



zenyatta



# Powder Metallurgy

**Graphite's Role in the Powder Metallurgy  
(‘PM’) Market**

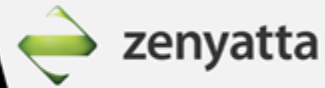
# Forward Looking Statement

## Cautionary Note Regarding Forward-Looking Information

This presentation contains "forward-looking information" within the meaning of applicable Canadian securities legislation and United States federal securities laws. Forward-looking statements include, but are not limited to, estimates and statements with respect to Zenyatta's future exploration and development plans, objectives or goals, to the effect that Zenyatta or management expects a stated condition or result to occur, including the expected timing for release of sample analyses and a resource estimate, the expected uses for graphite in the future, and the future uses of the graphite from Zenyatta's Albany deposit, the adequacy of Zenyatta's financial resources, business plans and strategy, and other events or conditions that may occur in the future. Generally, forward-looking information can be identified by the use of forward-looking terminology such as "plans", "expects", or "does not expect", "is expected", "budget", "scheduled", "estimates", "forecasts", "intends", "anticipates", or "does not anticipate", or "believes" or variations of such words and phrases or state that certain actions, events or results "may", "could", "would", "might", or "will be taken", "occur", or "be achieved". The following table outlines certain significant forward-looking information contained on this website provides the material assumptions used to develop such forward-looking statements and material risk factors that could cause actual results to differ materially from the forward looking statements.

Forward-looking information	Assumptions	Risk factors
<b>Zenyatta's properties may contain economic deposits of graphite and/or other metals</b>	Financing will be available for future exploration and development of Zenyatta's properties; the actual results of Zenyatta's exploration and development activities will be favourable; operating, exploration and development costs will not exceed Zenyatta's expectations; the Company will be able to retain and attract skilled staff; all requisite regulatory and governmental approvals for exploration projects and other operations will be received on a timely basis upon terms acceptable to Zenyatta, and applicable political and economic conditions are favourable to Zenyatta; the price of graphite and/or other applicable metals and applicable interest and exchange rates will be favourable to Zenyatta; no title disputes exist with respect to its properties	Graphite price volatility; uncertainties involved in interpreting geological data and confirming title to acquired properties; the possibility that future exploration & processing results will not be consistent with Zenyatta's expectations; availability of financing for and actual results of Zenyatta's exploration and development activities; increases in costs, environmental compliance and changes in environmental and other local legislation and regulation; interest rate and exchange rate fluctuations; changes in economic and political conditions; Zenyatta's ability to retain and attract skilled staff
<b>Zenyatta will be able to carry out anticipated business plans, including costs and timing for future exploration on its property interests</b>	Zenyatta's exploration activities, and the costs associated therewith, will be consistent with Zenyatta's current expectations; debt and equity markets, exchange and interest rates and other applicable economic conditions are favourable to Zenyatta; Financing will be available for Zenyatta's exploration and development activities and the results thereof will be favourable; the Company will be able to retain and attract skilled staff; all applicable regulatory and governmental approvals for exploration projects and other operations will be received on a timely basis upon terms acceptable to Zenyatta; Zenyatta will not be adversely affected by market competition; the price of graphite and/or other applicable metals will be favourable to Zenyatta; no title disputes exist with respect to Zenyatta's properties	Graphite price volatility; changes in debt and equity markets; timing and availability of external financing on acceptable terms; the uncertainties involved in interpreting geological data and confirming title to acquired properties; the possibility that future exploration & processing results will not be consistent with Zenyatta's expectations; increases in costs, environmental compliance and changes in environmental and other local legislation and regulation; interest rate and exchange rate fluctuations; changes in economic and political conditions; Zenyatta may be unable to retain and attract skilled staff; receipt of applicable permits
<b>Management's outlook regarding future trends</b>	Financing will be available for Zenyatta's exploration and operating activities; global demand for the use and application of graphite will increase; the price of graphite and/or other applicable metals will be favourable to Zenyatta;	Graphite price volatility; changes in debt and equity markets; interest rate and exchange rate fluctuations; changes in economic and political conditions

# Forward Looking Statement



Statements relating to “reserves” or “resources” in this Presentation are deemed to be forward-looking statements, as they involve the implied assessment, based on certain estimates and assumptions that the resources and reserves described can be profitably produced in the future. Inherent in forward-looking statements are risks, uncertainties and other factors beyond Zenyatta’s ability to predict or control. Readers are cautioned that the above chart does not contain an exhaustive list of the factors or assumptions that may affect the forward-looking statements, and that the assumptions underlying such statements may prove to be incorrect. Actual results and developments are likely to differ, and may differ materially, from those expressed or implied by the forward-looking statements contained in this Presentation. Forward-looking statements involve known and unknown risks, uncertainties and other factors that may cause Zenyatta’s actual results, performance or achievements to be materially different from any of its future results, performance or achievements expressed or implied by forward-looking statements. All forward-looking statements herein are qualified by this cautionary statement. Zenyatta disclaims any intention or obligation to withdraw, update or revise any forward-looking statements whether as a result of new information, future events or otherwise, except to the extent required by applicable laws. If the Zenyatta does update one or more forward-looking statements, no inference should be drawn that it will make additional updates with respect to those or other forward-looking statements, unless required by law. An additional cautionary note to readers - no part of this Zenyatta presentation is intended to be deemed as an offering of its securities to investors outside of Canada or is to be relied on by residents of the United States of America or other jurisdictions outside of Canada. Certain terms such as “resource”, “measured resource”, “indicated resource” and “inferred resource” are recognized under Canadian securities laws, however, the United States Securities and Exchange Commission may not recognize such terms. All maps, information, data, diagrams etc. obtained from internet are believed to be reasonably accurate but can not be guaranteed.

## Cautionary Note Regarding Mineral Reserve and Resource Estimates

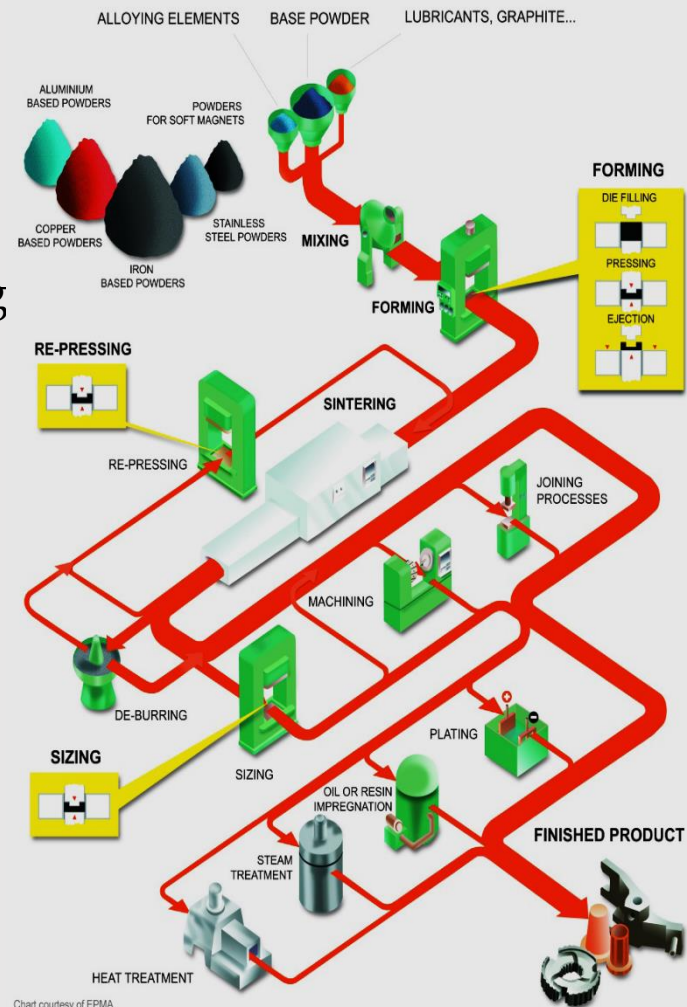
See “Technical Report on the Albany Graphite Deposit, Northern Ontario, Canada”, authored by David Ross, P.Geo., and Katharine M. Masun, P.Geo., of Roscoe Postle Associates Inc., who are independent “qualified persons” as defined by National Instrument 43-101. The Technical Report was issued on January 16, 2014 and may be found under the Company’s profile on SEDAR at [www.sedar.com](http://www.sedar.com) and at [www.zenyatta.ca](http://www.zenyatta.ca). This presentation has been prepared in accordance with the requirements of Canadian securities laws in effect in Canada, which differ from the requirements of United States securities laws. Unless otherwise indicated, all mineral resource and reserve estimates included in this presentation have been prepared in accordance with NI 43-101 and the Canadian Institute of Mining and Metallurgy Classification System. NI 43-101 is a rule developed by the Canadian securities regulatory authorities that establishes standards for all public disclosure an issuer makes of scientific and technical information concerning mineral projects. Canadian standards, including NI 43-101, differ significantly from the requirements of the U.S. Securities and Exchange Commission (the “SEC”), and resource and reserve information contained herein may not be comparable to similar information disclosed by U.S. companies. In particular, and without limiting the generality of the foregoing, the term “resource” does not equate to the term “reserves.” Under U.S. standards, mineralization may not be classified as a “reserve” unless the determination has been made that the mineralization could be economically and legally produced or extracted at the time the reserve determination is made. The SEC’s disclosure standards normally do not permit the inclusion of information concerning “measured mineral resources,” “indicated mineral resources,” or “inferred mineral resources” or other descriptions of the amount of mineralization in mineral deposits that do not constitute “reserves” by U.S. standards in documents filed with the SEC. U.S. investors should also understand that “inferred mineral resources” have a great amount of uncertainty as to their existence and great uncertainty as to their economic and legal feasibility. It cannot be assumed that all or any part of an “inferred mineral resource” will ever be upgraded to a higher category. Mr. Peter Wood, P.Geo., VP Exploration for Zenyatta Ventures Ltd., is the “Qualified Person” under National Instrument 43-101 – Standards of Disclosure for Mineral Projects and has reviewed and approved the technical information contained in this presentation.

- ❑ The Powder Metallurgy market is relatively large and shows high growth potential.
- ❑ The largest market for metal powders is in the production of automotive powder metallurgy parts.
- ❑ The powder metallurgy market is estimated to be worth US \$24 billion (1.5t) annually.
- ❑ Production of metal powders is practiced throughout the major industrial regions of the world with the largest market (at 80%) in the production of automotive PM parts.



# What is Powder Metallurgy

- ❑ Powder Metallurgy is a fabrication technique that uses metal powder to manufacture complex industrial parts.
- ❑ It involves blending ultra-fine powdered materials, pressing them into a desired shape and then heating the compressed material to bond.
- ❑ The powder metallurgy process generally consists of four basic steps:
  1. Powder manufacture
  2. Powder blending
  3. Compacting
  4. Sintering at high temperatures
- ❑ Optional secondary processing often follows to obtain special properties or enhanced precision

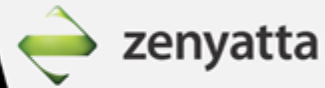


# Powder Metallurgy Applications

- ❑ Powder metallurgy products are extensively used in several industrial as well as electrical and electronics applications due to its cost effectiveness and low energy requirements.
- ❑ The majority of products made by 'PM' are used in the automotive sector and are used for components such as transmissions and engines.
- ❑ Other uses for powder metallurgy include applications for:
  - military
  - aerospace
  - energy
  - medical
  - electronics
  - computers
  - household appliances



# Automotive 'PM' Applications



- ❑ Around 80% of all powder metallurgy structural components are for automotive applications.
- ❑ Around 75% of these automotive applications are components for transmissions and for engines.

## Transmission Applications:

- Synchroniser system parts
- Gear shift components
- Clutch hubs
- Planetary gear carriers
- Turbine hubs
- Clutch and pocket plates

## Engine Parts Applications:

- Pulleys, sprockets and hubs, particularly those associated with the engine timing belt system
- Valve seat inserts
- Valve guides
- PM lobes for assembled camshafts
- Balance gears
- Main bearing caps
- Engine manifold actuators
- Camshaft bearing caps
- Engine management sensor rings

## Other Auto Applications:

- Oil pumps – particularly gears
- Shock absorbers – piston rod guides, piston valves, end valves
- Anti-lock Braking Systems (ABS) – sensor rings
- Exhaust systems – flanges, oxygen sensor bosses
- Chassis components
- Variable valve timing systems
- Continuously Variable Transmissions
- Exhaust Gas Recirculation (EGR) systems
- Turbochargers

# Powder Metallurgy Market

- ❑ The Powder Metallurgy market is estimated to be worth US \$24 billion.
- ❑ Production of metal powders is practiced throughout the major industrial regions of the world.
- ❑ Based on forecast automotive demand, production of metal powders is expected to grow by 5% per year, with the highest growth rate expected to be in Asia.
- ❑ Powder Metallurgy output is forecast to grow 9% per year in Asia.





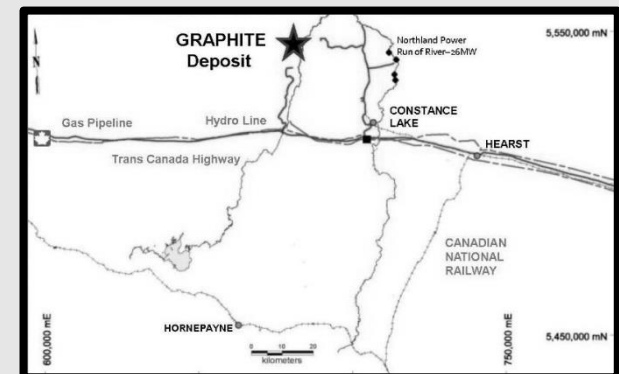
# Graphite in Powder Metallurgy

- ❑ Graphite is used in powdered metals as a source of carbon for the sintering agent.
- ❑ Graphite aids the release of 'PM' parts from the die and is also used in conjunction with non-ferrous soft metals to provide self-lubricants.
- ❑ Graphite is used because it is an excellent electrical and thermal conductor.
- ❑ Graphite has outstanding lubrication properties and it is resistant to oxidation and cyclic temperature stress.
- ❑ It can withstand extreme temperatures while maintaining strength and shape.



# Zenyatta Ventures Ltd. – Albany Graphite Project

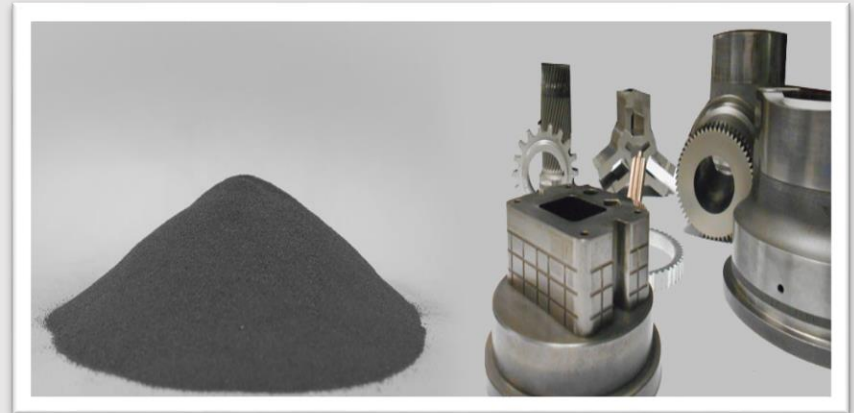
- ❑ the **largest** and only **rare**, igneous-related hydrothermal graphite deposit with the potential to produce a natural, high-purity graphite.
  
- ❑ Graphite Deposit located 30 km north of Trans-Canada Highway. Power line and natural gas pipeline near Constance Lake First Nation (CLFN) & Hearst. Rail line located 70 km away and all-weather road ~10km from deposit.
  
- ❑ Albany graphite achieved an ‘extraordinary’ carbon purity result of >99.9% in a bench-scale test using a proprietary and environmentally safe method of purification, which could compete in the diversified ‘synthetic’ graphite market.



Graphite is estimated to be worth US \$200 million (~20,000t) annually

Graphite demand for powder metallurgy growing at ~5% CAGR

High purity graphite of greater than 99.5% cg is preferred for the use in Powder Metallurgy applications.





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## Thank you!



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