

The characteristic's impact on environment of laminated product's plants

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Abstract – We developed an ecological estimation of the influence of production on the environment. The methods of cleaning of the polluted gaseous environment were analyzed as well as the technological 4-stage plan of cleaning the flue gas from the coal ashes and SO₂ was proposed.

Key words – ecology, lamination, gas environment, environment, flue gases, coal ash, SO₂.

I. Introduction

Healthy environment – a necessary condition for human existence. Excessive concentration of agriculture and industry has caused catastrophic pollution of air, water and soil. Modern scale environmental changes created a real threat to life and health of citizens of Ukraine. The rate of environmental degradation Ukraine has become such a scale that went beyond the speed of biological adaptation of living organisms to habitat. Objective medical evidence suggests growing impact of environmental factors on physical potential of our society.

Human security and state of the surrounding environment – one of the most important characteristics of quality of life, scientific, technological and economic development. The development of science and technology, due to the needs of the economy, increasing social and economic security of society, at the same time leads to safety to human health and the environment.

Exceeding the permissible anthropogenic load on the environment, maximum permissible concentration of harmful chemicals reduces the level of environmental safety. Dust worsen the ecological environment, causing premature wear industrial equipment and housing and communal services, harmful to health. In this regard lately all over the world are increasingly focused on the fight against dust release in various industrial processes. The problems of human impact on the natural environment Ukraine objectively required to develop new and more effective instruments to ensure the environmental safety of Ukraine.

II. Measures to reduce emissions of pollutants

The biggest impact in the production activity for the production of laminated products undergo atmosphere. Air pollution causes poisoning forests are particularly harmful sulfur and nitrogen oxides, which are emitted by boiler houses and traffic. For they alone cause a weakening of life trees and forming sulfuric and nitric acid they cause maximum damage, dropping to the ground acid rain. Seeping into the ground, they erode the root system and eventually leached nutrients such as calcium and potassium.

Wood - material that people in ancient times processes and uses for different purposes: production tools, housing, furniture, interior elements, etc. Etc. Wood is relevant, always fashionable, environmentally friendly, economical. In the wood industry employed a significant number of people, some of them – directly in the process of cutting and processing wood.

Often workers are systematically treated wood, especially in small private woodworking enterprises underestimate the degree of risk exposures. Research [1-5] show that a significant risk factor for employees woodworking companies are dust timber. Dust can cause a range of diseases depending on several factors.

To clean the flue gases from sulfur oxides used absorption and adsorption.

Absorption – a selective absorption of certain components of the liquid vapor gas mixture sinks. The chemical interaction component absorbed with absorbent absorption process called chemisorption.

Adsorption – the absorption component gas, steam or porous absorbent solid solution, i.e. separation process, characterized by the transition of a substance from a gas (vapor) or a liquid to a solid. Reversible process – desorption.

Spent combustion gases, after the step of removing impurities, adsorption to come clean installation of SO₂, flow chart of which is shown in fig. 2.1.

Before adsorption is necessary to cool the combustion gases to improve the process of absorption. The flue gases are fed into the space horizontal pipe and tube heat exchanger. Cooling by using recycled water.

Technology continuous purification of exhaust gases from sulfur dioxide involves the work of two absorber.

In the first adsorber serves flue gases, after cooling to a temperature <30°C. Before absorber in a line of exhaust flue gases injected ammonia, the interaction which is formed on the surface of the adsorbent ammonium sulfate. When saturated adsorbent sulfur oxides gas supply for the first unit stops and switches to another.

For the first adsorbent regeneration absorber is fed water that washes ammonium sulfate. After the final wash through the absorber layer blown air, heated in an electric air heater. A solution of ammonium sulfate is collected in containers and can be used as liquid fertilizer.

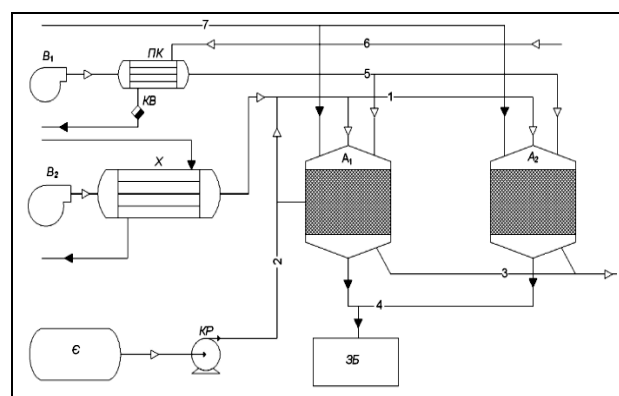


Fig. 2.1. Technological scheme of flue gas cleaning SO₂:
B1,2 – ventilator; A1,2 – adsorber; X – refrigerator;
ПК – steam heater; КВ – kondensatovidnyk;
С – container with ammonia; КР – compressor;
ЗБ – collection

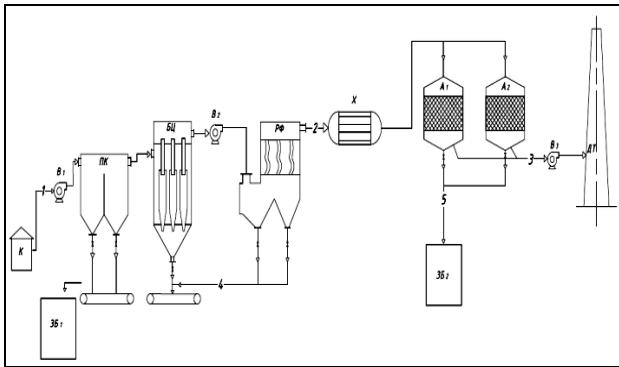


Fig. 2.2. Flowsheet cleaning of flue gases from coal ash and SO₂: K – boiler house, B1-3 – ventilator, ПК – pyloosadzhuvalna camera, БЦ – battery cyclone, PФ – bag filter, X – refrigerator, A1-2 – adsorber, ДТ – stack, ЗБ1-2 – collection.

The flue gases of coal ash particles out of the boiler room for further purification. Then fan fed into the pyloosadzhuvalnu camera, where the rough cleaning. The effectiveness of such cameras capture at coal ash does not exceed 70%. Further gas cleaning (particles up to 10 microns) is in the battery cyclone. Then served in the air bag filter for complete purification of coal ash size of 0.01 microns.

After solids removal stage flue gases are cooled in a heat exchanger and fed to the adsorption purification of SO₂. To ensure the continuity of the technological scheme provides two adsorbers.

Flue gases are emitted after the adsorber through the chimney into the atmosphere.

Conclusion

For decades, the impact of environmental pollution on the health of the population studied as an example of large industrial centers. However Lviv region is quite

industrialized and urbanized, with numerous sources of pollution harmful to human health factors.

Enterprise producing laminated products of their stationary sources of air emissions are pollutants, styrene, dioxins oxide, soot, sulfur dioxide (SO₂), coal ash, carbon monoxide, dust timber.

Since most company emits SO₂ and coal ash, it was suggested technological schemes purification of flue gas from these pollutants.

The introduction of such treatment facilities will reduce the negative impact on the atmosphere.

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