

Green Science Alliance



**We try to make all the Rechargeable Battery
in the World to be Cheaper**

**Black Mass based Recycled type
Lithium Ion Battery**



Energy and Environmentally Friendly Cutting Edge Technologies to Build Carbon Neutral Society Performed by Green Science Alliance



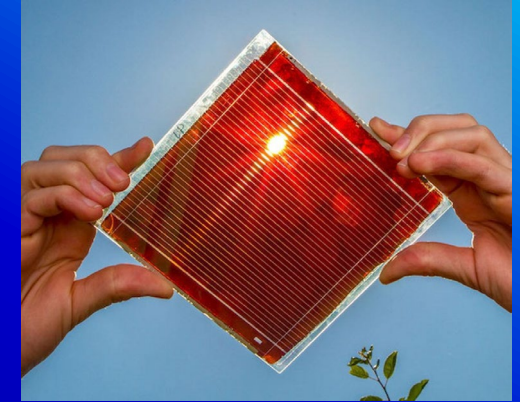
Plant Biomass based Materials
Biodegradable Plastics



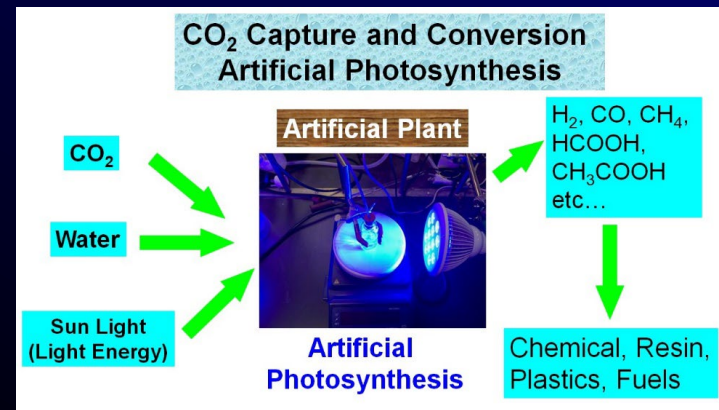
Black Mass based
Recycled type Lithium Ion Battery



Platinum free
(less) Fuel Cell



Materials for
Perovskite Solar Cell
Quantum Dot Solar Cell



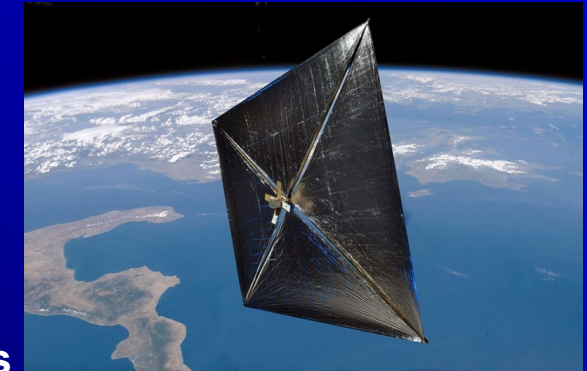
CCUS : CO₂ Capture and Utilization



Water Harvesting from the Air with MOF
(Metal Organic Framework)
Various application of MOF



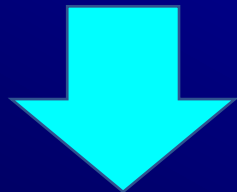
Quantum Dot based Materials
Nano Fertilizer
Organic Pesticides
Photosynthesis Enhancer
Hydroponics
Aquaponics



Innovative Material for Space Industry, developed with Electron-vibration interactions Theory

Rechargeable Battery for Renewable Energy

- 1.Solar Power
- 2.Wind Power
- 3.Biomass Power Generation
- 4.Geothermal Power Generation
- 5.Hydropower Generation



Rechargeable Battery

Lithium Ion Battery

However, Lithium Ion Battery is **Expensive**

Lithium Ion Battery Recycling to get Black Mass



Used Lithium Ion Battery



Lithium Ion Battery Scrap



Black Mass mainly originated from cathode of recycled lithium ion battery. Main components are **Lithium, Nickel, Cobalt, Manganese.**

Competitor Process



There is no recycled type lithium ion battery in the world yet

Our Process

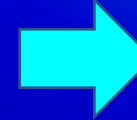
Black Mass



Green Science Alliance
Direct Synthesis Procedure
Safer
lower cost
Harmless to Environment



Cathode



**Recycled Lithium Ion Battery
made with Black Mass**

**Can be cheaper than commercial lithium ion battery
because process is so simple and safe**

Recycled type lithium ion battery. First time in the world !!

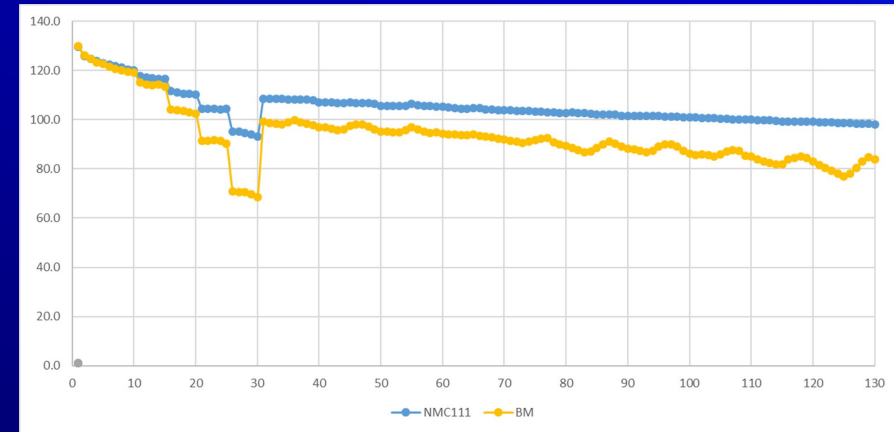
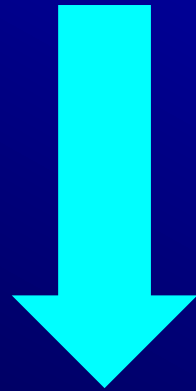
Comparison to Commercial Electrode

NMC based Black Mass derived cathode : 90 – 95 %

LFP based Black Mass derived cathode : 90 – 98 %

Recycled Graphite Anode : 90 – 95 %

Stable Cycle Performance (over 150 cycles)



**Conclusion : Can be used as Recycled type Lithium Ion Battery
Cheaper than commercial lithium ion battery**

**All the lithium ion battery in the world can be replaced with
our recycled type lithium ion battery ?!**

Rechargeable Battery Regulations in EU

Rechargeable Battery Regulations to Restrict Battery Manufacturing in Local Area with Recycled Resource and Materials in EU Area.

Reuse of Natural Resources such as Lithium, Nickel, Cobalt 50 % by 2027, 80 % by 2031

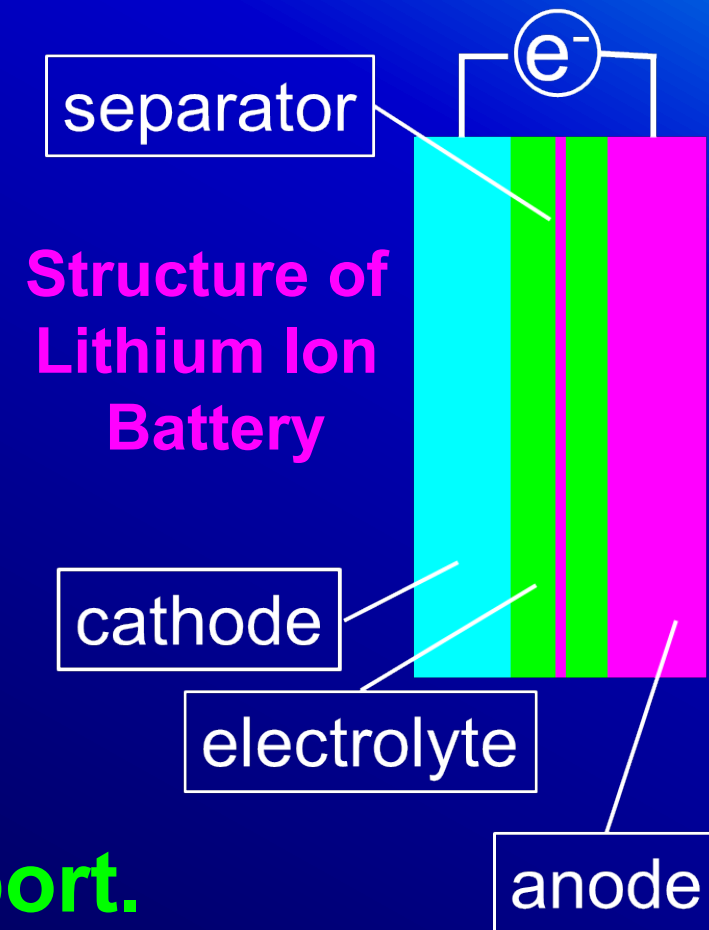
Cathode : Black Mass based Cathode

Anode : Recycled Graphite

Electrolyte : Recycled Organic Solvent

Our battery will be the best choice for this regulation.

We are planning to implement Battery Passport.



Even our Battery is made from Black Mass Waste, We Aim for Superior Battery Performance than Commercial Battery by Combining with our Advanced Materials

- 1. Lithium Rich Cathode**
- 2. SiO, Silicon based Anode**
- 3. MOF (Metal Organic Framework) based Electrode, Separator**
- 4. Electrode Slurry and Conductive Additive such as Carbon Nanotube Dispersion, Graphene based Materials**
- 5. Synthesis Procedure Optimization such as Single Crystal Electrode etc...**
- 6. All Solid State Battery** **etc...**

Switzerland Branch

Swiss Battery Technology Center



Lithium Ion Battery Waste
Used EV

Robot
AI Technology



Black Mass

Recycle



Black Mass based
Lithium Ion Battery

EV made from Black Mass based Recycled type Lithium Ion Battery

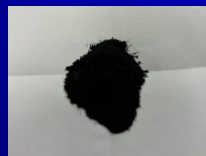
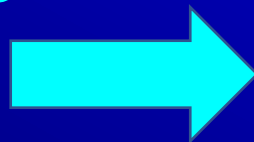
To the World Market

Switzerland and EU

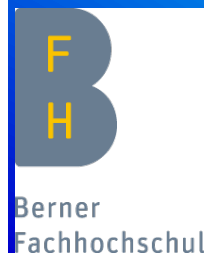
KYBRUZ Switzerland AG

LIBREC AG

Other Black Mass Suppliers



Black Mass
Recycled Graphite



Recycled type
Lithium Ion Battery

Japan

Nissan

Panasonic

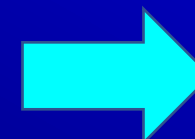
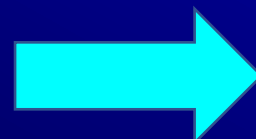
TDK

Li-Teck

Other Black Mass Supplier



Black Mass
Recycled Graphite



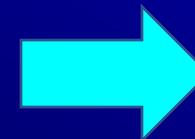
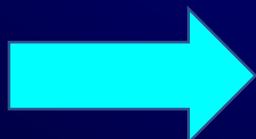
Recycled type
Lithium Ion Battery

World Market

(India, Asia, America,
China etc...)

Mehta

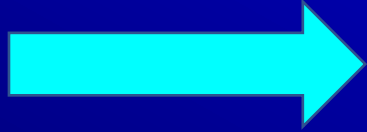
Other Black Mass Supplier



Manufacturing Plan



**Recycled type
Lithium Ion Battery**



**Battery Module
Package**



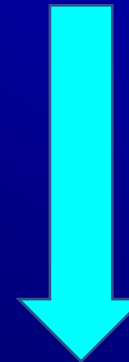
EV



**Solar Cell
+
Battery**



**Stationery Battery
Smart Grid
Data Center**



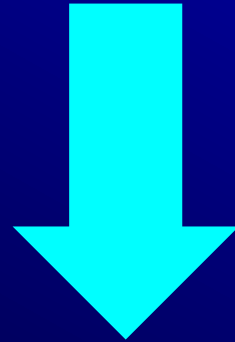
Electronic Devices



**Theoretically,
We can replace
all the lithium ion
battery market in
the world**

World Market size of Lithium Ion Battery and Sodium Ion Battery

About 8 Billion USD (2024)



About 45 Billion USD (2032)

Thank you



Green Science Alliance Co., Ltd.

Establishment: 2010 (Fuji Pigment Co., Ltd. as Group Company was Established on 1938)

Annual Sale: approximately 0.2 – 0.3 million USD, 30 – 35 million USD for Fuji Pigment

Head Office: 2-22-11 Obana Kawanishi-city, Hyogo prefecture, Japan

(inside Fuji Pigment Co., Ltd. Building), Tokyo Sales Office,

Biel/Bienne Office (Switzerland), Toronto Office (Canada), Massachusetts Office (USA)

Employee number: 12, (Fuji Pigment Co., Ltd employee number is 110)

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Green Science Alliance Co., Ltd. is selected as Green Tech startup company supported by United Nation (UNIDO, UNOPS, WIPO GREEN). From 2025, the company will start business in Ukraine as Green Industrial Recovery Project, funded by United Nation.