IBED Titanium Nitride

Ion Beam Enhanced Deposited (IBED) Coatings
Beamalloy IBED coating technology allows deposition of precision high quality engineered hardcoatings on virtually any metal and metallic alloy surfaces. Operating at temperatures below 200° F, the process is highly controllable resulting in coatings with precise thickness and repeatable properties. Beamalloy IBED coatings are first formed in the subsurface region of the part to be coated and then grown out to a typical thickness of up to 6 microns. This tight metallurgical bond guarantees excellent coating adhesion and eliminates the possibility of chipping and flaking of the coating during tool operation.

Chemical Properties
Titanium nitride (CAS #25583-20-4) is a metallic nitride compound having a chemical formula of TiN. It is a solid material exhibiting a light metallic gold color and having no odor. In solid form as a thin coating it is non-volatile and non-flammable, and is insoluble in organic solvents. It is only slightly reactive with strong inorganic acids and will react with and dissolve in strong oxidizing agents (hydrogen peroxide and persulfates). It is hard (HKN 2800), highly resistant to abrasive wear and as such does not release wear debris. When deposited as a coating using the IBED process, titanium nitride is fully dense and void-free, and as such will not absorb or trap any powdered or liquid materials that it may come into contact with.

Health Effects
Titanium and titanium compounds including titanium nitride are considered to be physiologically inert. Titanium nitride is not listed as a carcinogen, and neither acute nor chronic exposure induces toxic effects.