

CREATING QUASI-SPHERULES FROM MOLECULAR MATERIAL USING ELECTRIC FIELDS (INVERSE EGD EFFECT). T. Földi¹, R. Ezer², Sz. Bérczi³, Sz. Tóth³, ¹FOELDIX, H-1117 Budapest, Irinyi J. u. 36/b. Hungary, ²QUADRAX, H-1051 Budapest, Bajcsy-Zsilinszky út 12. Hungary, ³Eötvös University, Dept. G. Technology, H-1117 Budapest, Pázmány Péter s. 1/a. Hungary

ABSTRACT

We made spherules from gaseous phases, in isothermal conditions, using strong electrostatic fields. The electrostatic fields coagulated the spherulic components into larger mass agglomerates and these larger units were filtered by electrostatic selector. These agglomerated units have large active surface, and have closed volume. Larger quantities of these agglomerated units looks like a powder and behaves strongly similar to cosmic powders.

EXPERIMENTS

We carried out the experiments in a 2000 X 1000 X 250 millimeters space, on atmospheric pressure and laboratory temperatures. Two systems of electrodes were arranged in this space. One operated on + 15 kV and the other on - 15 kV potential. The electrodes were 800 mms long, their diameter was 10 mms. In a distance of 45 mm from each electrodes a 0.1 mm diameter special nickel wire was placed. The large electrodes with opposite potential were arranged in a comb like pattern as can be seen on figure 1. (The enlarged parts show how the nickel wires are placed by the larger electrodes.)

We used a power supply which can be varied between 8 kV to 15 kV potential. If the system is opened to the free air the air molecules begin to move through the instrument, because the air molecules along the alternating electrodes get constant velocity of 1 meter/secundum. If the instrument is in a columnal arrangement and open up and down, and on the bottom we place liquid stiroil, then the vapor of stiroil together with the air stream into the space of the instrument. Inside the vaporized large stiroil molecules polymerize to resin particles. Going through the alternating potential of electrodes these resin particles will coagulate. The coagulated particles have a form of spherules. The final mass of the coagulated particles (getting through on the 20 electrodes) is 540.000. times of that if the initial molecular mass.

DISCUSSION

The method we described produces a powder with characteristic size distribution. The diameters of the particles are in Gaussian distribution. The finally coagulated spherules spend a rather short time, between 1 and 2 seconds in the instrument. Instead of the constant velocity of rising the larger and larger coagulated particles stop moving at about 3/4 part of the column. There in an electrostatic drift they move to the

side walls to the zero potential surfaces and drop down, where they are collected. On the out-streaming surface no stiroil and no powder lefts the column.

The growth of ionised particles is determined by the gradients of chemical gradient and potential gradients. As a result of them particles with various diameters stuck each other. Because all parameters can be technologically controlled, the following conclusions can be given:

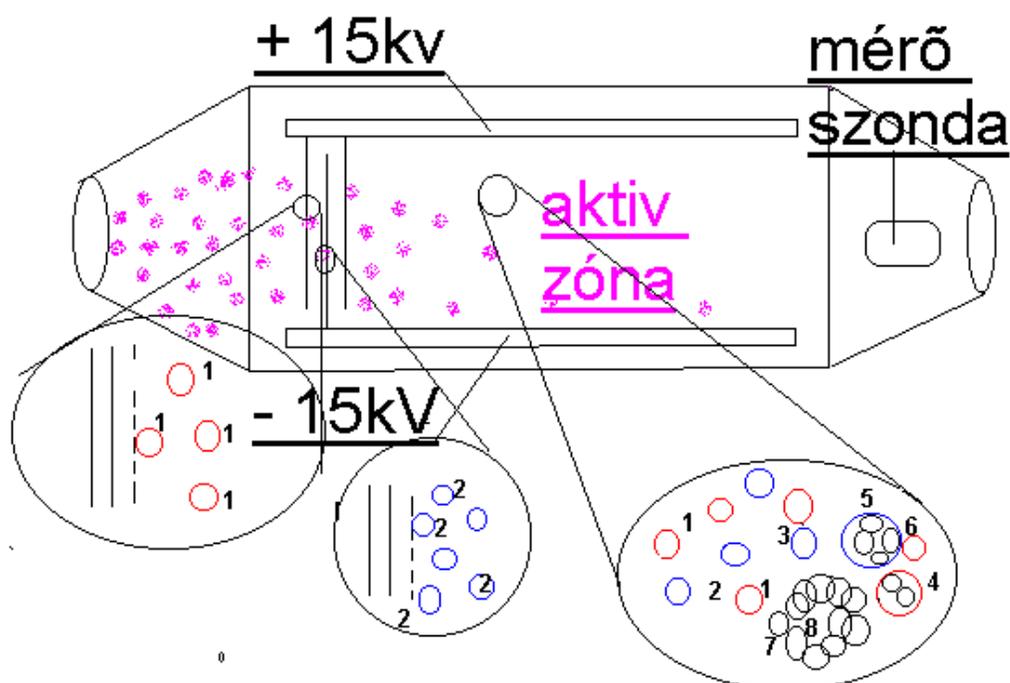
CONCLUSIONS

1. The effect of gravitation can be compensated by electrostatic fields during coagulation, even in terrestrial conditions.
2. Since the gas was held at constant temperature of 300 K the thermodynamic effects were negligible.
3. Since the pressure was constant: 1010 hPa, the gradient of pressure had no role in the trials.
4. The starting material of coagulation was vapor (molecular in the order of around 1 nm), the mass of the produced powder gained ca. 540.000 times of this initial mass.
5. We assume that condensation of powder particles, in space conditions, at constant low pressure and temperature and in variable (spatially) electrostatic fields, is also possible.
6. This method is also useful to separate noble gases if they are enclosed in the inner vesicles of the coagulated particles.
7. It is our suggestion that a hybrid result of the process, that materials in the coagulated inner space of particles may preserve some unknown cosmic materials (for example organic compounds with low binding energy).

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QUASY-SPHERULES MADE IN ELECTRIC FIELD: T. Földi, R. Ezer, Sz. Bérczi, Sz. Tóth



Instrument to model how we made cosmic powder

- 1 Molecules with positive charge
- 2 Molecules with negative charge
- 3 Neutral resin produced by collisions of opposite charged molecules
- 4 Resin with positive charge
- 5 Resin with negative charge, which once have been coagulated
- 6 The unification of resin molecule 5. and molecule 1.
- 7 Multiplicated (multiply coagulated) resin particles
- 8 Inside 7. resin molecules - in a closed space - information can be included