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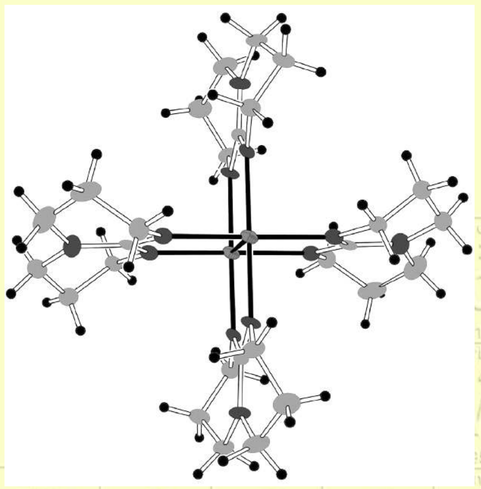
Notícies Inorgàniques

Any 2, Núm. 7, Gener de 2003

Arrencar electrons del "W=W", més fàcil que del cesi

A new class of molecules with extremely low ionization enthalpies has been reported [F.A. Cotton (Texas A&M University), J. Gu (Chinese Academy of Sciences), D.L. Lichtenberger (University of Arizona) and coworkers; *Science*, **298,** 1971 (2002)], one member of which has been determined to have a gas-phase ionization energy lower than that of the cesium atom.

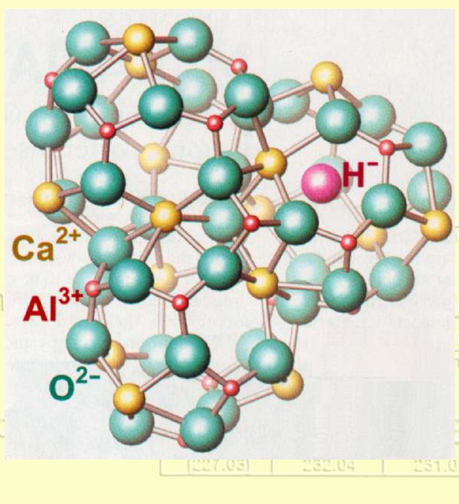
The molecules are dimetal complexes with the general formula $M_2(hpp)_4$ (where M is Cr, Mo, W and hpp is the anion of 1, 3, 4, 6, 7, 8-hexahydro-2H-pyrimido [1,2-a] pyrimidine). The low energy ionization corresponds to the removal of an electron from the delta bonding orbital of the quadruple metal-metal bond; the compound $W_2(hpp)_4$ has a lower ionization energy than the cesium atom.



La llum fa conductor un aïllant

Researchers in Japan have demostrated a simple procedure in which an insulating calcium-aluminium oxyde can be converted to a transparent electrical conductor by heating the material and then exposing it to UV light [H. Hosono (Tokyo Institute of Technology), K. Hayashi (Japan Science & Technology Corp.) and coworkers; *Nature*, **419,** 462 (2002)].

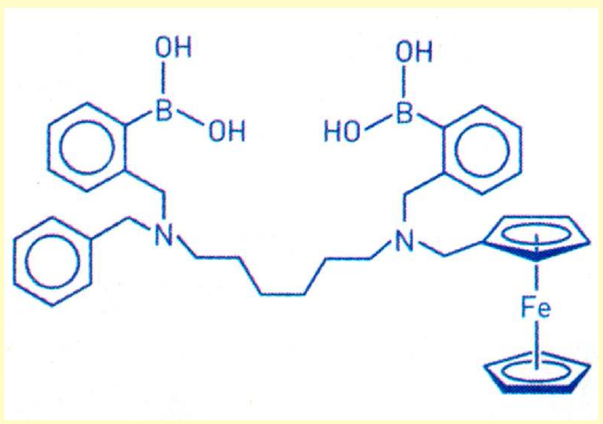
According to the research group, H^- ions are incorporated into angstrom-sized cages in $12\ CaO \cdot 7\ Al_2O_3$ by heating the compound in a mixture of hydrogen and nitrogen. Upon irradiation with UV light, the crystals change from colorless to yellow-green, and their conductivity jump to 0.3 S cm^{-1}.



Un organometàl·lic detecta el sucre a la sang

An improved electrochemical saccharide sensor can measure concentrations of D-glucose found in blood [*Chem. Commun.*, 2002, 2368]. The sensor, designed by T.D. James and coworkers at the University of Bath, consists of two boronic acid receptors, a hexose-selective hexamethylene linker unit and an electroactive ferrocene readout unit.

Current electrochemical saccharide sensors use enzymes that have limited shelf life, and their activity can vary beetween sensors.

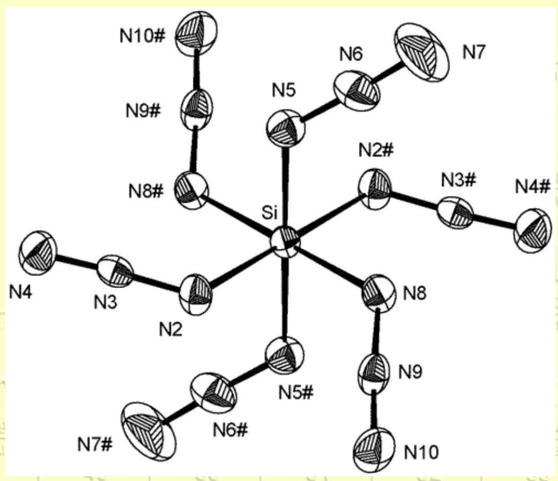


Explosiu segur i ecològic

Group 14 elements covalently bound to azide groups are a class of high energy compounds that can decompose explosively by losing N_2.

Alexander C. Filippou and coworkers at Humboldt University in Berlin now report the synthesis and characterization of the salt $[(Ph_3P)_2N]_2[Si(N_3)_6]$ [*J. Am. Chem. Soc.* **124**, 12396 (2002)].

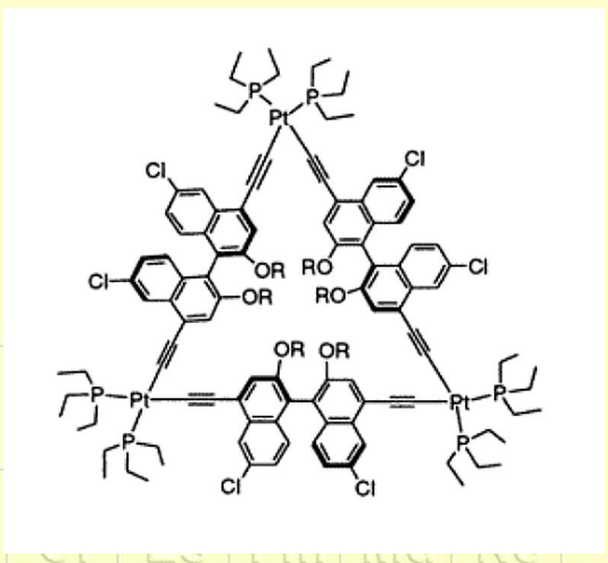
This compound could be used as a precursor for chemical vapor deposition of S-N phases or as a safer, enviromentally friendlier explosive or propellent.



Sistemes supramoleculars, nous catalitzadors quirals

A family of triangle-shaped organometallic molecules containing the chiral ligand BINOL (1,1'-bi-2-naphtol) have become the first supramolecular assemblies used for asymmetric catalysis [W. Lin and coworkers, University of Carolina; *J. Am. Chem. Soc.*, **124**, 12948 (2002)].

The researchers use a titanium (IV) complex of one of the triangles to carry out additions of diethylzinc to benzaldehyde to form chiral secondary alcohols in better than 95% yield and 90% enantiomeric purity.



Breus

- Fa quaranta anys que N. Bartlett va preparar el primer compost d'un gas noble, '$XePtF_6$'.
- Els cations de iode poden oxidar el metà, produint metanol [A. Pereira i col·laboradors, *Chem. Commun*. 2376 (2002)].
- L'or catalitza a baixes temperatures la formació del peròxid d'hidrogen a partir dels seus elements [P. Landon et al., *Chem. Commun.* 2058 (2002)].
- S'han atorgat per votació popular els premis als millors setis d'Internet relacionats amb la Química, en les categories de Cursos i eines en línia (Equip TORVS, http://www2.chemie.uni-erlangen.de/services/); Portals i centres d'informació (NIST Webbook, http://webbook.nist.gov) i Setis corporatius (Sigma-Aldrich, http://www.sigma.aldrich.com) [*Angew. Chem. Int. Ed.*, **41**, 20 (2002).

L'element número **7**, **nitrogen**, va ser descobert per Daniel Rutherford l'any 1772. El seu nom prové del grec *nitron genes*, que significa 'formador de nitre (KNO_3)'.