ON POSSIBILITY OF DIAMOND FORMATIONS IN RADIATION PROCESS.
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The possibility of diamonds formation in radiation process
was checked studying of diamond contents in carburanium sample.
The diamonds were not found and this result is discussed.

At present one of possible process of formation
nanometer-size diamond crystals in some meteorites and Earth's
diamonds (carbonado) is suggested the radiation mechanism: the
formation of diamonds from carbonaceous matter in tracks of U
fragment fissions and heavy fragmentation due to the action of
energetic particles of cosmic rays [1,2,3]. So Bjakov et.al. have
carried out the calculations and shown that volume of formed
diamonds in carbonaceous chondrites by radiation process
converge to discovered of diamonds volume in chondrites [1]. The
discover by Ozima et al. [3] the unsupported fission Xe and Kr in
carbonado supports the supposition that carbonado could be formed
by radiation process [2].

The possibility of diamonds formation in radiation process
can possible to check studying of diamond contents in Earth's
samples enriched by uranium and carbon. For this the purpose we
undertake the attempt to release the diamonds from carburanium.
The contents of uranium oxide and carbon in carburanium respecti-
vely are equal to ~5 wt.% and ~65 wt.% [4] and because the
carburanium is suitable the object for solution of this problem.

3.3g carburanium was used for experiment. The radiogenic age
of sample is equal to (1.7±0.2)·10^9 y. The quantity of diamonds
which were could be formed in sample by radiation process can
be calculated using above mentioned parameters. The volume (V) of
track high-temperature part from two fragments fission of one
uranium atom we take equal to 2·10^-15 cm^3 [1]. As note Bjakov et
al. [1] in this volume P,T-conditions correspond to those at for-
mation of diamonds. It was obtained the weight of diamonds in carburanium sample must to be ~150 mg. For isolation of diamonds from sample was used the stepped chemical treatment. This method is widely used for release of nanometer-sizes diamonds from chondrites and we also employ it for release diamonds from chondrites.

The carburanium sample was treated with mixture of HNO₃+HCl at T~20°C and ~80°C; with K₂Cr₂O₇ at T~80°C; with HClO₄ at ~140°C and ~220°C, and with 6N HCl at ~60°C. The white color acid-resistant residue (~1mg) was obtained on finish dissolve stage of sample. This residue not contain of diamonds that follows from X-ray structure analysis. Thus, we have not detected the diamonds in carburanium sample whereas according to calculation this sample should contains about 150 mg of diamonds formed by radiation mechanism. Therefore used by us at calculation of diamond contents in sample the value V and supposition that the diamonds is formed in each track of fragment U fission are not real. It's probably the product V·N, where N is quantity of fragments U fission forming the diamonds, must be at least 100 times less than used by us. This reference was made on the basis that we could be to release of diamonds, even if their contents in sample is about 1 mg. But in this case the calculated by Bjakov et al. [1] the quantity of diamonds formed by radiation mechanism in chondrites must also be decreased in ~100 times. It's led to inessential contribution of diamonds formed by radiation mechanism to total quantity of diamonds in chondrites.

Of course, it's impossible exclude that the efficiency of diamonds formation by radiation process in the carburanium can differ from those in another U-rich rocks and minerals and the more in meteorites. Because this study is would continue.