

2024

MExplorer Co., Ltd.

MEXPLORER®

Chapter

1 Company Overview

Company Overview

1-1 Introduction

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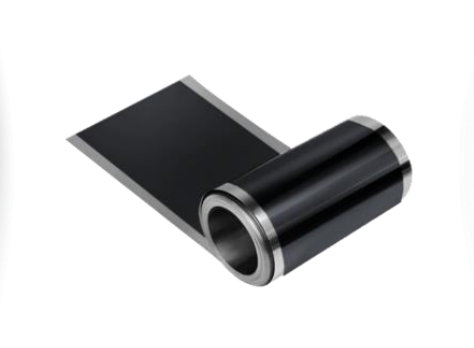
1-1. Company Overview - Introduction



“ Global leading company of Graphene Industry
Material Explorer; MExplorer ”

Company name	MExplorer Co., Ltd.
Establishment	Oct, 2014
CEO	Ph. D. Sung-Oong Kang
Business	Graphene material and its application products of electronics, LIB, and Fire-safety
Address	Hanyang Univ. ERICA ERICC building, Republic of KOREA

1-2. Company Overview - Product Portfolio



Water-dispersion of
single-crystalline graphene

The world 'first' and 'only'
Pure Graphene Diaphragm

Graphene Primer-Coated
Al current collector
for high-performance LIB

Fire-Resistant Graphene products
with the best performances and
governing price competitiveness

Business Products of MExplorer

- High value added Graphene business of MExplorer with the revolutionary product performances and the governing price competitiveness, based on its original and unique technology of Graphene material

2 Business Fields

2-1.
MExplorer Graphene

Graphene of MExplorer
Water-Dispersible Graphene dispersion
(Signature)

2-2.
Graphene Diaphragm

Pure Graphene Sound born in MExplorer

2-3.
FR-Graphene products

FR-G Glass fabric & FR-G Aerogel

* FR-G (Fire-Resistant Graphene)

2-4.
GPC in secondary battery

GPC in Li-ion Battery (LIB)

* GPC (Graphene Primer-Coated)

2-1. MExplorer Graphene – Graphene of MExplorer



The basic Graphene material business

- Price
- Quality
- Process

The production of Graphene application materials

- The business step of producing Graphene application materials
- Compatibility
- Processability
- Price

The business of Graphene end product

- Product performances
- Price competitiveness
- Expansion of business
- Sustainable Growth
- Future market value

MExplorer Graphene Business in Step III

- Beyond the basic business step of graphene material, MExplorer leads the global graphene industry with the revolutionary graphene end products.

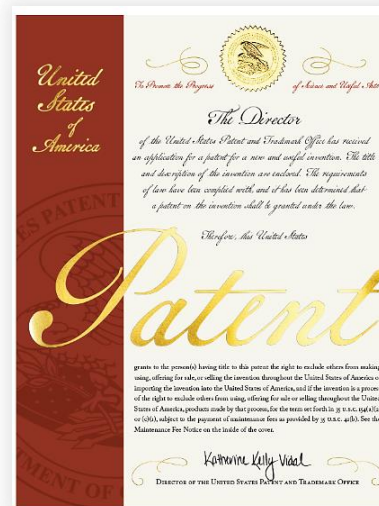
2-1. MExplorer Graphene - Water-Dispersible Graphene dispersion (Signature)

Water-Dispersible Graphene dispersion



(The only one thing in the world,
Water-Dispersible Graphene dispersion)

USA Patent-11851330 B2



Patent registration of Water-Dispersible Graphene
dispersion of MExplorer (9 patents in 7 nations)

Water-Dispersible Graphene (WDG) dispersion

- The only one thing in the world, 'Water-Dispersible Graphene dispersion' without any dispersants, of MExplorer is the 'mother material' of revolutionary graphene application products of MExplorer

2-2. Graphene Diaphragm - Pure Graphene Sound born in MExplorer

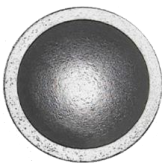
LG TONE Free
TWS UT90S (2024)



Graphene Drive



Pure Graphene Diaphragm
of MExplorer



The 'First' and 'Only' one thing in the world
Pure Graphene Diaphragm of MExplorer

- Evaluation of **the best sound quality** from Europe evaluation institutes in 2023

MÜLLER-BBM
VibroAkustik Systeme

intertek
Total Quality. Assured.

hclab
high tech & computing lab

- Evaluation of **revolutionary TWS product** from North America and Europe Magazines

Consumer Magazine
Report 2024

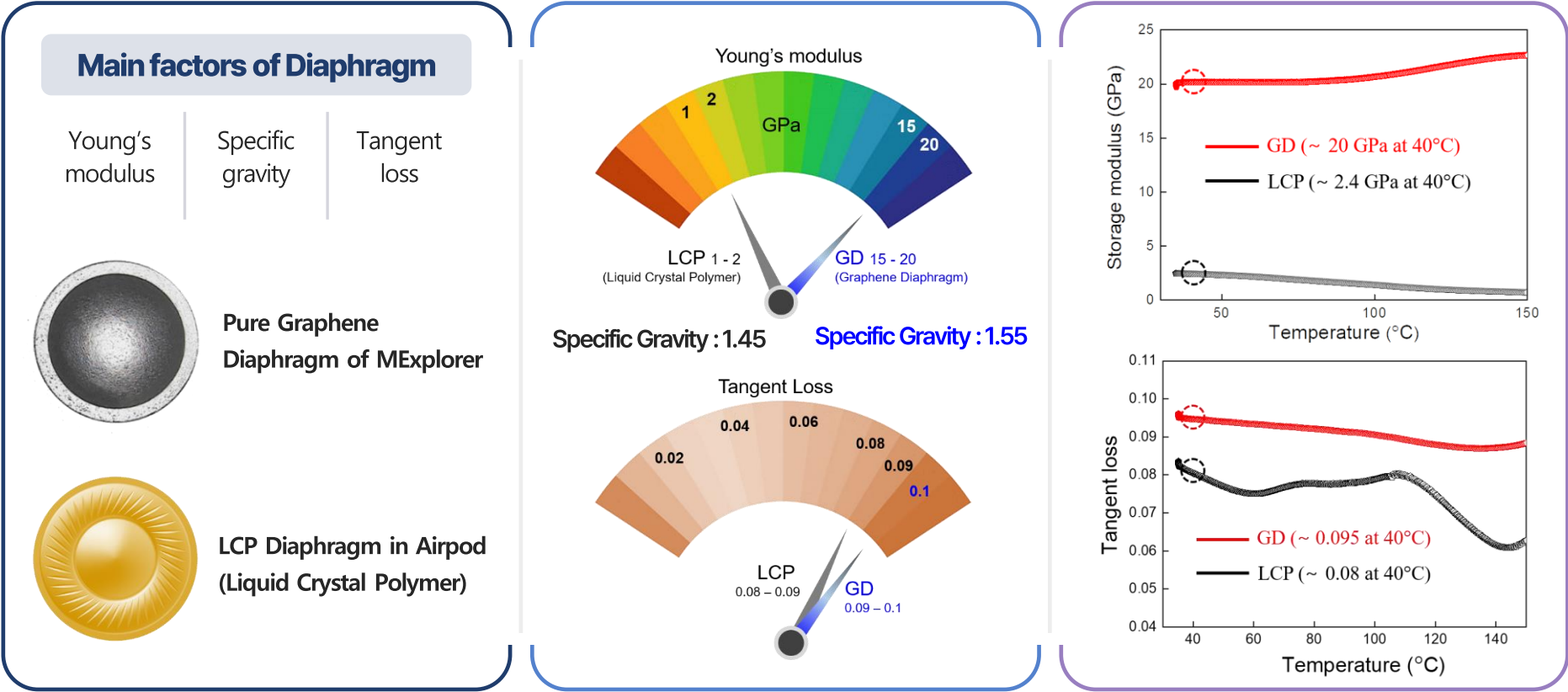
Tech Magazine 2024

Digital Build 2024

Pure Graphene
Diaphragm
of MExplorer

'Pure Graphene Diaphragm' manufactured in MExplorer has been
commercially used in Dynamic Drivers of global TWS products from 2022.

2-2. Graphene Diaphragm - Pure Graphene Sound born in MExplorer



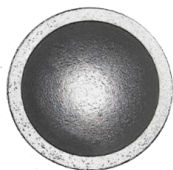
Pure Graphene Diaphragm of MExplorer

- In comparison of LCP diaphragm used in Apple Airpod TWS, the 'Pure Graphene Diaphragm' of MExplorer presents the outstanding material properties to be the ideal diaphragm in TWS product.

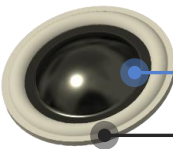
2-2. Graphene Diaphragm - Pure Graphene Sound born in MExplorer



LG TONE Free
TWS UT90S (2024)



Pure Graphene
Diaphragm of
MExplorer



Graphene
Diaphragm

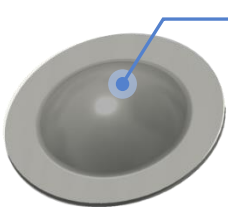
Elastomer

Real Graphene driver with
Pure Graphene Diaphragm of MExplorer

- JBL CLUB (Harman) - HALCYON - Fidue A66 - PT25
- COX CWS140 - VERSE -TOLV - WearBuz 2.0 - TWZ-1000X
- A20 - Melomania - TFZ MYLOVE -SOUNDCore - Liberty Air



Commercial TWS products with
Graphene-coated Diaphragm



Graphene coating

Plastic film
diaphragm

Graphene-coated Driver



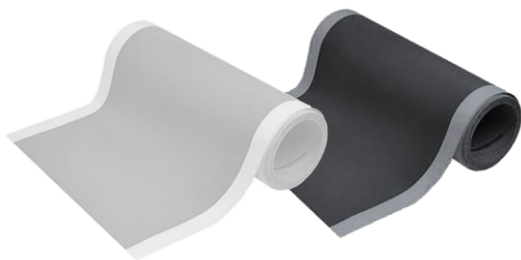
Commercial Graphene drivers
with Graphene-coated plastic Diaphragm

**Pure Graphene
Diaphragm
of MExplorer**

- Beyond the commercial graphene-coated plastic diaphragms and dynamic drivers, the 'Pure Graphene Diaphragm' and 'Graphene Dynamic Driver' of MExplorer revolutionizes the sound of TWS products.

2-3. FR-Graphene products – FR-G Glass fabric & FR-G Aerogel

Fire-resistant Graphene Glass Fabric



- **Fire-resistant** Graphene Glass fabric above the flame temperature of **1300°C**
- Light and Thin products
- Suitability for the test results pursuant to Non-combustibility (KS F ISO 1182) and Gas toxicity (KS F 2271)
- UL94 V-0 Flammability rating
- Compliance with the RoHS Directive (six substances)

- The best **Heat-insulating** and **Fire-resistant** performances in one body of Graphene Aerogel
- Fire-resistant Graphene Aerogel above the flame temperature of **1300°C**
- Suitability for the test results pursuant to Non-combustibility (KS F ISO 1182) and Gas toxicity (KS F 2271)
- UL94 V-0 Flammability rating
- Compliance with the RoHS Directive (six substances)

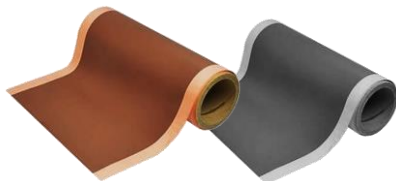
Heat-insulating/Fire-resistant Graphene Aerogel



FR-Graphene products of MExplorer

- The best Fire-resistant and Heat-insulating performance realized in 'Graphene Glass Fabric' and 'Graphene Aerogel' products of MExplorer with the **governing price competitiveness**
- Business fields: Electrical Vehicle, building, shipyard, steel factory, daily life fire-safety

2-4. GPC in secondary battery - GPC in Li-ion Battery (LIB)



- Chinese LIB companies has been leading the market of Carbon Primer-Coated Cu and Al current collectors for high-performances of Li-ion Battery.

Performance target of Carbon Primer-Coating



- Decrease of interface resistance in LIB
- Decrease of overall electrical resistance in LIB
- High-rate charge/discharge performance
- Significant Improvement of heat- and fire-generation in LIB

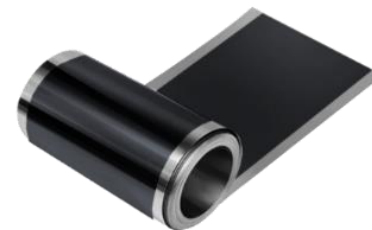
GPC of MExplorer in LIB

- The market of Carbon Primer-Coated current for high-performance of Li-ion Battery has steeply grown up by Chinese LIB companies.

2-4. GPC in secondary battery - GPC in Li-ion Battery (LIB)



Cathode Current Collector
(Aluminum foil)



Ultra-thin
Graphene Primer-Coated
Current Collector
(GPC of MExplorer)

Ultra-thin Graphene-Primer
Coated Al current collector
manufactured in MExplorer

Significant improvement of
electrical resistance,
heat and fire-safety of LIB

Realization of high-rate
charge/discharge performance
in LIB

Dramatic LIB performances and
governing price competitiveness

GPC of MExplorer in LIB

- The high-performances, heat and fire-safety, and governing price competitiveness of 'Ultra-thin Graphene Primer-Coated Al current collector' of MExplorer
- The commercial LIB cell tests with GPC of MExplorer in global LIB companies

Thank you

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