Coatings explained

The TICN-B coating is typically a multi-layered coating that combines a base layer of titanium carbonitride (TiCN) with a top layer of boron nitride (BN). The TiCN layer provides hardness and resistance to wear, while the BN layer adds lubricity and reduces friction.

ITICN-B coating refers to a type of surface coating used in various industries, including manufacturing, engineering, and tooling. TICN stands for titanium carbonitride, which is a hard ceramic material known for its excellent wear resistance and toughness.

This coating is primarily used on cutting tools, such as drills, end mills, and inserts, to improve their performance and durability. It enhances the tool's ability to withstand high temperatures, reduce friction during cutting, and prolong tool life. The combination of hardness and lubricity provided by TICN-B coating helps in achieving better machining results, increased productivity, and reduced tool maintenance.

It's worth noting that specific variations and compositions of TICN-B coating may exist, as coating technologies continue to evolve. For accurate and detailed information on a particular TICN-B coating product, it's recommended to consult with coating manufacturers or suppliers who specialise in this area.

ALTiSiN coating is a type of surface coating commonly used in the manufacturing and cutting tool industries. ALTiSiN stands for Aluminium Titanium Silicon Nitride, which refers to the composition of the coating.
ALTiSiN coating is a multi-layered coating that combines aluminium (Al), titanium (Ti), silicon (Si), and nitrogen (N). The exact composition and layer structure may vary depending on the specific application and manufacturer.

This coating offers several beneficial properties, including:

1. Hardness: ALTiSiN coating is known for its high hardness, which contributes to improved wear resistance and extends tool life.
2. High-temperature resistance: The coating can withstand elevated temperatures encountered during cutting or machining processes, reducing thermal damage to the tool and enhancing its durability.
3. Oxidation resistance: ALTiSiN coating provides protection against oxidation, preventing the tool from deteriorating due to exposure to high temperatures and harsh environments.
4. Low coefficient of friction: The coating's low friction characteristics reduce the generation of heat during cutting, resulting in improved machining efficiency and reduced wear on the tool.
5. Smooth surface finish: ALTiSiN coating helps achieve a smooth surface finish on the workpiece, reducing friction and improving the quality of the machined part.

This type of coating is commonly applied to cutting tools such as end mills, drills, and inserts to enhance their performance and extend their lifespan. The specific thickness and layer structure of the coating can be optimised based on the application requirements.

It's important to note that the performance and characteristics of ALTiSiN coating can vary among different manufacturers and specific product variations.
For detailed information on a particular ALTiSiN coating product, it's recommended to consult with coating manufacturers or suppliers specialising in this area.

PVD typically stands for Physical Vapour Deposition, which is a coating process used to deposit thin films of various materials onto surfaces. PVD coatings can provide enhanced hardness, wear resistance, corrosion resistance, and other desirable properties.

ZrN coating refers to a type of surface coating known as Zirconium Nitride. ZrN is a thin film coating that is deposited onto various materials using a process called Physical Vapour Deposition (PVD). It is primarily used for enhancing the performance and durability of cutting tools, such as drills, end mills, and inserts.
ZrN coating offers several advantageous properties, including:

1. Hardness: ZrN is a hard material with excellent wear resistance. The coating helps protect the tool surface against abrasive wear, prolonging tool life.
2. Low friction: ZrN coating has a low coefficient of friction, which reduces the amount of heat generated during cutting or machining. This helps to improve the tool's efficiency and reduce wear.
3. Heat resistance: ZrN exhibits good thermal stability, allowing the coated tool to withstand high-temperature environments without losing its protective properties.
4. Oxidation resistance: ZrN coating provides a barrier against oxidation, preventing the tool from deteriorating due to exposure to air or high-temperature conditions.
5. Aesthetics: ZrN coating has an attractive golden or yellow colour, which can be visually appealing on cutting tools or decorative applications.

The ZrN coating is suitable for a range of materials, including stainless steel, cast iron, aluminium alloys, and titanium alloys. It finds application in industries such as aerospace, automotive, manufacturing, and precision engineering, where improved tool performance and extended tool life are desired.
It's important to note that the specific characteristics, performance, and thickness of ZrN coatings can vary depending on the manufacturing process and application requirements. Therefore, it is advisable to consult with coating manufacturers or suppliers to obtain precise information about a particular ZrN coating product and its suitability for your specific needs.

ALTiN coating refers to a type of surface coating commonly used in various industries, particularly in cutting tool applications. ALTiN stands for Aluminium Titanium Nitride, which represents the composition of the coating.
ALTiN coating is a thin film coating applied using the Physical Vapour Deposition (PVD) process. It consists of a combination of aluminium (Al), titanium (Ti), and nitrogen (N). The specific composition and layer structure may vary depending on the manufacturer and application.
The key features and benefits of ALTiN coating include:

1. Hardness and wear resistance: ALTiN coating significantly increases the hardness of the tool surface, enhancing its wear resistance and durability. It helps reduce friction and wear during cutting or machining operations.

2. Heat resistance: ALTiN-coated tools have excellent thermal stability, allowing them to withstand high-temperature environments encountered during machining processes. This property helps prevent tool degradation and prolongs tool life.
3. Oxidation resistance: ALTiN coating acts as a barrier against oxidation, protecting the tool surface from chemical reactions with oxygen and other elements present in the working environment.
4. Low friction: The coating's low coefficient of friction reduces heat generation and chip adhesion during cutting, resulting in improved performance and chip evacuation.
5. Versatility: ALTiN coating can be applied to a wide range of materials, including steels, stainless steels, cast iron, and non-ferrous alloys. It is suitable for various cutting operations, such as milling, drilling, and turning.

The application of ALTiN coating on cutting tools enhances their performance by extending tool life, improving surface finish, and increasing productivity. The coating's characteristics may vary among different manufacturers and specific variations, so it's advisable to consult with coating suppliers or manufacturers to obtain precise information regarding their ALTiN coating products and their suitability for specific applications.

S-TIN coating, also known as Super Titanium Nitride coating, is a type of surface coating used in the cutting tool industry. It is a proprietary coating developed by a specific manufacturer or supplier.
S-TIN coating is typically applied through the Physical Vapour Deposition (PVD) process, where a thin film of titanium nitride (TiN) is deposited onto the surface of cutting tools. The coating is designed to enhance the performance and durability of cutting tools by providing the following benefits:

1. Increased hardness: S-TIN coating significantly improves the hardness of the tool surface, enhancing wear resistance and extending tool life.
2. Enhanced lubricity: The coating's smooth surface and low coefficient of friction reduce friction and heat generation during cutting, resulting in improved chip evacuation and reduced tool wear.
3. Oxidation resistance: S-TIN coating acts as a barrier against oxidation, protecting the tool from chemical reactions with oxygen and other elements in the working environment.
4. Improved cutting performance: S-TIN coating reduces the tendency of materials to stick to the cutting edge, enhancing the tool's ability to maintain sharpness and cutting efficiency.
5. Versatility: S-TIN coating can be applied to a variety of cutting tool materials, such as high-speed steel, carbide, and cermet.

It's important to note that the specific characteristics and performance of S-TIN coating may vary among different manufacturers or suppliers. Therefore, it is advisable to consult with the specific manufacturer or supplier offering the S-TIN coating for detailed information on its composition, properties, and applications, as well as any unique features or benefits it may provide.

T2C plus is a proprietary specialised coating developed by Cruing.

T-DLC coating refers to Tetrahedral Amorphous Diamond-Like Carbon coating. It is a type of thin film coating that combines properties of both diamond and amorphous carbon. T-DLC coatings are typically applied using a technique called plasma-enhanced chemical vapour deposition (PECVD).

The key characteristics and benefits of T-DLC coatings include:

1. Hardness: T-DLC coatings exhibit exceptional hardness, approaching that of diamond. This hardness provides excellent resistance to wear, abrasion, and surface damage.
2. Low friction: T-DLC coatings have a low coefficient of friction, resulting in reduced friction and improved lubricity. This property leads to decreased energy consumption, reduced heat generation, and increased efficiency in sliding or rubbing contact applications.
3. Chemical resistance: T-DLC coatings offer good resistance to chemicals, acids, and corrosive substances. They help protect the underlying substrate from chemical attack and improve the material's durability in harsh environments.
4. Biocompatibility: T-DLC coatings are biocompatible, making them suitable for applications in the biomedical field, such as medical implants and devices. The coating's biocompatibility minimises the risk of adverse reactions when in contact with biological tissues.
5. Smooth surface finish: T-DLC coatings can provide a smooth surface finish, reducing surface roughness and enhancing the tribological properties of the coated component.

T-DLC coatings find applications in various industries, including automotive, aerospace, medical, and cutting tools. They are commonly used to improve the performance and lifespan of components subjected to wear, such as engine parts, cutting tools, moulds, and bearings.

It's important to note that the specific characteristics, performance, and deposition methods of T-DLC coatings may vary among different manufacturers or suppliers. Therefore, for detailed and precise information about a specific T-DLC coating product and its suitability for your application, it's recommended to consult with the coating manufacturer or supplier directly.

TiCN-GR coating refers to a type of surface coating that combines Titanium Carbonitride (TiCN) with Graphene (GR). It is a multi-layered coating designed to enhance the performance and properties of cutting tools, particularly in high-speed machining applications.

The TiCN layer provides hardness, wear resistance, and high-temperature stability. It improves the tool's ability to withstand abrasive wear, reduces friction, and increases tool life. TiCN is known for its excellent adhesion to the substrate and ability to withstand high cutting temperatures.

Graphene, on the other hand, is a two-dimensional carbon material with exceptional mechanical, thermal, and electrical properties. When integrated into the TiCN coating, Graphene can further enhance the coating's performance. Graphene offers benefits such as improved lubricity, reduced friction, and increased heat dissipation, which can lead to improved tool performance, reduced tool wear, and improved surface finish of the machined part.

The combination of TiCN and Graphene in the TiCN-GR coating aims to provide a balance between hardness, wear resistance, and reduced friction. This can result in extended tool life, improved cutting performance, and increased productivity in machining operations.

It's worth noting that the specific characteristics, deposition methods, and performance of TiCN-GR coatings may vary among different manufacturers or suppliers. Therefore, for precise information about a particular TiCN-GR coating product and its suitability for your application, it is recommended to consult with the coating manufacturer or supplier directly.

Diamond

Diamond coating, also known as diamond-like carbon (DLC) coating, is a type of surface coating that emulates some of the properties of natural diamond. It is applied using various techniques, such as chemical vapour deposition (CVD) or physical vapour deposition (PVD).

Diamond coating typically consists of amorphous carbon films with a high percentage of sp3-bonded carbon atoms, similar to the crystal structure of diamond. The coating offers several desirable characteristics:

1. Hardness: Diamond coating exhibits exceptional hardness, making it one of the hardest known materials. It provides excellent resistance to wear, abrasion, and surface damage.
2. Low friction: Diamond coating has a low coefficient of friction, resulting in reduced friction and improved lubricity. This property reduces energy consumption, minimises heat generation, and enhances the performance of moving parts.
3. Chemical resistance: Diamond coating offers good resistance to chemicals, acids, and corrosive substances. It helps protect the underlying substrate from chemical attack and enhances the material's durability in aggressive environments.
4. Biocompatibility: Diamond coatings are biocompatible and exhibit low tissue reactivity, making them suitable for biomedical applications. They are used in medical implants and devices, where biocompatibility is critical.
5. Electrical properties: Depending on the specific formulation and doping, diamond coatings can possess electrical conductivity or act as insulators, enabling applications in electronics and semiconductors.

Diamond coatings find applications in various industries, including automotive, aerospace, cutting tools, medical devices, and electronics. They are commonly used to improve the performance, durability, and lifespan of components subjected to wear, friction, or harsh environments.

It's important to note that while diamond coatings provide exceptional properties, they can be expensive to produce compared to other coatings. Additionally, the specific characteristics, deposition methods, and performance of diamond coatings may vary depending on the manufacturing process and application requirements. Therefore, for detailed information about a specific diamond coating product and its suitability for your application, it's recommended to consult with the coating manufacturer or supplier directly.

P NON-ALLOYED STEEL
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N ALLUNINIUM • ALLOYS •
COPPER BRASS • BRONZE
ALLUMINIO • LEGHE •
RAME OTTONE • BRONZO

O OTHER MATERIALS
ALTRI MATERIALI

S TITANS ALLOYS
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H COMPOSITE MATERIALS
CABON FIBRE • CFRP
MATERIALI COMPOSITI
FIBRA DI CABONIO • CFRP

M STAINLESS STEEL
ACCIAI INOSSIDABILI

K IRON • GRAY IRON
MALLEABLE IRON
GHISA • GHISA GRIGIA
GHISA MALLEABILE COST