

Nitrides

Nitrides applications include wear resistance, insulating properties, diffusion masks, passivation layers, photoconductors cutting materials and hard coatings, high-temperature lubricant, insulators or wide bandgap semiconductors, Like some oxides, nitrides can absorb hydrogen and have been discussed in the context of hydrogen storage, e.g. lithium nitride.

Nitrides in general show promise of increasing electrical stability of diodes, transistors and integrated circuits.

MATERIAL	FORMULA	PURITY	TH. DENSITY, g/cm ³	LISTED MELTING POINT, °C	FAB. METHOD	SUGGESTED APPLICATIONS
Aluminum nitride	AlN	99.8	3.26	2300 d.	Hot-pressed	Nitrides in general show promise of increasing electrical stability
Boron nitride	BN	97.5 (1)	2.25	3000 d.	Hot-pressed	of diodes, transistors and integrated circuits.
Hafnium nitride	HfN	99.5	13.8	3310	Hot-pressed	Silicon nitride, in particular, provides excellent insulating properties
Niobium nitride	NbN	99.5	8.47	2300 d.	Hot-pressed	and deposits faster than silicon dioxide. It acts as a possible medium

Silicon nitride	Si ₃ N ₄	99.9(2)	3.18	>1900	Hot-pressed	and as a barrier to sodium diffusion.
Tantalum nitride	TaN	99.5	14.4	3090	Hot-pressed	Titanium nitride films increase the wear resistance and life of cutting tools.
Titanium nitride	TiN	99.5	5.43	2950	Hot-pressed	
Vanadium nitride	VN	99.5	6.10	2050 d.	Hot-pressed	Boron nitride films are used for dielectrics, diffusion masks,
Zirconium nitride	ZrN	99.5	7.37	2980	Hot-pressed	passivation layers, photoconductors, etc.
(1) About 2.5 moisture-resistant binder is used.						
(2) Small amounts of MgO are used for strength.						