Velocity of moving of concentration front [4] on length spaces between membranes the electrodialyzer was determined. At the attitude of mobility of isotopes 1,01 (isotopes of easy alkaline elements) speed of movement of a zone [5] makes 4…8 sm/hr. Depending on current density, the interval 150-300 мА/см^2 is optimum.

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ANNIHILATION OF ELECTRON

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In 1932 A. Anderson discovered the first antiparticle - positron (e +) - a particle with a mass of an electron but with a positive electric charge. The existence of e + follows directly from the relativistic theory of the electron developed by Dirac (1928-31) before the discovery of the positron. In 1936 while studying cosmic rays American physicists K. Anderson and S.Neddermeyer found muons (having both signs of electric charge) - particles with a mass of about 200 electrons, but otherwise with remarkably similar to the e-, e + properties.

Positrons (positive electrons) in the matter cannot exist because they are annihilated when decelerating, connected to the negative electrons. In this process, which can be seen as the reverse process of pair production, the positive and negative electrons disappear, while the photons transfer their energy.

Annihilation of electron-positron pairs causes the emission of a γ-ray or few γ-rays. One-photon annihilation can occur only if the electron is associated with a third body (for instance, nucleus or electrons).

In the annihilation of electro-positron pair the laws of conservation of energy and momentum are observed. So, if the center of mass of the pair is fixed in the laboratory measurement system, both γ-quantums are emitted in opposite directions with the same energy k1c = k2c = m0c2 = 0.511 MeV. If the center of mass of the pair is movable, the angles between the directions of expansion of γ-rays will be different from 180 ^{o}, and the value is not equal to the energy of 0.511 MeV. Thus, the measurement of the angle θ or Doppler shift of the annihilation line ΔEγ allows to determine the momentum in e + e - pairs in the laboratory measurement system.

In case of 3γ-annihilation conservation laws do not give accurate result when calculating momentum and the energy γ-quantums. In the stationary state, all three γ-quantums are emitted in the same plane. Deviation angle scattering (at the agitated state) from this plane is approximately v / c. Unlike 2γ-annihilation γ-quantums arising from 3γ-annihilation have a continuous energy distribution from 0 to 0.511 MeV.

In 1934 to explain the spectra of some stellar nebulae I.H. Mokhorovichich postulated the possibility of bound states between the electron and positron. Associated two-particle system ($e^+ e^-$) was named "positronium" (Ps).

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PLASMA RECEIVING THERMAL ENERGY FROM SULPHATE LIGNIN

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Lignin is a component of the timber as produced in significant amounts in the processing of wood waste most difficult disposition [1]. According to the International Institute of lignin (International Lignin Institute) annually in the world produced about 70 million tones. Of technical lignin, but it is used for industrial, agricultural and other purposes not more than 2%. The rest is burned in power plants or are buried in the cemeteries [2].

Sulfate lignin (SFL) is formed on the pulp and paper mills chemical pulping of wood in quantities of 30 ÷ 35% of the raw material and has a fairly constant composition [3]: ash 1.0 ÷ 2.5%; acid based on sulfuric acid - 0.1-0.3%; water-soluble compounds - 9 ÷ 11%; resinous compounds 0.3 ÷ 0.4%; Klason lignin - 85%, and the sulfur weight content of which is 2.0 ÷ 2.5%, including unrelated – 0.4 ÷ 0.9%.

In this paper, the possibility and efficiency of production of heat energy in the process of plasma recycling SFL in air plasma in the form of optimal fuel water-organic compositions (WOC) to ensure its efficient and environmentally safe recycling.

The results of the calculations determined the optimal flammable wok with a maximum of SFL (SFL 30% : 70% water), which has Tad≈1200 ° C and the calorific value of 6.4 MJ/kg, allows to obtain at recycling 1 ton of waste to 1.8 MW (1.5 Gcal) thermal energy.

This was followed by calculations of equilibrium compositions of gaseous and condensed products SFL plasma utilization in air plasma in the form of optimal fuel WOC. Used for the calculation licensed program TERRA. Calculations were carried out at atmospheric pressure (0.1 MPa) in a wide temperature range (300 ÷ 4000) K and for various mass fractions of coolant air plasma (10 ÷ 95)%.

The results obtained can be recommended for practical implementation of the process under investigation following optimal modes:• the composition of the fuel of: (SFL 30% : 70% water); the weight ratio of the phases: (66% of the air : 34% WOC);• operating temperature range (1200 ± 100) °C.

Conducted research on this installation process plasma recycling SFL as dispersed combustible WOC confirmed the recommended mode for the process.

The results of these studies can be used to create industrial units for plasma recycling sulfate lignins and other combustible waste from the pulp and paper industry.

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