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Food Science for Well-being

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The congress addressed the following topics:
FOOD EXPERTISE, SAFETY AND TECHNOLOGIES
- **Food Expertise and Safety**
- **Food Technologies**

ENERGY SYSTEMS FOR FOOD CHAIN
- **Energy Efficiency**
- **Machine Building for Food Chain**
- **Intelligent Control Systems**

NATURAL BIOACTIVE COMPOUNDS, FUNCTIONAL AND NATIONAL FOOD PRODUCTS, PACKING, STORING AND PROCESSING
- **Natural Bioactive Compounds, Functional and Local Food Products**
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- **Food Processing**

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Section 2. ENERGY SYSTEMS FOR FOOD CHAIN

Subsection 2A

Energy Efficiency

Vladimir KOGUT, Vladimir BUSHMANOV,
Iegor BUTOVSKYI, Mykhailo KHMELNIUK
hmel_m@ukr.net, vek.56@mail.ru, ariesoon@gmail.com
Odessa National Academy of Food Technologies, Odessa
UKRAINE

DEVELOPMENT OF EJECTION FILTER FOR CONDENSATION OF CANCEROGENES FROM SMOKE GASES

Development of the industry, and an increase in companies using boilers in the production processes the impact on the environment is growing rapidly. The problem of creating more efficient flue gas cleaning techniques is becoming increasingly important.

The greatest amount of harmful emissions into the atmosphere occurs at boiler ignition and during its transient modes. The composition of flue gas depends on the type of fuel or combustion modes; it may include thousands of different compounds.

Ignition of the boiler requires significant costs of time. During the ignition process increases the quantity of harmful emissions into the flue gases. Incomplete burning of fuel results on creation of a group of harmful substances called carcinogens. There are several hundred types of carcinogens, of which only a few dozen sufficiently investigated.

Flue gas composition can be easily predicted when high quality coal is used as a fuel in boilers. However, in Ukraine, it is planned to use mixtures of various quality grades of coal and fuel oil with other liquid fuels. In this case calculating the flue gas composition becomes problematic. Known methods are not suitable for treatment of carcinogenic tar.

Flue gases heading via line fall within the plenum, where they are accelerated and directed to the ejector. After subsequent acceleration in ejector filter confusor flue gases flow through the device for feeding liquid refrigerant from the storage tank liquid refrigerant is injected through a fine nozzle. The mixing and clashing streams of particles leads to a drastic reduction in the flue gases and their condensation temperature. After passing through the filter of the ejector diffuser flow enters the pipe, the flow velocity is reduced. Streams are separated in the receiver by changing the direction of flow. Condensed harmful fractions fall into the flue gas condensate collector and sent to the consumer. This method can be very useful in the currently existing conditions. And to ensure a significant reduction in air pollution pool areas close to industrial facilities using boilers.

KEY WORDS: *ejection filter, condensation, flue gases*