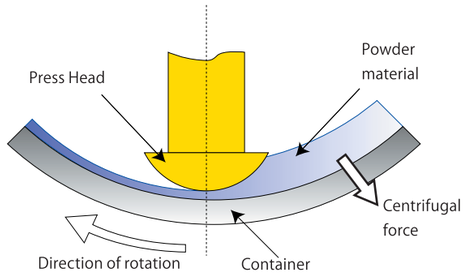
Composite particle production system

MECHANOFUSION®

Creation of new functional materials by mechano chemical reaction, applying mechanical energy into the mixture

Not only very fine dispersion but also composing or particle shape control can be realized. MechanoFusion has been accepted in wide range of today's market. Varieties of machine sizes are released from laboratory to production size.



Basic principle of the MechanoFusion System

Features

Short operation time for composing and fine dispersion

-No need of drying or heating after the process

-Inert gas operation is possible

-Various machine sizes

-Possible to compose abrasive materials

-Possible to control inner powder temperature, can be used for even heat sensitive materials

-Good product quality without liquid binder

◀AMS-MINI
For small sample work (100mL)

AMS-100F ▶
For production (100 Liters)

For pharmaceutical GMP application

▲AMS-LAB-GMP
For pilot (1 Liter)

AMS-MINI-GMP ▼
For small sample work (100mL)

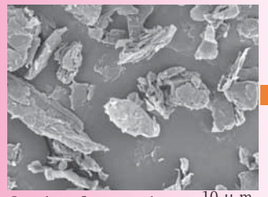
Specification

Model	AMS-MINI	AMS-LAB	AMS-30F	AMS-60F	AMS-100F
Motor [kW]	0.75	3.7	Max 30	Max 75	Max 150
Rotor [rpm]	6,000	2,600	1,500	1,100	900
Volume [L]	0.1	1.2	20	80	200
Width : W[mm]	400	800	600	900	1,300
Length : L[mm]	700	2,270	1,200	1,900	2,900
Height : H[mm]	350	1,260	1,800	2,400	3,250
Weight [kg]	60	250	1,000	2,500	5,000

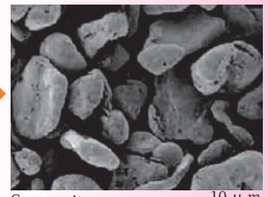
Application

Energy storage	Improved packing density and sintering ability for secondary battery and improved capability of fuel cell
IT	Better flowability of Toner. High density storage memory
Pharmaceutical	Drug Delivery System (controlled solubility, high dissolution)
Bio	Prevention of quality change, High environmental resistance
Chemicals	Improved characteristics and burning ability of catalysts
Cosmetics	Controlled refraction, improved flowability by surface modification
Pigments	Better color tone by high dispersion
Architecture	Prevention of quality change, high resistance to environment, high temperature resistance and high intensity material, gradient functional composite
Environment	Improved characteristics, sintering ability and high resistance to environment

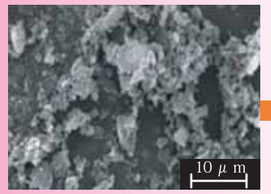
Fuel cell (Graphite/Polymer)



Graphite fine powder 10 μm



Composite 10 μm



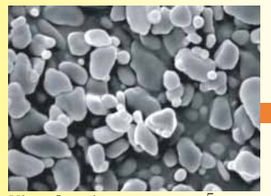
Polymer ultra-fine powder 10 μm

Surface fusion of Polymer onto Graphite particle. Sintered product of these composite particles has been applied to the separator for PEFC.

Pharmaceuticals (Carrier/Drug)

Organic carrier 20 μm

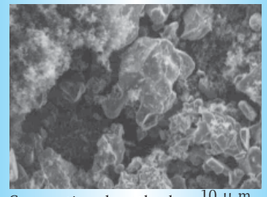
Composite Cross section 20 μm



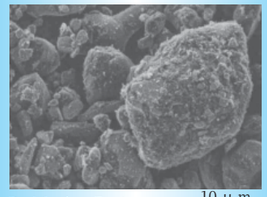
Ultra-fine drug 5 μm

Surface fusion of Ultra-fine drug onto Organic carrier particle. The composite powder has good flowability and furthermore dissolution rate of the drug has been improved with high dispersion.

Secondary battery (Lithium cobaltate / conductive carbon)



Conventional method 10 μm



By MechnoFusion 10 μm

There was no agglomeration by MechanoFusion against the conventional method. The electro conductivity has been improved then final battery performance will become much higher.