{{Chembox new

| ImageFile = Boron-trioxide-3D-balls.png

| ImageSize =

| IUPACName =

| OtherNames = [[氧化硼]]、[[三氧化二硼]]、[[boric oxide]]、[[boria]]、[[anhydric boric acid]]

| Section1 = {{Chembox Identifiers

| CASNo = 1303-86-2

| PubChem =

| SMILES =

}}

| Section2 = {{Chembox Properties

| Formula = B<sub>2</sub>O<sub>3</sub>

| MolarMass = 69.6182 g/mol

| Appearance = 白色、玻璃狀固體

| Density = 1.85 g/cm<sup>3</sup>, glass;<br/>

2.460 g/cm<sup>3</sup>, liquid;<br/>

2.55 g/cm<sup>3</sup>, trigonal;<br/>

3.11–3.146 g/cm<sup>3</sup>, monoclinic

| MeltingPt = 480 &deg;C

| BoilingPt = 1680 &deg;C

| Solubility = 2.2 g/100 g

}}

| Section3 = {{Chembox Hazards

| MainHazards =

| FlashPt =

| Autoignition =

}}

| Section4 = {{Chembox Related

| OtherCpds = B<sub>2</sub>O<sub>2.5</sub>;<br>B<sub>2</sub>O<sub>3</sub>·H<sub>2</sub>O (metaborite)

}}

}}

'''氧化硼'''是[[硼]]的[[氧化物]]之一。它外表為白色、玻璃狀固體，也被稱爲'''三氧化二硼'''，[[化學公式]]為B<sub>2</sub>O<sub>3</sub>。It is almost always found as the vitreous (amorphic) form; however, it can be crystallized after extensive [[annealing]]。它是所知的其中一種最難結晶的化合物。

玻璃狀的氧化硼（α-B<sub>2</sub>O<sub>3</sub>）is thought to be composed of boroxol rings which are six-membered rings composed of alternating 3-coordinate boron and 2-coordinate oxygen。這些環形成了一些BO<sub>3</sub>三角形，but mostly link (polymerize) into ribbons and sheets。(1,2) 晶體狀的氧化硼（B<sub>2</sub>O<sub>3</sub>）is exclusively composed of BO<sub>3</sub> triangles and is one-third as hard as quartz, 4 [[gigapascal|GPa]] [[Vickers hardness|Vickers]]. This trigonal, [[trapezohedron|quartz-like]] network undergoes a monoclinic, [[coesite]]-like transformation of BO<sub>4</sub> tetrahedra at several gigapascals and is 9.5 GPa (3).

==應用==

\*Fluxing agent for [[glass]] and [[vitreous enamel|enamels]]

\*Starting material for synthesizing other [[boron]] compounds such as [[boron carbide]]

\*An additive used in glass fibres ([[optical fibre]]s)

\*It is used in the production of [[borosilicate glass]]

==參見==

\*[[boron suboxide]]

\*[[硼酸]]

\*[[sassolite]]

==參考資料==

#Eckert, H. Prog. ''NMR Spectrosc.'', 24 (1992) 159-293.

#"Quantitative study of the short range order in B,O, and B,S, by MAS and two-dimensional triple-quantum MAS <sup>11</sup>B NMR". S.-J. Hwang, C. Femandez, J.P. Amoureux, J. Cho, S.W. Martin & M. Pruski. ''Solid State Nuclear Magnetic Resonance'' 8 (1997) 109-121.

#"[http://www.jetpletters.ac.ru/ps/47/article\_679.ps Structural transformations in liquid, crystalline and glassy B<sub>2</sub>O<sub>3</sub> under high pressure]". Institute for High Pressure Physics RAS and Japan Atomic Energy Research Institute. (2003).

==外部鏈接==

\*[http://www.npi.gov.au/database/substance-info/profiles/15.html National Pollutant Inventory: Boron and compounds]

\*[http://www.nohsc.gov.au/OHSInformation/Databases/ExposureStandards/az/Boron\_oxide.htm Australian Government information]

\*[http://toxnet.nlm.nih.gov/cgi-bin/sis/search/r?dbs+hsdb:@term+@rn+@rel+1303-86-2] US [[NIH]] hazard information

[[Category:硼化合物]]

[[Category:氧化物]]

[[Category:酸性氧化物]]

[[Category:無機化合物]]

[[Category:Glass types]]

[[cs:Oxid boritý]]

[[de:Bortrioxid]]

[[es:Óxido de boro]]

[[it:Anidride borica]]

[[vi:Ôxít bo]]