refrigerant, and they happen because of risky behavior including a fall from height because of unsafe working practices. Often fires originate from faulty electrical systems rather than the refrigerant circuits. Explosions have occurred with refrigerants such as R22, R134a or R407C which are normally considered non-flammable. The reason is that at elevated pressure and temperature levels, the lower flammability limit can be reached if there is sufficient air in the system. Other accidents occurred because of counterfeit refrigerants containing methyl chloride (R40) which reacts with the aluminium in the compressor. A common reason for fire in air-conditioning systems is lack of proper maintenance and cleaning when dust is ignited by short circuits in the electrical components or damaged wires.

Incidents might become accidents because of wrong reactions such as pulling out electrical plugs in case of refrigerant leaks in the machine room. The machine room should only be accessible to qualified persons as specified in the standards, and not be used as a storage room or parking place for vehicles. The air quality in the machine room should be monitored through appropriate detection systems. Exhaust air and the air from the machine room should not be able to get in contact with the air-conditioning system.

The recent CSB safety video describes the key lessons for preventing hydraulic shock in ammonia refrigeration systems based on their investigation into the accident at Millard Refrigerated Services Inc. on August 23, 2010. Better emergency preparedness of the people working near the plant could have reduced the number of people affected e.g. they should have run to the side rather than in the same direction as the ammonia cloud was moving. During the accident, 32,000 pounds of anhydrous ammonia was released into the atmosphere, resulting in over thirty offsite workers being hospitalized – four in an intensive care unit (see www.youtube.com/watch?v=_icf-5uoZbc).

A key message is that legislation, standards and codes of good practices should not be questioned on the basis of accidents that happened because people ignored them. And as a word of caution, the media do not always tell the full story since important details concerning the causes of accidents are missing or unknown at the time of reporting. Priority should be given to appropriate training, the enforcement of relevant legislation, standards and codes of good practices, the safe design of refrigeration & air-conditioning systems as well as the promotion of a general safety culture. Safety should be part of the company policy from the top to the bottom and remain a management priority.

Other topics of the ECA network meeting focused on technology innovation in the refrigeration & air-conditioning sector, supermarket refrigeration, new refrigerants and blends, HCFC phase-out strategies in developing countries & countries with economies in transition (CEIT countries) and the Eurasian Customs Union, legislation & policy setting, vocational training & certification, highlights of selected international conferences, Montreal Protocol related decisions, policies & compliance issues and the future work programme & priorities of the ECA network.

The meeting was organized jointly by the Ministry of Nature Protection of Armenia and UNEP's OzonAction Programme in cooperation with UNDP Armenia. It was opened by his Excellency Mr. Aramais Grigorian, Minister of Nature Protection of Armenia and Mr. Bradley Busetto, UN Resident Coordinator & UNDP Resident Representative in Armenia. The 65 meeting participants included National Ozone Officers and refrigeration & air-conditioning (RAC) experts from some 20 countries from Europe & Central Asia (including CEIT countries), representatives of the secretariats, implementing agencies, international organizations, academia, private sector and bilateral partners.

Over 97% of the participants rated the meeting as excellent or good. The meeting documents are available from the ECA website: www.unep.org/ozonaction/ecanetwork/. Specific presentation can be provided upon request.

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