

The Association of Powder Process Industry and Engineering, JAPAN

2008-2009 Edition



Greeting

The Association of Powder Process Industry and Engineering, JAPAN (APPIE) was established in 1971. Approved by the government in 1981, this is the only organization in Japan dedicated to the powder-process industry, and it has continued and expanded its operations for over 30 years.

The Association is comprised of corporations which manufacture and market powder machinery and equipment, those which deal with powders - such as material, chemical, food, pharmaceutical and mining companies - and those related to powder processing, including construction and engineering businesses. Researchers at universities and government research institutes, and consulting engineers participate in this organization as individual members, while we also enjoy a close fraternal relationship with The Society of Powder Technology, Japan. The Association is a unique body offering close ties among academic, business, and government circles.



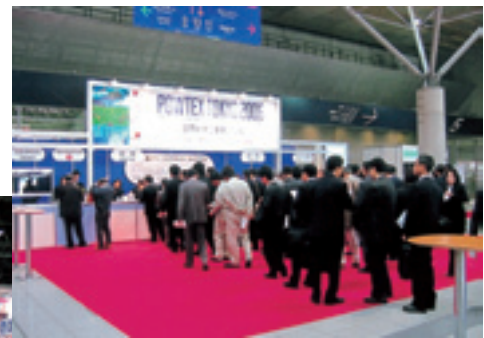
In Japan, various services have been provided through technical group meetings and committee activities that transcend the boundaries of corporations and industries, such as research, studies, wide-ranging technological exchanges, education, training courses, lectures, technical information exchanges, as well as the distribution of standard powders, and the voluntary operation of a powder industry exhibition.

The following have been implemented in terms of our global activities.

- 1) Tie-up projects with overseas powder-related organizations
(Support for the establishment of the Thai Powder Technology Center (TPTC), provision of experimental apparatus to the Mongolian University of Science and Technology in Mongolia, and efforts to strengthen cooperation with Chinese academic societies.)
- 2) Preparation and dissemination of international standards
(The Association plays an active role as a domestic organization to study ISO/TC24 "Sieves, sieving and other sizing methods".)
- 3) Overseas exchange-related business concerning powder technology
(The Association hosts the annual POWTEX exhibitions alternately in Tokyo and Osaka, at which exhibits by overseas companies are welcomed.)
- 4) Overseas PR activities
(Booths are manned at influential exhibitions in Chicago (USA) and Nuremberg (Germany) to promote the Association and its membership. We also participate in powder technology exhibitions in China.)
- 5) Overseas visiting mission
(Visiting missions to foreign exhibitions are organized occasionally to exchange information and promote goodwill.)

With the increasing trend towards globalization, we are working hard to lead and promote our activities. We thank you for your continued interest in the Association's activities.

August, 2008
President : Hitoshi Emi



History

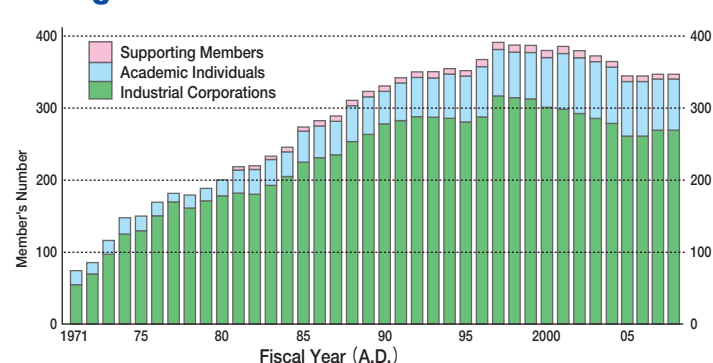
- Nov. 18, 1971 The Council of Powder Process Industry, Japan, was founded as an informal organization with about seventy members and opened an office in Nagoya.
- Oct. 1972 A booth for the Council, with a sign that read “of Powder Process Machinery and Equipment Corner”, was set up for the first time at the Chemical Plant Show.
- Mar. 1973 The Classification and Sieving Technical Group was the first of the technical groups to be formed.
- Feb. 20, 1974 The name of the organization was changed to the Association of Powder Process Industry, Japan.
- Sept. 1976 The first POWTEX exhibition in cooperation with the Japan Management Association was organized at the Tokyo International Exhibition Center and, since then, has been held every two years.
- Apr. 1979 The Editorial Committee was formed to supervise “Powder Science & Engineering”, a monthly journal.
- Oct. 1979 Technical Center of Powder Technology was formed by integrating service departments.
- Dec. 1, 1981 The Association has become a legal corporation approved by The Ministry of International Trade and Industry, Japan, and was registered as The Association of Powder Process Industry and Engineering, JAPAN.
- Apr. 1984 The International Liaison Committee was formed to deal with matters regarding overseas organizations and powder exhibitions in Chicago, USA and Nuremberg, Germany.
- May 1991 The Special Committee for Cooperation with Thai Powder Technology Center (TPTC) was formed to promote powder technology in Thailand. The Committee continued until September 2000.
- Jul. 1993 The first POWTEX OSAKA was held at INTEX OSAKA and, since then, has been held every other year.
- Nov. 1996 The 25th anniversary was celebrated and the book “25 Years of the Association” was published.
- Aug. 1999 The Battery Manufacturing Technology Group was formed as the first project-oriented technical group.
- Dec. 2000 Co-sponsored the First Asian Particle Technology Symposium (APT2000) held in Bangkok, organized by The Society of Powder Technology, Japan, and TPTC.
- Oct. 2003 The Association was awarded the Corporation Industrial Standardization Contribution by the Ministry of Economy, Trade and Industry for year-long industrial-standard formulation by APPIE.
- Nov. 2003 The Association exhibited in the International Powder/Bulk Conference & Exhibition, Shanghai, hosted by the Chinese Society of Particuology at the invitation of the society, and a visiting party (led by Mr. Akitoshi Meio) was sent to strengthen cooperation with the society.
- Oct. 2007 The first APPIE LINKAGE FORUM between Academia, Industry and Government was held at the site of POWTEX Osaka 2007
- Jan. 2009 APPIE NEWS, the official monthly news letter, was replaced by FUNTAI GIJUTU (meaning powder technology), the official monthly magazine in 100 pages

Membership

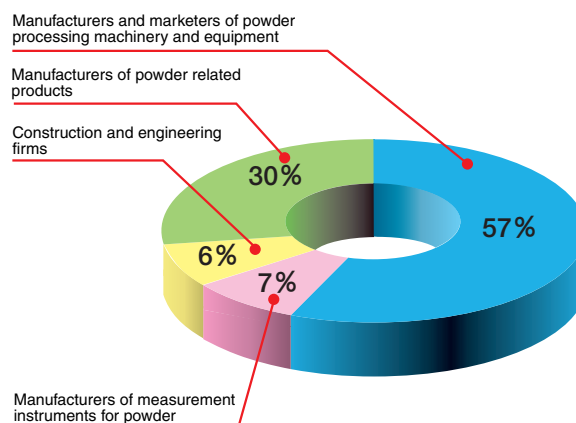
Members

Mar. 31, 2008				
	Full Members		Supporting Members	Total
	Corporations	Individuals		
Member	269	73	10	352
Total	342		10	352

Change of Member's Number



Classification of Industrial Corporations by Their Category



Activities

Technical Groups

To promote the activity of APPIE in each technical field, 19 technical groups are organized as shown on page 6. Experts in academia or research organizations together with experienced persons in industry, organize members in specific technical fields of powder technology. They consist of 30 to 60 members, and have 3 to 4 meetings a year to carry out information exchange on technical items such as new products and developments or to plan visits to new facilities and installations that have started operations recently.

POWTEX

The first POWTEX was held in 1976 in Tokyo to exhibit the products and skills of member companies and the activities of APPIE. Since then, it has been held every two years in Tokyo. POWTEX Osaka started in 1993 and since then has been held every year alternately in Tokyo and Osaka. POWTEX Nagoya started in 2000, being held in spring in years when POWTEX Tokyo is held in autumn. POWTEX Tokyo is intended to receive both domestic and international visitors; therefore international events such as International Powder Technology Forum or Symposium are held simultaneously on the same site.

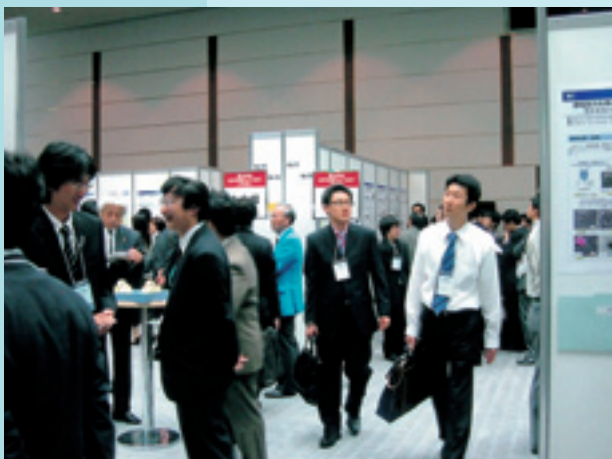
International Liaison

International liaison activities play the following three roles.

1. Increasing international awareness of the APPIE (exhibiting in powder shows in Europe, America, and China, etc., publicizing the activities of the APPIE and collecting information about local powder technology trends).
2. Surveying and collecting information concerning international events (surveying and collecting information about overseas events and at the same time dispatching survey groups overseas to collect and provide information about powder technology).
3. Making an international contribution to the powder industry (by holding the Asia Forum and other events, collecting and providing information about the powder industry in Asia, dispatching lecturers on powder technologies in response to requests from neighboring countries in Asia).

Standards

The Association is devoted to establishing and updating JIS standards related to powder technology. It has also taken an active role as a subsidiary to the Japanese Industrial Standards Committee (JISC) in support of ISO/TC24 "Particle characterization including sieving". Furthermore, the Association establishes and maintains its own standards and manuals.



Publishing Business

Periodical Publication

FUNTAI GIJUTU (powder technology)

A monthly magazine of about 100 pages is published as the official publication. It contains several papers on recent technical items and announcements of the events held by the Association.

APPIE annual REPORT

An annual report on the activity of APPIE began to be published in 2007 for the purpose of introducing the activities of APPIE to interested foreign organizations and individuals.

Book Publication

The Association publishes several books a year edited by the committees or technical groups.

Research and Study

The Association constantly conducts survey research on powder technology and distributes the achievements of its survey research, lectures, seminars, symposia and so on.

Technical Center of Powder Technology

There are the Continuing Education Division and the Standard Powders Division in technical center. Its training department holds seminars and lectures, etc. on many topics concerning powders as part of its lifetime learning program, and the manufacturing division works to meet industry needs by disseminating and distributing JIS test powders and standard powder.

Technical Information Exchange Meetings

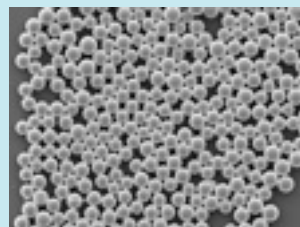
To exchange courtesy and technical information between local members, Technical Information Exchange Meetings are held in Tokyo, Nagoya, Osaka and Fukuoka.

Standard Powders Division

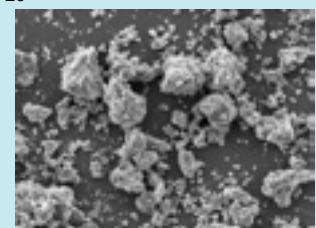
The Standard Powders Division manufactures and distributes JIS Test Powders and APPIE Standard Powders.

- ① JIS Z 8901 Industrial Test Powders 1 (Powders, which exist in the ordinary environment as dust, are standardized.)
Class 1, Class 2, Class 3 (Silica Sand) / Class 4, Class 9 (Talc) / (Class 5, Class 10 (Fly Ash) / Class 7, Class 8, Class 11 (Kanto Loam) / Class 12 (Carbon Black) / Class 16, Class 17 (Calcium Carbonate, Heavy)
- ② JIS Z 8901 Industrial Test Powders 2 (Extremely narrow particle size distribution)
Glass Beads (GBL30~100, GBM20~40 : 7 kinds differing in diameter, density, and refractive index)
White fused alumina (No.1, 2, 3, 4, 5, 6 : 6 kinds differing in diameter)
- ③ APPIE Standard Powders (Powders for industrial tests and standard powders other than JIS Z 8901) Only for sale in Japan
Lycopodium / Soma standard silica sand / Quartz dust / 3 components mixture / Air cleaner test dusts Fine, Coarse (ISO 12103-1)

◆For more information, please refer to the APPIE Homepage (<http://www.appie.or.jp/>).



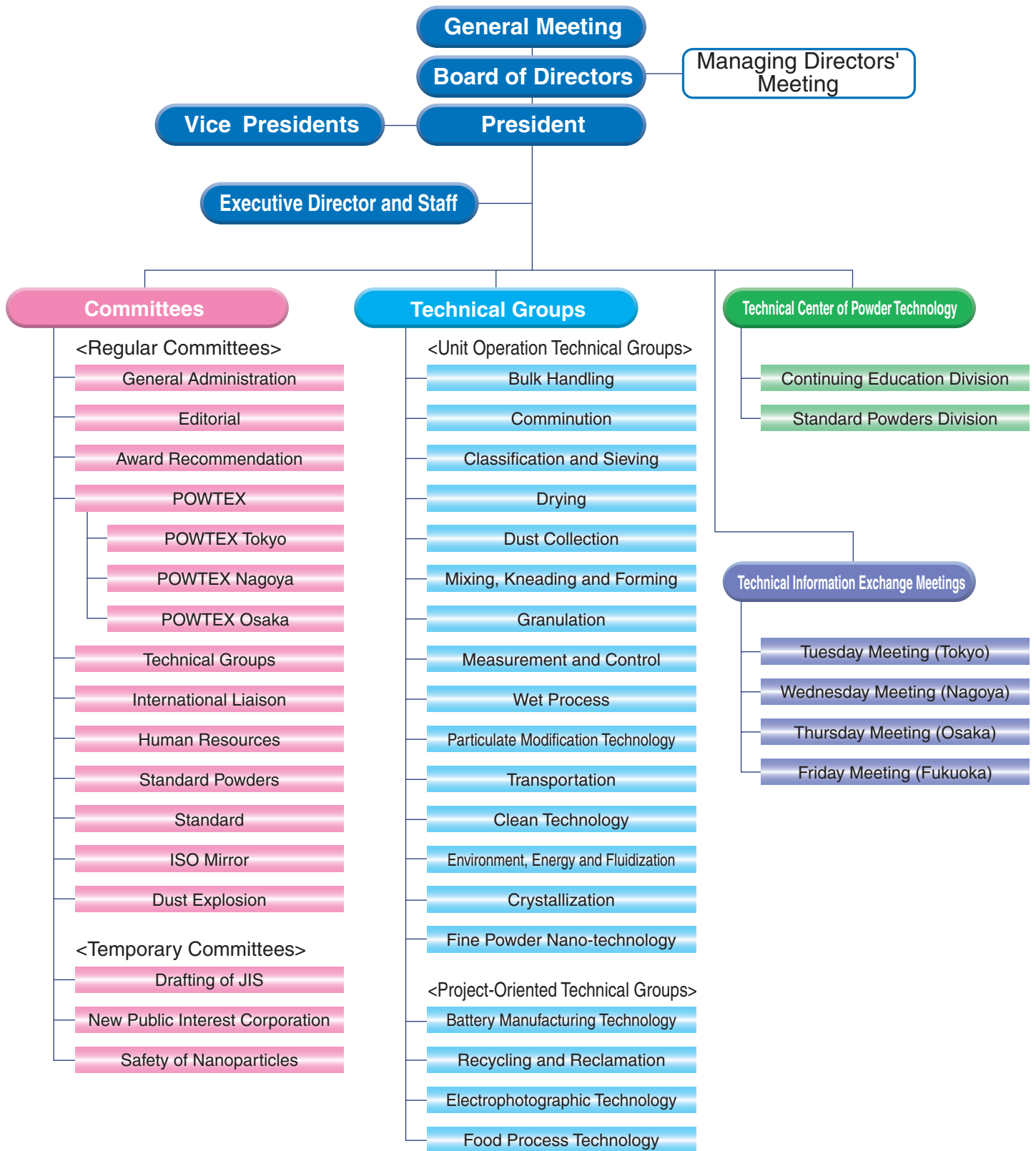
JIS Test Powders 2 GBM-20



JIS Test Powders 1 Class 8 KANTO loam

Operating Organization

The Association is operated by the organization as follows



Technical Group Activities

Group Names & Recent Subjects

Bulk Handling

- Hazard and safety control, sanitation and cleanliness of machinery and equipment
- Development of handling method for fine powder in nano range
- Development of energy saving and eco-oriented (or environmentally sound) machinery and equipment
- Development of simple and accurate bulk transfer device/tool between equipment · Transfer of technology and skill to the next generation

Comminution

- Mechanochemistry · Comminution of soft materials · Selective comminution for recycling of waste materials
- Nano-dispersion technology (deagglomeration down to primary particles of agglomerated nano-particles)
- Composite process of particles · Surface modification of particles

Classification and Sieving

- Optimized procedure for closed circuit grinding system · Elaborate wet classification in industrial scale · Component separation of recycling process
- Application of sieves to particle classification · Ultrasonic vibration technology for screening machines · Anti-corrosive and abrasive sieves

Drying

- Energy efficiency, antipollution · Sanitary, non cross-contamination, sterilization
- Multi-purpose and/or multi-performance dryer (e.g. granulation and inclusion of pharmaceutically active substances)
- High quality and uniform drying of functional materials to add extra value

Dust Collection

- Establishment and standardization of estimating method of cleanable filter media
- Simultaneous removal of hazardous gases, wet dust, Chemicals with trace quantities, and dust particles from flue gas.
- Characterization of suspended particulate matter and its removal technique

Mixing, Kneading and Forming

- Ordered mixing and particle design (pharmaceutical, cosmetic, electric and bio-materials)
- Hybridizing and functionalizing of powders (polymer, magnetic and battery) · Development of characterization of mixing and kneading processes
- Near-net shaping · Sanitary improvement of facilities · Improvement of pharmaceutical direct tableting technique

Granulation

- Micro design of particles and granules · Coating and granulation materials · Functional modification of granular materials classified by industry
- Development of precise functional granulators · Granulation techniques in recycling resources · Granulation technology in energy area

Measurement and Control

- Correspondence to ISO · Standard reference particles · Measurement for nano materials · Automation of measurements

Wet Process

- Precise control of coagulation, dispersion, adhesion and coating of particles in aqueous and non-aqueous media
- Handling of highly concentrated slurries · Advancement of separation technology in filtration and dewatering

Particulate Modification

- Process validation, Scale-up · Characterization of particulate materials · Conversion of empirical work into technology
- Development and industrialization of new particulate materials · Composite and functional particles · Ordered Particle System
- Industrialization of drug delivery system

Transportation

- Response to the needs of wide variety of products and diversification · Prevention of contamination · Energy-saving transportation
- Mass transportation

Clean Technology

- Separation techniques and micro-environment · Contamination control (fine particles, microbes, chemical materials)
- Age of Gbit · Clean-Enough (optimal cleaning) · Mini-environment and local cleaning (for 300mm wafers)
- Microorganism contamination control and validation (source origins, chemical filters) · cGMP, HACCP and validation
- Application of ISO standard

Environment, Energy and Fluidization

- Next generation stoker furnace, and gasification and slagging combustion furnace
- Establishment of scale-up method in granulation process and development of binderless granulation process
- Biomass utilization technologies such as combustion and gasification · Liquid fuel production technology from biomass
- Combustion technology of automobile shredder residue

Crystallization

- Offering the Incentive Seminar for Experts · Control of polymorphism in crystals
- Creation of nano-particles · Mixing operation and crystallization phenomena in crystallization · Rigorous calculation of phase equilibrium
- Collaboration with the crystallization Party for Fine Particle Formation and Functionalization

Fine Powder Nano-technology

- Aggregation and adhesion behavior control
- Characterization technology for fine powder, interface structure, interaction between particles and performance
- Development of material performance based on fine powder design · High reliability yield and low cost technology

Battery Manufacturing Technology

- Batteries for hybrid vehicles (Ni-metal hydride battery, Li-ion battery, capacitor); high-power capability, high reliability, long life, cost-reduction
- Batteries for mobile appliances (advanced Li-ion batteries); improvement of energy density using alloy-based negative electrodes and high-capacity positive electrodes.
- Fuel-cell system for vehicles, residences and mobile appliances; high-power capability, cost reduction, marketing, infrastructure of hydrogen supply. · New material development for batteries, fuel cells, hydrogen storage.

Recycling and reclamation

- Advanced separation technology · Reuse, Reduce & Recycle (3R) of metal resources · Resolution & reproduction of plastics
- Conversion technology of biomass energy · Assessment of environmental burden · Load reduction in final landfill site

Electrophotographic Technology

- Study of charging mechanism of pulverized toner · Characterization and design of toner particles · Production process of new pulverized toner
- Simulation technology in the process of development, transcription and fusing · Energy reduction in electrophotographic system
- Optimal design of electrophotographic system

Food Process Technology

- Food reliability ① Indication (expiration date, place of origin, etc.) ② Prevention of contamination (allergen, etc.) ③ Trace system
- Food safety (pesticide residue, etc.) · Healthy intention (Development of nutritional supplements and low-calorie food, etc.)
- Environment (Global warming preventive measures, etc.)



The Association of Powder Process Industry and Engineering, JAPAN

<http://www.appie.or.jp/>

Head Office: No.5 Kyoto Bldg., 181 Kitamachi, Karasuma-dori, Rokujo-agaru, Shimogyo-ku, Kyoto, 600-8176, Japan
Phone: +81-75-354-3581 Facsimile: +81-75-352-8530

Tokyo Office: Shubyo-Kaikan, 2-26-11, Hongo, Bunkyo-ku, Tokyo, 113-0033, Japan
Phone: +81-3-3815-3955 Facsimile: +81-3-3815-3126