= 332 pm and c =
540 pm . The c / a ratio of 1 @.@ 63 is the ideal value , establishing a kinship between solid copernicium and the solid noble gases , though its cohesive energy (enthalpy of crystallization) should be on the order of that of mercury rather than be near the lower value of the noble gases .

= = Experimental atomic gas phase chemistry = =

Interest in copernicium 's chemistry was sparked by predictions that it would have the largest relativistic effects in the whole of period 7 and group 12 . Copernicium has the ground state electron configuration [Rn] 5f146d107s2 and thus should belong to group 12 of the periodic table , according to the Aufbau principle . As such , it should behave as the heavier homologue of mercury and form strong binary compounds with noble metals like gold . Experiments probing the reactivity of copernicium have focused on the adsorption of atoms of element 112 onto a gold surface held at varying temperatures , in order to calculate an adsorption enthalpy . Owing to relativistic stabilization of the 7s electrons , copernicium shows radon @-@ like properties . Experiments were performed with the simultaneous formation of mercury and radon radioisotopes , allowing a comparison of adsorption characteristics .
The first experiments were conducted using the 238U (48Ca , 3n) 283Cn reaction . Detection was by spontaneous fission of the claimed parent isotope with half @-@ life of 5 minutes . Analysis of the data indicated that copernicium was more volatile than mercury and had noble gas properties . However , the confusion regarding the synthesis of copernicium @-@ 283 has cast some doubt on these experimental results . Given this uncertainty , between April ? May 2006 at the JINR , a FLNR ? PSI team conducted experiments probing the synthesis of this isotope as a daughter in the nuclear reaction 242Pu (48Ca , 3n) 287Fl . In this experiment , two atoms of copernicium @-@ 283 were unambiguously identified and the adsorption properties indicated that copernicium is a more volatile homologue of mercury , due to formation of a weak metal @-@ metal bond with gold , placing it firmly in group 12 .
In April 2007 , this experiment was repeated and a further three atoms of copernicium @-@ 283 were positively identified . The adsorption property was confirmed and indicated that copernicium has adsorption properties completely in agreement with being the heaviest member of group 12 . These experiments also allowed the first experimental estimation of copernicium 's boiling point : 84 + 112
? 108 ° C.