

EnerMet™

TUNGSTEN POWDERS for ENERGY EXPLORATION



For nearly 70 years, Global Tungsten & Powders has been manufacturing tungsten powders in Northeast Pennsylvania. Throughout this time, GTP has developed processes and techniques to provide the highest quality tungsten powders available. GTP offers a wide range of tungsten products that help support the global search for energy. GTP manufactures tungsten powders used in wear protection (thermal spray powders), cutting and rock destruction (tungsten and tungsten carbide powders) and structural supports (shoulder, body and face powder). Additionally, GTP manufactures ammonium metatungstate (AMT) used in the petrochemical industry as a catalyst.



EnerMet™ tungsten powders produced by GTP offer a wide variety of products for the oil & gas industry:

Working closely with our customers, GTP strives to develop powders to meet the energy exploration needs of tomorrow. GTP creates tungsten powders for drilling applications that provide high purity and particle size uniformity required by manufacturers of tungsten products and cemented tungsten carbide in the petrochemical industry. Within our portfolio of tungsten powders, GTP will work with customers to develop specifications that meet their requirements for their individual demands.

GTP is one of the most diverse facilities in the world in regard to the variety of feed materials we are able to process. We have the capability to process numerous types of tungsten ore as well as secondary materials (scrap) to recover pure tungsten and remove unwanted impurities. Through our partnerships with tungsten mines across the globe, GTP maintains a vertically integrated supply chain. This flexibility allows us to provide you with cost advantages and security of supply.



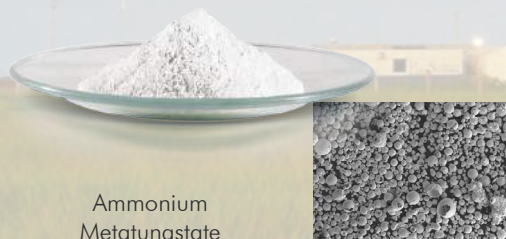
Tungsten
Powders

- GTP's Tungsten and Tungsten Carbide Powders for Drilling Applications – shoulder, body, and face powders – are designed to provide high purity and particle size uniformity required by manufacturers of fixed cutter bits used in the oil and gas industry.
- Powders for drill-bits can be engineered to varying degrees of agglomeration to meet energy industry requirements for easy infiltration and machining.
- Engineered tungsten powders produced by GTP and used in shaped charges are manufactured to meet the needs of the petrochemical industry.



Grade
Powders

- GTP tungsten carbide grade powders are free-flowing formulations, ready-to-use as starting materials in the manufacture of mud nozzles, cutting inserts, and substrates for PDC cutters in the petrochemical industry.
- Since the 1970's our engineering staff has worked with our customers to customize hundreds of grade powders conforming to their specific needs.



Ammonium
Metatungstate

- GTP AMT is a source of high-purity, water-soluble tungsten which is essentially free of alkali and other metallic impurities.
- AMT is mainly used in the production of tungsten catalysts for a variety of reactions used by the petrochemical industry



Thermal Spray
Powders

- GTP thermal spray powders are used by spray shops and original equipment manufacturers in the petrochemical industry for hard facing materials.
- Typical thermal spray powders used in the petrochemical industry are tungsten-carbide based such as SX178, SX427, SX477 and SX480 as well as chromium-carbide based powders like SX195 and SX199.

GTP serves the energy exploration market by producing its line of EnerMet™ tungsten powders that are used in the manufacture of drill bits and shaped charges, both of which are business segments within the petrochemical industry as they are used in the development of oil and gas wells.

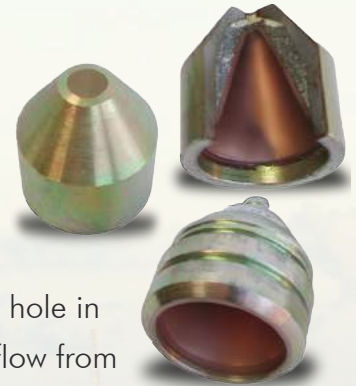
Drill Bit Manufacturing

GTP's tungsten metal powders, tungsten carbide powders, and ready-to-press grade powders are used in the manufacture of drill bits for the petrochemical industry. Our powders are used in both three-cone and fixed cutter bits. Specific applications include mud nozzles, cutting inserts, PDC bit bodies, PDC cutter substrates, and hard facings. The type of powder used varies depending on the application of the bit to which it is applied.



Shaped Charges in Energy Exploration

GTP's tungsten metal powders are used by manufacturers worldwide to create shaped charges – explosive devices used in the development of oil and natural gas wells. Our powders are blended with other additives and pressed into a cone shaped liner. The liners are loaded with an explosive into a gun assembly, sent down into the well hole and detonated from the surface. A jet is formed that penetrates the steel casing, cement, and rock formation. The explosion creates a hole in the casing and breaks up the rock layer, which creates a path for gas and oil to flow from the rock formation into the well.



Catalysts in the Petrochemical Industry

GTP's ammonium metatungstate (AMT) is used as a catalyst in the petrochemical industry, having been used as catalysts in treating crude oil for many decades. Our AMT is used as a DeNO_x catalyst for the treatment of exhaust gases for the reduction of nitrogen oxide emissions, which are produced by fuel combustion. There are several other reactions that utilize the catalytic properties of AMT, such as hydrocracking and reforming. Hydrocracking catalysts convert heavy feedstocks to lighter, more valuable products. Reforming catalysts convert natural gas to hydrogen.



Packaging

Tungsten and Tungsten Carbide Powders for Drilling: Material is packaged in aluminized bags inside 3 ½ gallon (13.2 liter) steel pails containing 50 pounds (22.68 kg). Alternative packaging and quantities can be discussed as required.

Standard Tungsten Powders: Each lot is packaged in plastic bags inside of metal pails at 50 kilograms per pail. Alternative packaging and quantities are available.

Tungsten Carbide Grade Powders: Each lot is packaged in plastic bags inside of plastic pails at 30 kilograms per pail.

AMT: Standard packaging is 250 pounds (113 kilograms) of AMT in polyethylene bags inside 24 gallons (91 liter) leverpack drums.

Thermal Spray Powders: Material is packed in sealed, moisture proof containers to prevent contamination or loss during shipment. Material to be packaged 25 kg maximum per 13.25 liter pail. Customized packaging options can be discussed upon request.



Customization

GTP can customize powders to specific applications. We will work with our customers to develop a qualified powder through a specification and sampling process which can be discussed at time of inquiry.

Ordering

For additional powder order information, please contact GTP.

Certification

A certificate of analysis is provided for each lot and shipment



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History of Global Tungsten & Powders:

Global Tungsten & Powders began manufacturing tungsten products nearly 70 years ago. In addition to tungsten based powders and products, GTP produces molybdenum, cobalt, and tantalum powders. Powders manufactured by GTP are used in metal working tools for cutting, rolling and stamping; drill bits for energy exploration; high temperature jet engine components and protective coatings; circuit manufacturing chemicals for microelectronics; catalysts for petrochemical processing.