



>>Entry Name: Zirconium hydrides

Molecular Formula: [HZr]

Source/Synthesis: Most phases obt. by heating Zr and H₂ under varying conditions

Use/Importance: Reducing agents in metallurgical processes; several of the hydrides weaken Zr alloys in nuclear reactors

>>Variant: Zirconium hydride (ZrH), 11Cl

Synonym(s): γ-Zirconium hydride

CAS Registry Number: 13940-37-9

Molecular Formula: HZr

Molecular Weight: 92.232

Accurate Mass: 90.912528

Percentage Composition: H 1.09%; Zr 98.91%

Use/Importance: Used in self-igniting flares and in laser recording materials

>>Variant: Zirconium hydride (Zr₂H₃), 11Cl

Synonym(s): δ-Zirconium hydride

CAS Registry Number: 12501-24-5

Molecular Formula: H₃Zr₂

Molecular Weight: 185.472

Accurate Mass: 182.832881

Percentage Composition: H 1.63%; Zr 98.37%

>>Variant: Zirconium hydride (Zr₃H₅), 11Cl

Synonym(s): ε-Zirconium hydride

CAS Registry Number: 12260-58-1

Molecular Formula: H₅Zr₃

Molecular Weight: 278.711

Accurate Mass: 274.753234

Percentage Composition: H 1.81%; Zr 98.19%

>>Variant: Zirconium hydride (Zr₄H₇), 11Cl

CAS Registry Number: 12208-19-4

Molecular Formula: H₇Zr₄

Molecular Weight: 371.951

Accurate Mass: 366.673587

Percentage Composition: H 1.90%; Zr 98.10%

>>Variant: Zirconium hydride (ZrH₂)

Synonym(s): Zirconium dihydride

CAS Registry Number: 7704-99-6

Molecular Formula: H₂Zr

Molecular Weight: 93.24

Accurate Mass: 91.920353

Percentage Composition: H 2.16%; Zr 97.84%

Source/Synthesis: Manuf. by milling Zr powder in H₂ under pressure. Synths. include (i) reaction of Zr and H₂ at 20-100 atm. and 230-500°, (ii) dec. of ZrClH (iii) reaction of Zr₂Ni with hydrogen at 450-650°

Use/Importance: Hydrogenation catalyst; self igniter in propellants and pyrotechnics

Hazard & Toxicity: Manuf. has been associated with incidence of pneumoconiosis; Zr ignites in H₂ at 240°

Aldrich: 20855-8

Fluka: 96590