

INTERNATIONAL UNION OF PURE AND APPLIED CHEMISTRY

INORGANIC CHEMISTRY DIVISION*

NAME AND SYMBOL OF THE ELEMENT WITH ATOMIC
NUMBER 112

IUPAC Provisional Recommendation

Prepared for publication by

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NAME AND SYMBOL OF THE ELEMENT WITH ATOMIC NUMBER 112

Abstract: A joint IUPAC/IUPAP Working Party (JWP) has confirmed the discovery of the element with atomic number 112. In accord with IUPAC procedures, the discoverers proposed a name, copernicium, and symbol, Cn, for the element. The Inorganic Chemistry Division recommended these proposals for acceptance and it was adopted by IUPAC by the Bureau on (date to be inserted) as delegated to act by the IUPAC Council meeting on 12 August 2007.

INTRODUCTION

In 2005 a joint working party of independent experts drawn from IUPAC and IUPAP was appointed by the Presidents of the Unions to determine priority of claims to the discovery of elements with atomic numbers greater than 111. This JWP considered literature and documentation submitted to it by June 30th 2007. Its consideration of these data was carried out in accordance with the criteria for the discovery of elements previously established by the 1992 IUPAC/IUPAP Transfermium Working Group [1 – 3] and reinforced in subsequent IUPAC/IUPAP JWP discussions. The group decided to report first [4] on the discovery of element with atomic number 112. Prior to its publication, this report was sent to each of the claimant laboratories to be checked for technical accuracy. It was also reviewed by the requisite number of independent expert referees and its findings were accepted by the Executive Committees of the two Unions and by the Division Committee of the IUPAC Division of Inorganic Chemistry (Division II). The JWP will issue its second report, dealing with claims for the discovery of elements with atomic numbers in the range 113 to 118, in the near future.

RECOMMENDATION

The 2009 JWP report concluded that the combination of the 1996 [5] and 2002[6] claims by the Hofmann *et al.* research collaborations for the discovery of the element with atomic number 112 at Gesellschaft für Schwerionenforschung (GSI) shares in the fulfilment of the prescribed criteria. Following the assignment and in accordance with the procedures established by IUPAC for the naming of elements [7] the discoverers at the Gesellschaft für Schwerionenforschung mbH (GSI) in Darmstadt, Germany were invited to propose a name and symbol for the element with atomic number 112. The discoverers proposed the name copernicium and the symbol Cn.

This proposal lies within the long tradition of naming elements to honour famous men of science. Nicolaus Copernicus was born on February 19th, 1473, in Torún, Poland and died on May 24th, 1543, in Frombork/Frauenburg. His work has been of exceptional influence on the philosophical and political thinking of mankind and on the rise of modern science based on experimental results. During his time as a canon of the Cathedral in Frauenburg, Copernicus spent many years developing a conclusive model for complex astronomical observations of the movements of the sun, moon, planets and stars. His work published as “De revolutionibus orbium coelestium, libri VI” in 1543 had very far reaching consequences. Indeed the Copernican model demanded major changes in the view of the world related to astronomy and physical forces and well as having

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3 theological and political consequences. The planetary system introduced by Copernicus
4 represents also other analogous systems governed by physical laws with a strong force in the
5 centre which is surrounded by smaller objects. On a microscopic scale this is the atom with its
6 nucleus and orbiting electrons. The Division Committee of the Inorganic Chemistry Division
7 has considered the proposal of the discoverers and recommends to the IUPAC Bureau and
8 Council that the name copernicium and the symbol Cn for the element with atomic number 112
9 be accepted. This recommendation effective on (date to be inserted) was approved by the
10 IUPAC Bureau acting on (date to be inserted) as authorized by the IUPAC Council meeting in
11 Torino in August 2007.
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17 *Note:* We note that an initial proposal by the discoverers that Cp be the symbol for copernicium was found not to be
18 acceptable principally because this symbol had earlier been used for element with atomic number 71 (lutetium)
19 which, prior to 1949, had cassiopeium as an alternative allowed name.
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