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ADSORPTION METHOD OF CO₂ EXTRACTION, USED FOR THE FURTHER DRY ICE PRODUCTION

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Many countries are facing with very important problem – the emission of carbon dioxide into the atmosphere, that is formed during the combustion of hydrocarbon raw materials. At the Belarusian National Technical University, a team led by A. P. Nesenчук for the first time was proposed to use an adsorption method for extracting CO₂ from flue gases using thermofluidized systems.

There is an economic opportunity to recycle the captured CO₂ into dry ice. Absorption technology for the extraction of pure carbon dioxide from the flue gases of boilers is the most widely used today, and the effective absorbent is – monoethanolamine (MEA). During research, it was found that the MEA is able to extract almost all of the CO₂ from flue gases. First, a solution of monoethanolamine should be heated with the addition of live steam. Then the vapors are cooled. Further there is a compression of pure carbon dioxide which passes into a liquid state. And with a gradual decrease in pressure, it passes from a liquid state to a solid state. A method based on the internal removal of heat during the throttling of liquid carbon dioxide with subsequent pressing of snow in special dry-ice presses has received practical application. The method of obtaining dry ice from flue gases has a very high environmental and economic value [1].

References

1. Хрусталеv, Б. М. Техническая термодинамика. Учебник для студентов вузов строительных и энергетических специальностей / Б. М. Хрусталеv, А. П. Несенчук, В. Н. Романюк. – Минск: УП «Технопринт», 2004. – Ч. 1. – 486 с.