



***Report on the Status of Natural Refrigerants in
Kazakhstan***

Yuri Dubodelov

SAKADA Engineering

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Natural Refrigerants in Kazakhstan



- In past years, the food industry of Kazakhstan was based on large processors, for which ammonia systems served as the main source of cooling.
- Their design, installation, commissioning and service was conducted by state-owned companies.
- The last 20 years in Kazakhstan, as well as in the entire post-Soviet space, a privatization process took place with the result that all state-owned companies associated with the food industry passed into private hands.

Due to the market situation in that time large enterprises ceased to be valid and the new owners were forced to either

- a)** convert with a reduction in capacity or
- b)** simply reduce their installed capacity while maintaining their company profile.

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After the privatization, In many cases the new owners were faced with a number of problems, which were mainly the following:

- 1) Privatized enterprises were not required at the market, there was a need for a large amount of cold;
- 2) Privatized refrigeration companies (mostly ammonia) were morally and physically obsolete, which lead to a halt and almost to the total collapse of the ammonia refrigeration
- 3) Absence of new owners with sufficient own funds for conversion of companies or which could reduce their capacity by replacing equipment (no matter if ammonia or Freon). Moreover: lack of an effective system of credit.

Accordingly, it can be divided into 3 main stages of the reconstruction of post-privatization of enterprises.

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The main stages of the reconstruction of post-privatization companies:

- 1) Transfer of ownership with the appropriate valuation of assets and the withdrawal of the new masters that needed to restructure companies (conventionally 94 - the end of the 90s)
- 2) First reconstruction of the many inactive refrigeration companies. Own funds from new owners for the reconstruction were still missing as well as an effective system of credit (conditional mid 90s - 2005)
- 3) Stage of the beginning of real mass reconstruction of refrigeration companies (2005 – present time).

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We are really interested in Stage 3 – “the beginning of the real reconstruction of refrigeration household enterprises”

- Unfortunately, at the early stages of this phase, it took the path of replacing ammonia equipment by Freon (with rare exceptions)
- The prerequisites for such a replacement are reasons of the local market, such as:

1) Lack of market demand for cooling systems of high power

2) Easy to use Freon systems that do not require working in the field of engineering and therefore do not require highly qualified specialists.

Note: In Kazakhstan, there is still no single institution of higher education, which specifically teaches professionals in refrigeration. Young people who go to study in Russia (St. Petersburg and Astrakhan) do not return to Kazakhstan since they have to agree to work in Russia.

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- 3) Lack of state licensing for companies involved in the supply, installation, commissioning and servicing of Freon refrigeration. Result: Increasing number of companies engaged in relevant business (small and medium commercial cooling).
- 4) Rigid position of the *Ministry of Emergency Situations of the Republic* with respect to ammonia, which led, at the level of mayors, to by-laws that prohibit the use of ammonia in the urban systems.

Note: At the moment the situation is changing. This year, the *Ministry of Emergency Situations of Kazakhstan* abolished the Committee for Emergency Situations from the Ministry of Internal Affairs

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5) Weakness of the position of the *Ministry of Environment and Water Resources Ministry*, which aims to advocate natural refrigerants.

Note: At the moment the situation is changing. Ministry of Environment and Water Resources Ministry (Ministry of Environment) takes a proactive stance in this area.

6) Ratio of potential customers of refrigeration companies towards ammonia as a dangerous and harmful substance - in fact ignorance of potential users and / or lack of awareness about natural refrigerants, their benefits, and the present state of affairs in this area.

7) Lack of qualified personnel that service ammonia refrigeration machines (and Freon medium and high capacity). Currently, Kazakhstan has a catastrophic situation with refrigeration specialists. The average age of professional operators in the refrigeration sector is 60 years.

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8) Low salaries in the service of refrigeration facilities.

Average salaries in Kazakhstan:

Head of Refrigeration Department of any object (factory, plant, etc.) :

60 year old man, 35 years work experience - **600 € / month**

Refrigeration mechanic :

50 years, 25 years work experience - **400 € / month**

For example: the salary of the Secretary in the same enterprise is 500 € / month.

9) Lack of trained personnel to design, repair and service ammonia plants due to lack of specialized institutions for the industry. Including the lack of qualified personnel in the relevant system of licensing and expert bodies. Corresponding to the negative attitude of supervisors and legal institutions towards the use of ammonia.

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The situation with natural refrigerants changes, particularly with ammonia.

Kazakhstan on the influence of factors such as:

- Kyoto Protocol, which was signed by Kazakhstan in accordance with the Presidential Decree number 84 of 12 March 1999 *"On signing RK Kyoto Protocol to the United Nations Convention on Climate Change."*
- The signing of the March 26, 2009 Law *"On ratification of the Kyoto Protocol to the United Nations Convention on Climate Change."*
- Entering Kazakhstan in Annex B of the Kyoto Protocol.

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Treaties and Agreements signed by Kazakhstan:

- *President of Kazakhstan Law "On ratification of the Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer (Copenhagen, 23-25 November 1992)*
- *Amendments to the Montreal Protocol on Substances that Deplete the Ozone Layer (Montreal, 15-17 September 1997)*
- *Vienna Convention for the Protection of the Ozone Layer & Montreal Protocol on Substances that Deplete the Ozone Layer (1998)*

Entry into the *Customs Union of Kazakhstan* (and from 2015 to the Eurasian Economic Union). Effect: sector of food production was consolidated, more large applications for consumers.

The result was the National Allocation Plan for greenhouse gas emissions.

Excerpts from the National Allocation Plan for greenhouse gas emissions in 2013

The plan was approved by the Government Decree

- In KZ there is a National Plan for quotas for greenhouse gas emissions (CO₂, H₂O, CH₄, O₃). And the government talks in this Plan only about CO₂
- The Strategic Plan of Development of Kazakhstan till 2020, approved by the *Decree of the President of the February 1, 2010 № 922*, defined strategic objective to facilitate a global goal - to reduce greenhouse gas emissions
- In this case, the participation of Kazakhstan in addressing the problems of global warming seen in the context of the technological modernization of energy

A further aim is to promote energy conservation, policy management of natural resources with the objective of protecting the environment

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As a strategic objective planned reduction of energy intensity of gross domestic product by 2020 no less than 25%.

- March 26, 2009, Kazakhstan acceded to the Kyoto Protocol of the UN Framework Convention on Climate Change
- **Kyoto Protocol**
 - Kazakhstan participates as a country of Annex I, which include the industrialized countries as well as countries with economies in transition
 - Kazakhstan declared its voluntary commitment to reduce greenhouse gas emissions for the period up to 2050, which were announced at the seventh session of the Ad Hoc Working Group on Long-term Cooperative Action under the UN Framework Convention on Climate Change. Thus defined targets to reduce greenhouse gas emissions by 15% by 2020 relative to 1992, and by 25% relative to the 1992 - by 2050

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An overview of measures aimed at reducing greenhouse gas emissions and increasing their absorption

- The main instrument for the implementation of Kazakhstan's measures to reduce greenhouse gas emissions is a system of greenhouse gas emissions trading
- In accordance with the amendments to the *Environmental Code of the Republic of Kazakhstan dated December 3, 2011* the measures provide the establishment of internal mechanisms for a better commitment to reduce greenhouse gases according to the Kyoto Protocol

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Internal mechanisms to reduce greenhouse gas emissions include the following:

- Quotas for greenhouse gas emissions at the level of major natural resources and facilities engaged in such emissions
- The introduction of requirements for monitoring, reporting and verification of greenhouse gas emissions in relation to the operators of quota systems
- Creation of conditions for the implementation of internal projects to reduce greenhouse gas emissions and absorption of carbon dioxide
- Determine the basis for the trading of quotas and project units received from the sale of domestic projects in order to reduce greenhouse gas emissions and absorption of carbon dioxide

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Data on the total amount of quotas for greenhouse gas emissions in the Republic of Kazakhstan

- From 2008 to 2010: inventory of greenhouse gas emissions at the level of individual natural resources
- Only for 2010, all data for gas emissions from companies in KZ are available and reliable and tested by the government. Later data (on 2011, 2012,... 2014) are only approximate and not tested by the government
- A base line for determining quotas for greenhouse gas emissions of natural resources in 2013 is set at the level of carbon dioxide emissions in 2010
- According to the National Greenhouse Gas Inventory for 2010 total CO₂ emissions amounted to 262,718,260 tons
- This corresponds to approximately 56.4% of total national emissions of greenhouse gases, excluding acquisitions RK in CO₂ equivalent



Repayment of quotas for greenhouse gas emissions

- In accordance with paragraph 7 of Article 324 of the Environmental Code of the Republic of Kazakhstan, the first *National Allocation Plan for greenhouse gases* is approved for 2013
- Concerning natural resources the Ministry of the Environment offers these reports and information on the period until April 1, 2014:
 - report on the actual volume of emissions and removals of greenhouse gases in 2013
 - information about the acquisition and alienation of unit quotas received and transmitted as a result of the implementation of projects of carbon units

Accordingly, the system of greenhouse gas emissions trading in Kazakhstan came into effect on January 1, 2013.

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- In case of exceeding the quotas allocated for the year, businesses are required to repay the amount of the actual emissions of greenhouse gases
- Missing amount of quotas must be purchased on the stock exchange
- The total amount of allowances issued in 2013 amounted to 15,899,000 190 tons of CO₂, with the additional quota
- Emission quotas of more than 32,000 tons of greenhouse gases were sold on the first exchange trades that took place on March 28, 2013
- Four transactions have been committed with a total volume of 32,044 tons CO₂
- Price per ton of CO₂ quota units was \$ 2.05 on the date of the transaction

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Sectors of the economy with quotas for greenhouse gases

In accordance with paragraph 1 of Article 94-2 of the *Environmental Code of the Republic of Kazakhstan* measures to reduce greenhouse gas emissions through the quota will be implemented in the following industry sectors:

- 1) Energy
- 2) Oil and Gas
- 3) Mining and Metallurgy
- 4) Chemical industry
- 5) Transport
- 6) Agriculture

As we can see, the food industry is already on the list.



THANK YOU FOR YOUR ATTENTION !

SAKADA Engineering

off. 312, 103 Furmanov Str.

050000 Almaty – Kazakhstan

phone (727) 272 13 52

fax (727) 272 24 05

y.dubodelov@sakada.kz

YURIY DUBODELOV & SERGEY SEVOSTYANOV