# GRAFOID A Complete Solutions Graphene Company

Corporate Presentation March 2016

#### Disclaimer

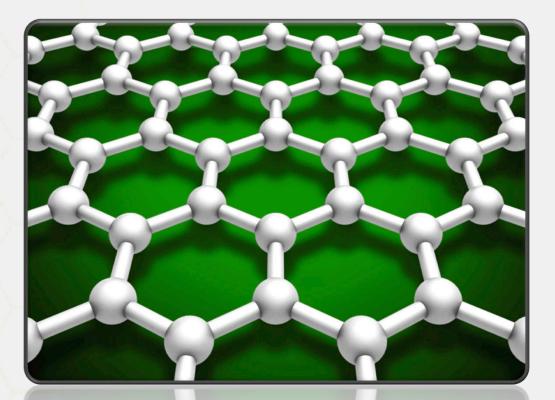
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Graphene is the revolutionary miracle material that will forever change the world.

**Grafoid** has established itself as a global leader in graphene innovation.





## What is Graphene?



#### What is Graphene?

- A two-dimensional nanomaterial
- Discovered by physicists Sir Andre Geim and Sir Konstantin Novoselov
- The Nobel Prize was awarded for ground-breaking experiments in 2010
- Graphene holds the potential to bring about a new era in materials
- The addition of graphene achieves a number of enhanced properties
- The total industry size impact exceeds \$100 billion
- The market for graphene remains immeasurable
- Graphene will change the way we work, live and play



#### **Graphene's Revolutionary Material Properties**



GRAFOID

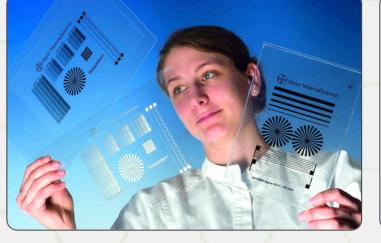
## **Graphene Applications**



"The properties of graphene are truly amazing, and the potential applications extend across <u>every</u> industrial sector."



#### **Graphene Applications**















#### **Energy Storage Applications**















#### **Graphene Applications**

- Plastics and Polymers
- Medical
- Coatings
- Energy
- Computers and Electronics
- Water Supply
- Communications
- Construction and Industry
- Coatings and Lubricants

- Automotive
- Aerospace
- Marine
- Chemicals
- Manufacturing
- Safety and Environmental
- Military and Defense
- Food Production
- 3D Printing



Graphene is a potentially disruptive technology to <u>all</u> of the aforementioned industries and applications.



"The greatest challenge in commercializing graphene is how to produce high quality material, on a large scale at a low cost – and in a consistent, reproducible manner."



# The key to successfully commercializing graphene is based on **3** primary factors:

Having unlimited access to a secure source of high-grade, highquality graphite

Being able to produce near-pristine graphene on an economically scalable basis Partnering with the right players in the development of the right applications



Grafoid and its subsidiary Graphite Zero excel in all three areas, overcoming the barriers to graphene commercialization.



# Grafoid – A Complete Solutions Graphene Company



"The key vendors dominating this (graphene) market space are BASF, Grafoid Inc, IBM Corp, and Samsung Electronics Co."

Global Graphene Markets 2012-2016
 Infiniti Research Limited, October 2013



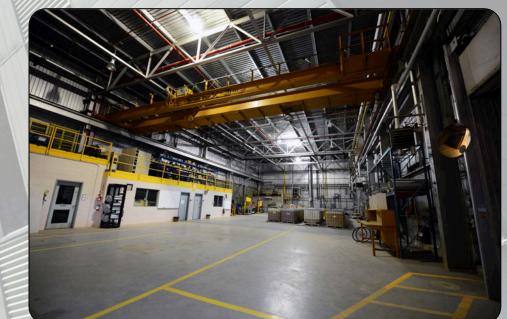
#### Grafoid

- Grafoid is a graphene research, development and investment company
- Has established itself as a global leader in graphene innovation
- Graphite Zero's process means low cost, high-purity graphene
- Grafoid is <u>the</u> global platform to deliver mine-to-market products
- MesoGraf<sup>™</sup> now sets the global standard for graphene
- MesoGraf's<sup>™</sup> performance is peerless
- Grafoid enables its partners to develop applications and markets
- Grafoid is unique in that it provides expertise, product and process

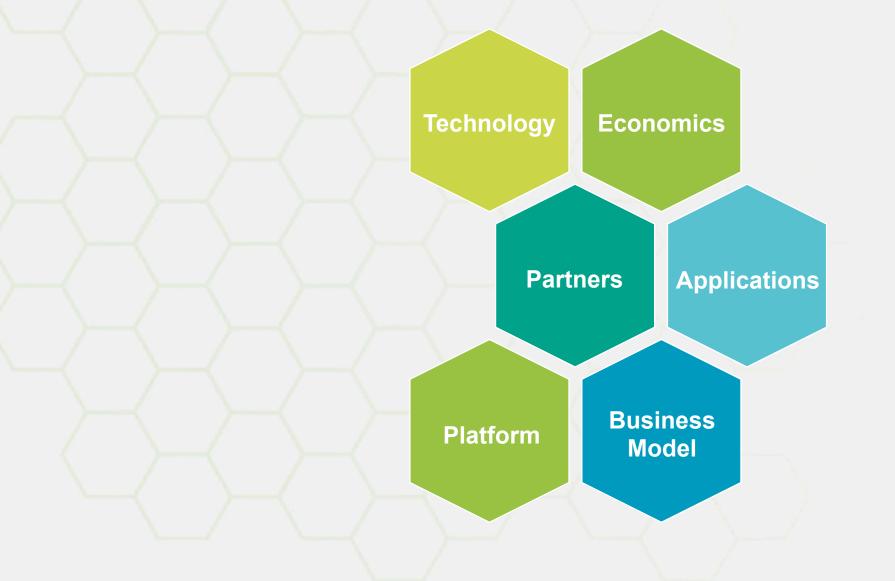


#### Grafoid Global Technology Centre

- Former ALCAN aluminum research facility, based in Kingston, Ontario World-class 220,000-square-foot, state-of-the-art technology R&D center
- First fully-operational MesoGraf<sup>™</sup> graphene production facility in North America
- Home to Graphite Zero's North American MesoGraf<sup>™</sup> graphene production facility
- Holds the requisite engineering expertise to advance Grafoid's scientific developments to the commercialization stages for MesoGraf<sup>™</sup>-based materials, products and novel applications



#### What's Unique About Grafoid?





#### How We Compare

Sells Graphene Solutions

Game-changing, one-step process to produce economically scalable graphene\*

A diverse company that doesn't depend on the success of one application

Partners with industry leaders worldwide to advance joint applications

#### **GRAFOID** Our Competitors



\* through Graphite Zero



#### How We Compare

**GRAFOID** Our Competitors



Able to generate revenue from every market sector

MesoGraf<sup>™</sup> – The Global Standard for Graphene

**Environmentally friendly and sustainable** 

**Grafoid** brings world-leading expertise in graphene, resolves commercial scalability issues, tailors graphene for unique applications, and provides solutions for achieving success.

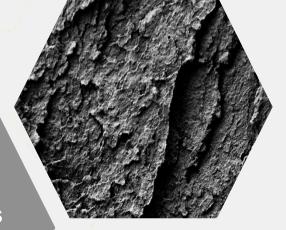


#### The Grafoid Advantage



Graphene is a <u>very difficult</u> product to work with

Most proclaimed manufacturers sell 'graphene' that is <u>not</u> graphene



Expanded flake materials are difficult to be utilized



#### **Grafoid's Active Applications**

SECTOR	TOTAL AVAILABLE MARKET (TAM)	SERVED AVAILABLE MARKET (SAM)
LFP Graphene Batteries	\$74B	\$11.1B
Graphene Polymers/Plastics	\$796B	\$119.4B
Graphene Foam	\$13B	\$2.3B
Fuel Cells	\$2.5B	\$280M
Electrochemical Capacitors	\$1.2B	\$108M
		GRAFOID

#### **Grafoid's Active Applications**

SECTOR	TOTAL AVAILABLE MARKET (TAM)	SERVED AVAILABLE MARKET (SAM)
Solar Panels/Solar Cells	\$90B	\$9.4B
Graphene Foils	\$9.3B	\$1.4B
3D Printing Materials	\$1.5B	\$330M
Automotive	\$5.1T	\$390B
Aerospace	\$4.8T (2013-2032)	\$531B
		GRAFOID

#### **Grafoid's Active Applications**

SECTOR	TOTAL AVAILABLE MARKET (TAM)	SERVED AVAILABLE MARKET (SAM)
Chemicals	\$5.3T	\$486B
Coatings and Lubricants	\$113B	\$13.8B
Thermal Management	\$10.1B	\$1.1M
Organic LED Lighting	\$14.5B	\$1.6B
Medical	\$124.5B	\$18.2B
		GRAFOID

#### **Grafoid's Operations**





#### **Grafoid** is a technology innovation company. We are unique.



# MesoGraf<sup>™</sup> – The Global Standard for Graphene



#### MesoGraf™

**MesoGraf**<sup>™</sup> is the first graphene to be trademarked in the world (May 2013)

#### MesoGraf's 5 Core Attributes





#### Worldwide Graphene Market

**Research Investment** 

Billions are being invested worldwide on graphene R&D

- Funding is critical for graphene's commercial success
- Geopolitically there's a strategic race to commercialize graphene



Over 200 major corporations are currently funding graphene research



#### U.S. & Canadian Government Involvement

- Both governments recognize the long-term economic imperative to support and foster graphene R&D
- Federal grants are available and Grafoid and its JV partners are successfully pursuing all eligible avenues for funding and partnering initiatives
- Grafoid received \$8.1m from the Canadian Government to build the world's first automated graphene production line



SUSTAINABLE DEVELOPMENT TECHNOLOGY CANADA<sup>™</sup>



#### Worldwide Graphene Market

**Revenue Forecasts** 

- First commercially significant sales of graphene products before 2017
- The graphene market is expected to expand dramatically after 2017
- 60% CAGR (2015 2020)
- There are several known areas of growth
- Does not account for new frontier applications
- Potential is contingent on the affordability of graphene



### The MesoGraf<sup>™</sup> Platform



#### The MesoGraf™ Global Platform &

Grafoid's affiliate Graphite Zero is currently the world's largest producer of graphene

✓ Invested in the development of a proprietary process

✓ Lead to bulk production of MesoGraf<sup>™</sup>

Operation Demonstrated that the science works

Launched a unique global platform











Mesograf from Grafoid

# GRAFOID

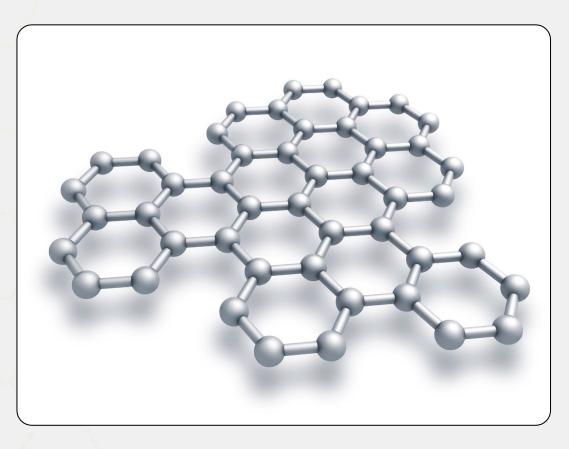


## The Grafoid Global Platform



## The Grafoid Global Platform

- Grafoid has entered into a number of high-profile development relationships
- Establishing JV relationships for the development of next-gen products
- Royalties will primarily drive revenue
- Grafoid has and will continue to sell
  MesoGraf<sup>™</sup> to JV partners
- 15 Joint Venture Partnerships underway (6 announced partnerships)







**Relationships** 

Partnerships



### Partnerships









## Partnerships







## **Academic Partnerships & Affiliations**



## Where is Grafoid Headed?

2016 is expected to be a breakout year in the graphene application development marketplace and Grafoid intends to:

- Assume a leading position in the global graphene industry
- Grow existing and attract new significant partnerships
- Brand Grafoid as a global leader
- Promote Grafoid as the purest way to invest in the Graphene Revolution



## **Near-Term Timetable**

#### **Graphene Production**

#### Further Relationships

#### Enhance Profile



## Focus Graphite Inc.



- World-class technology graphite company advancing towards production
- Publicly traded (TSXV: FMS | OTCQX: FCSMF | FSE: FKC)
- Sole owner of the high-grade Lac Knife, Quebec natural graphite deposit
- Executed the graphite industry's first offtake agreement; the Chinese will purchase graphite from Focus
- Focus will set the global standard for environmentally sound and sustainable graphite mining and processing
- Positioned to be one of the lowest-cost graphite producers in the world
- Security of supply for a material critical to green technology

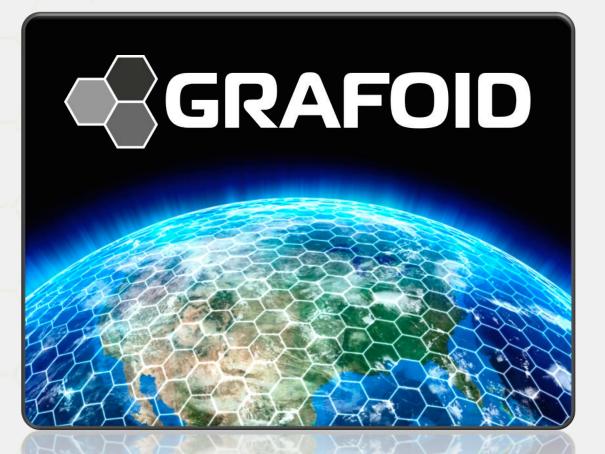


# Summary



**MesoGraf**<sup>™</sup> is the global standard for graphene.

**Grafoid** is a complete solutions graphene company.





## Summary

- Grafoid brings expertise in graphene and provides solutions for success
- A standalone in the graphene world
- Graphite Zero Proprietary technique to produce high-energy density graphene
- Trademarked suite of graphene products in MesoGraf<sup>™</sup>
- Significant first-mover competitive advantage
- Security of supply; Grafoid controls the supply chain
- Global network of sophisticated academic and commercial relationships
- Grafoid has raised approximately \$30m in a combination of private equity and government funding.



Grafoid is the purest way to invest in graphene.



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# GRAFODD A Complete Solutions Graphene Company

grafoid.com