



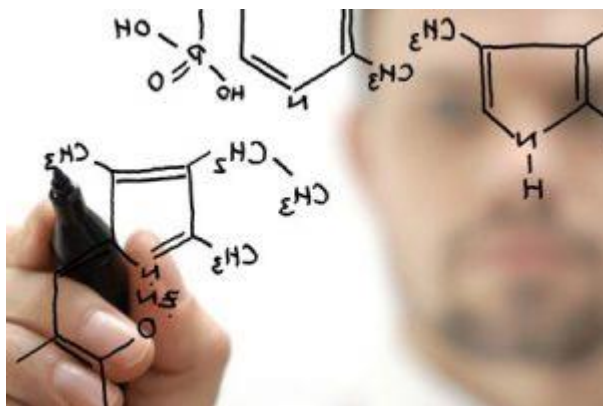
**Graphene
Leaders
Canada**
"Making Great Products Even Greater"

GLC+ Coatings

Focused on GLC+ Coatings

Graphene Solutions

Expertly Formulated



Graphene in Coatings

Graphene is a single layer of pure carbon atoms, well known for its excellent conductivity (electronic and thermal), strength, flexibility, chemical stability and excellent lubricity and barrier properties. For these reasons graphene finds seemingly infinite applications in composite materials to improve these properties. In particular graphene composite coatings have become an exciting area of product development, improving heat transfer, electrical conductivity, strength and resistance to fire, oxidation and durability in materials ranging from polymers to ceramics.

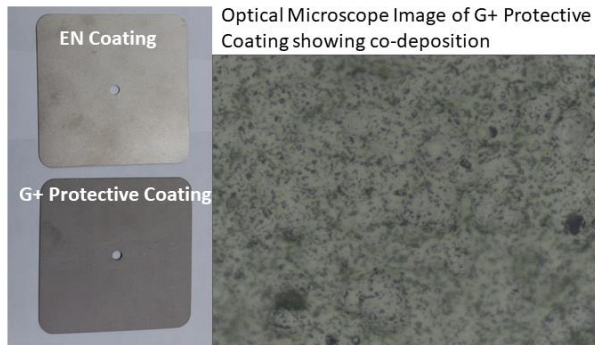
GLC+ Protective Coating

Composite GLC+ Electroless Nickel

G+ Protective Coating (EN) is a unique, patent-pending coating with GLC+ Graphene particles contained within hard electroless nickel with numerous benefits including

- ✓ Exceptional wear resistance
- ✓ Increased Lubricity
- ✓ Increased thermal transfer
- ✓ Applicability to all common metals and alloys
- ✓ Coverage of entire surfaces or selected critical areas

GLC+ Protective Coating



On the left are steel panels plated with standard EN and graphene-enhanced G+ Protective Coating, and on the right, optical microscopy image of a graphene-enhanced coating.

GLC+ Wear Benefits



Various standardized test methods have been employed to evaluate wear resistance of different materials and coatings. The most common test method is the Taber abrasive wear test. In the Taber test method, a coated panel turns under two rotating abrasive wheels, usually CS-10 type. Wear is measured as the weight loss of the panels following a specified number of rotating cycles under a fixed load. The lower the wear index, the lower the wear to

Property	Standard EN	G+ Coating
Wear Resistance	12.4 ± 1.1	7.8 ± 1.5 (+ 37%)
Magnetic Properties	Non-Magnetic	Non-Magnetic
Coating Thickness	30 µm	25-30 µm
Porosity (Ferroxyl test)	Pass	Pass

GLC+ EN Coating – Technology Benefits



Graphene Enhanced Electroless Nickel Coating

- GLC+ Graphene produced on-site
- Proprietary graphene formulation for aqueous bath chemistry
- Stable, uniform graphene dispersion in EN bath
- Repeatable and uniform coating
- Consistent improvements to Wear Resistance over standard EN with an average **37% Improvement** demonstrating a very **disruptive advantage**

The benefits of GLC+ EN allow increased lifetime and minimize maintenance related downtime due to the replacement of high wear parts. The presence of this unique coating may also allow new materials with other performance or cost advantages to be utilized.

GLC+ Protective Electroless Nickel is an economical solution to extreme wear conditions and is advantageous in the following industries:

- Gears
- Paper
- Molding
- Tool and die
- Plastics
- Packaging
- Petrochemical
- Automotive
- Oil and Gas
- Pipelines

GLC Headquarters



9411 – 20 Avenue
Edmonton, Alberta T6N 1E5
+1 (780) 984-4737

Email: info@glcplus.com

Website: www.grapheneleaderscanada.com