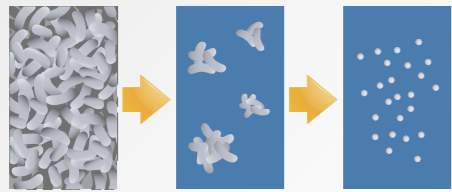


Developing original drinks with versatile process technology

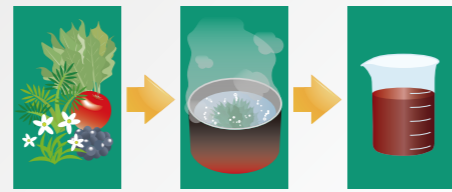
Micronization



Lactic acid bacteria, enzymes and turmeric etc.

Micronization

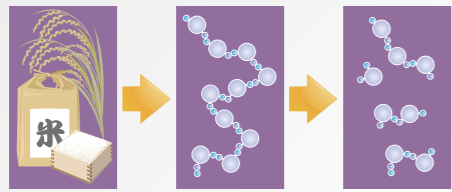
Extraction



Plants, fruits, flowers etc.

Extract

Enzyme treatment, fermentation



Starch polysaccharides, proteins, polymer components etc.

Enzyme treatment, fermentation

Emulsification



Fish oils, oil-soluble components

Emulsification

Please contact API for health and functional drink OEM/ODM!

We can support wide variety of containers!



Liquid three-side sealing Blow pack drink Little PET bottle drink Aluminum bottle drink Small glass bottle drink Large glass bottle drink

Please feel free to contact us. We will correspond with proposals and samples.

OEM/ODM for health supplement
API

API's **ODM**
Thoughts in "D" ODM that only we can perform **M**

OEM • ODM GUIDE
Little **PET bottle drink**
Blow pack drink



One Stop

Reliable and proven one-stop OEM

EM

Lightweight and compact design
by making the most of PET bottle!



A next-generation package with enhanced originality
by appearance and function!



Little PET bottle drink

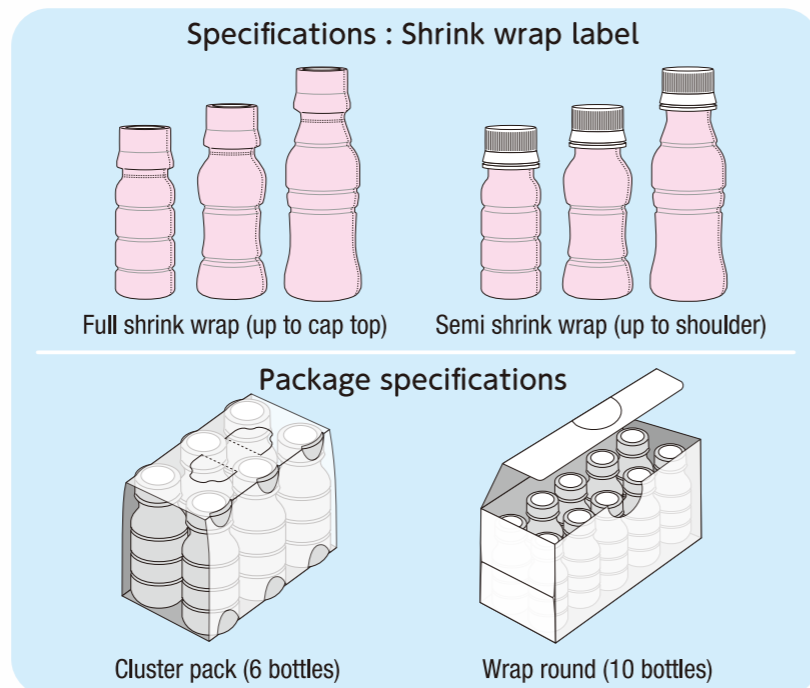
- ① Able to propose compact package with excellent design
- ② Realized small-lot production with PET bottle package
- ③ Light weight about 1/5 compared to the same content of glass bottle
- ④ Highly durable against damages during transportation
- ⑤ Easy separation and disposal



Equipment overview

- Available ingredient: Soft drink (pH<4)
- Filling capacity : 300 bottles / min.
- Filling content: 50ml, 65ml, 100ml
- Minimum lot: 30,000 bottles
- Acquired certification : FSSC22000
- Shelf life : Printed on cap top or cap ring
- Specifications: Full shrink wrapping (up to cap top)
- : Semi shrink wrapping (up to shoulder)
- Package specifications: Cluster pack (6 bottles)
- : Wrap round (10 bottles)
- Outer box specifications: Cardboard box (30 bottles or 50 bottles)

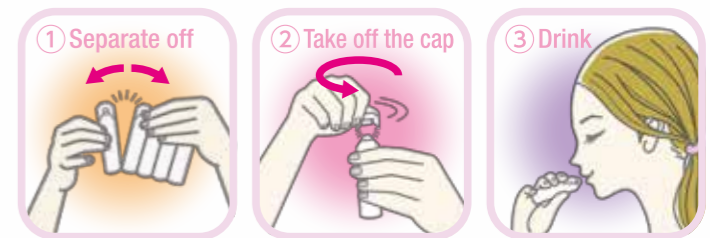
Shrink wrapping and packaging specifications



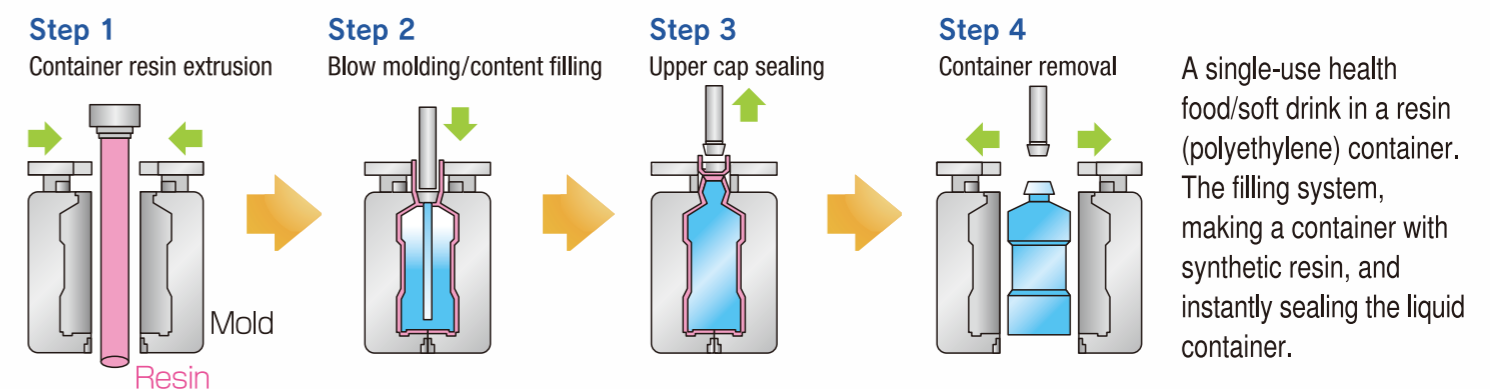
Blow pack drink

- ① Capable of flexible container coloring according to the concept
- ② Enhance product originality with unique packaging
- ③ Lightweight and slim airtight container with high portability
- ④ disposable as plastic waste after use
- ⑤ Small-lot production available in response to customer needs

How to take Blow pack drink



Manufacturing process of blow pack drink



API's ODM for designing high value-added products that exceed customer expectations

As a health supplement professional, API has been engaged in various OEM production for a large number of companies.

With API's unique ODM, each department responsible for R & D, technical development, quality management, and plan proposals refines the know-how cultivated through OEM initiatives, and realizes product proposals that exceed customer expectations.



R & D Department

looking ahead to the cutting edge of the times

Nagaragawa Research Center, the research and development base of API. Here, the Functional Research Group, Analytical Chemistry Group, Safety Research Group, and Product Development Group are scientifically and comprehensively evaluating the bioactivity, pharmacological activity, and safety of bee products such as royal jelly, propolis, bee pollen, and honey, and the main ingredients contained in them.

We are also engaged in basic research with a view to application not only in the food field but also in the pharmaceutical.



Technical Development Department

that generates reliable products with accumulated know-how

State-of-the-art technologies are built up in our 4 plants that produce product, including NextStage Plant. These plants perform not only raw materials processing such as "Centrifugal Force Dryer Add Mill" which can instantly pulverize moisture-rich materials, "Fine powdering", "Emulsification", "Fermentation", but also formulation processing for various shapes such as beverages, soft capsules, hard capsules, tablets and granules. In addition, our Technical Development staff assigned to each plant is engaged in trial production on a daily basis to create excellent products.

API's ODM

Toward The NEXT STAGE



Planning / Proposal Department

optimal planning for each customer

A proposal made by API that maximizes the customer's benefit is born from a high level of technology and a fulfilling research environment. The approach to developing products with highly added value and originality is API's unique ODM beyond the OEM domain. In the health supplement market, where differentiation from other products is the key, API's mission is to respond to the wishes of all customers who want to create unique products using superior ingredients. This is how API defines ODM.

Quality Control Department

the highest level that meets any needs

In order to ensure safety, the most important in food, we have established a strict quality assurance system which best fits our in-house facility. Quality Center that manages traceability with more strict order than national institutions. Each plant that conducts production management and quality control accurately, and is certified by health supplement GMP and FSSC 22000. Each process has its own analysis items tailored to the customer's products, ensuring thorough quality and safety management.

Quality assurance at each plant

Thorough quality and safety management in each process



Drink process inspection



Visual inspection for solid formula



Product inspection

In order to ensure the safety and high quality of products delivered to customers, quality and safety are thoroughly managed in each process. Consisting of Quality Assurance Office (QA) based at Head Office Quality Center, and Quality Control Section (QC) residing at each production plant, our detailed quality network has been established from quality assurance of raw materials to quality information collection of intermediate products and products, as well as finished products in the secondary market. We always try every effort to ensure traceability related to product quality as one of our basic policies.

Functionality evaluation of raw materials and products

Nagaragawa Research Center

In order to develop raw materials and products based on scientific evidence, we perform component analysis, functional evaluation, and safety assessment.

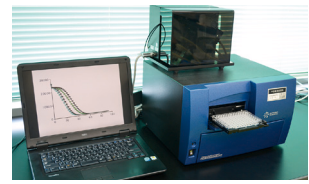
Component analysis
Qualitative / quantitative analysis of flavonoids, polyphenols, carbohydrates, lipids, peptides and amino acids, extraction / purification / structural analysis of contained components

Functionality evaluation
Anti-metabolic syndrome action, anti-fatigue action, anticancer action, antibacterial action, central nervous system action, Antioxidant (ORAC), etc.

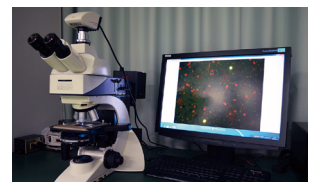
Safety assessment
General toxicity tests (blood, biochemistry, pathology, etc.), Genotoxicity tests (chromosomal abnormalities, micronucleus tests, etc.), Pharmacokinetic studies (absorption, metabolism, excretion), Drug interaction test (combination with pharmaceuticals)



LC / MS / MS analysis



Antioxidant test



Genotoxicity test



Japan Health and Nutrition Food Association GMP for dietary supplements
Acquired accredited certification at Ikeda Plant, Ibigawa Plant, and Next Stage Plant!
The GMP label indicates to consumers a safe and secure dietary supplement manufactured under a strict quality control system.



The Foundation of Food Safety Certification (food safety) FSSC 22000
FSSC 22000 is a benchmark approval standard established by the Global Food Safety Initiative (GFSI) that integrates ISO 22000, the international standard for food safety management systems, and ISO / TS 22002-1, which was developed from ISO 22000.

API Network



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OEM/ODM for health supplement
API

API's ODM

Thoughts in "D" ODM that only we can perform

M

OEM · ODM GUIDE

Reliable and proven one-stop OEM

Through a long history of over 100 years beginning with the beekeeping business in 1907, API has expanded business from bee production to health supplements, pharmaceuticals, and further grown into an OEM manufacturer. API has realized one-stop OEM at its own plants (Motosu Plant, Ikeda Plant, Ibigawa Plant, NextStage Plant) including raw material processing and material development for products of various dosage forms. High quality, low cost, and speedy response are what we can achieve through our integrated manufacturing.

Comprehensive proposal from customer's perspective

In addition to highly enhanced technology, API has the ability to make genuine proposals that meet customer needs. Each of our four plants has Technical Development Section. Trained specialists for each dosage form are assigned as dedicated staff. Each employee who has a deep understanding of the site, not through armchair theory, will propose a comprehensive plan from planning of all materials and genres to formulation development, sales strategy, and support with a sincere attitude from customer's perspective.



Capable of producing attractive products using all genres and materials

We propose the selection of materials according to your needs.

- Original functional material**
Agarwood leaves (improves bowel movement), tea flowers (diet), etc.
- Beauty material**
Collagen, placenta, hyaluronic acid, proteoglycan, etc.
- Diet material**
Lycopen, white kidney beans, fermented plant extract, etc.
- Joint material**
Glucosamine, chondroitin, non-denatured type II collagen, etc.
- Bee products material**
Royal jelly, propolis, bee pollen, honey, etc.
- Intestinal material**
Agarwood leaves, bifidobacteria, lactic acid bacteria, oligosaccharides, etc.
- Green juice material**
Barley young leaves, kale, Sasa veitchii, Ashitaba leaves, etc.
- Eye care material**
Bilberry, lutein, astaxanthin, black soybeans, etc.

Integrated production system from raw material development to commercialization

After interviews with customer, we will propose highly original product development that meets customer demands, from product concept, material, shape, flavor, packaging, and advertisement.



Operation flow until product is made (example)



One Stop

Reliable and proven one-stop OEM

EEM

API Co., Ltd.

The raw material changes into seven colors by "combination" of processing technology!

Do you still handle each technology apart? API has many excellent processing techniques to produce health foods. We are highly acclaimed for lyophilizing technology, fermentation technology that further enhances the nutritional value of ingredients, and technology that concentrates and extracts natural extracts. By combining them effectively, they can be applied to any product.



Base material safety check

- Eating experience confirmation
- Hazardous substances verification (residual agricultural chemicals, etc.)
- Stable supply chain establishment

Extract

Water, ethanol

By dissolving the raw material in contact with a solvent, the soluble components can be selectively extracted. Water, ethanol and hydrous ethanol are used as main solvents.

Fermentation

- Additional functionality: Nutrient changes and probiotics
- Change in smell and flavor
- Change in absorbency

Fermentation method is adjustable by the specified bacterial species. According to the material, fermentation conditions will be considered such as time and temperature. (Actually conducted with lactic acid bacteria and yeast.)

Based on the final dosage form, processing method of the fermented component can be selected such as "Extraction", "Concentration", and "Powdering" etc.

Enzyme treatment

Food enzymes, extracted from natural organisms, are classified as food additives, and act as catalysts in raw material processing. Even with similar enzymes, the substrate specificity varies depending on the manufacturer and origin. The enzyme and reaction time will be selected according to the ingredients and purpose.

Enzyme species (typical examples)	Substrate	Product	Purpose
Amylase	Starch	Monosaccharide Disaccharide Oligosaccharide	<ul style="list-style-type: none"> Generate nutrient sources for microorganisms (as fermentation pretreatment) Saccharification improves digestibility and gives sweetness.
Cellobiose	Cellobiose	Monosaccharide Disaccharide Oligosaccharide	<ul style="list-style-type: none"> Decompose fiber and increase extraction efficiency. High usage rate for plant-derived material.
Protease	Protein	Amino acid Peptide	<ul style="list-style-type: none"> Decompose protein and improve extraction efficiency Amino acids and peptides impart functionality and umami. High usage rate for animal-derived material.

Processed product safety assessment

- Safety verification
- Efficacy evaluation

Production network that supports API's quality OEM / ODM

Nagaragawa Research Center

New raw material development
Functionality evaluation
Analysis of various components
Safety evaluation
Pharmacokinetic test
Drug interaction

Quality Center

Residual agricultural chemicals and antibiotics analysis
Accelerated analysis and long-term stability test
C13 (carbon isotope) analysis
Monitoring camouflaged honey
Inspection of radiation traces
Measurement of radioactive substance, etc.

Mizuho Advanced Technology Center

Trial development of raw material level
Pilot plant

Mizuho Advanced Technology Center

ミズホ 先端技術センター

Quality Center

Motosu Plant

Various extraction and concentration
Lyophilization
Spray drying
CDM (instant drying and powdering)
Fermentation and enzyme treatment
Emulsification
Honey bottling
Viscous liquid (paste form) filling
Purification processing

Ibigawa Plant

Various granules
Lyophilization
Blow filling
Atomization
Large bottle drink
Liquid three-way filling

Ikeda Plant

Formulation process: Tablet, Coated tablet, Hard capsule, Soft capsule
Packaging process: Stick filling, Three-way filling, Bag filling, Assorted filling, Bottle filling
Drink line: Small bottle drink, Mini bottle can drink

Ibigawa Plant

Next stage plant

Soft capsule
Little PET bottle drink
Stick packaging
Area10
Automatic warehouse system
Rental floor
Halal certification

Granule

Granule is a processed powder for easy-to-drink and melt-in-the-mouth. In addition, it can eliminate fine powder and easily melt the powder.

Shape	Fluidized bed granulation	Agitation granulation	Extrusion granulation
Appearance	Fine granule	Large and round granule	Large and cylindrical granule
Solubility	Melt quickly	Melt slowly	Melt slowly
Granulation method	Granulate by flowing powder with warm air, and spraying water etc.	Granulate by stirring the powder with a mixer-like machine, adding water etc. and rounding.	Granulate by extruding from a metal plate with holes after adding water etc. to the powder and kneading with a mixer-like machine.
Granule photo			

Tablet

It is made by hardening the powder with pressure for easy-to-drink. Some choices are available in accordance to the purpose, such as sugar-coated tablets, film-coated tablets covered with a thin film of natural resin, and chewable tablets without water.

Shape	Diameter 8φ	Diameter 9φ	Diameter 10φ	Diameter 11φ	Diameter 15φ	φ	Conversion value (diameter)
Content	200~300mg	280~350mg	400~450mg	470~530mg	800~1500mg	5φ	5mm
Dosage form sample (actual size)						8φ	8mm
						9φ	9mm
						10φ	10mm
						11φ	11mm
						15φ	15mm

Shape	Diameter 7.5φTR	Diameter 8φTR	Diameter 8.5φTR	Diameter 9φTR	Diameter 9.5φTR	Diameter 10.5φTR	TR type	Normal type
Content	200~250mg	200~300mg	250~320mg	280~350mg	320~400mg	400~480mg		
Dosage form sample (actual size)								

Shape	Football	Triangle	Lozenge	Coating				
				Type	HPMC	Shellac	Zein	Sugar coat
Content	400~600mg	250~300mg	850~1200mg		5~20mg	1~4mg	3~10mg	Same amount as nucleus agent
Dosage form sample (actual size)								

Filling / packaging

Shape	Stick	Three-way / large three-way	Bottle	PTP packaging	Bag packaging	Liquid three-way	Final packaging
Material	Aluminum film (plain / printing)	Aluminum film (plain / printing) Transparent film (plain / printing)	Glass Plastic	PVC aluminum film (plain / printing)	Aluminum	Aluminum Polyethylene	Paper
Size	Width 20mm/25mm/30mm/38mm	40~120mm / 80~120mm	Various types available	Various types available	Various types available	Various types available	Various types available
Dosage form	Granule	Tablet, granule, soft capsule, hard capsule	Soft capsule, hard capsule, tablet, etc.	Soft capsule, hard capsule, tablet, etc.	Soft capsule, hard capsule, tablet, granule, etc.	Liquid / jelly	Stick, PTP, three-way, bottle, bag
Others		Assorted filling (mixed with different types)			Type: Stand / flat bag	Type: Flat mouth, bottle mouth	

Small bottle drink

Three types of glass bottles are available.

Material	Glass
Content	30-50-100ml / bottle
Packaging form	10 bottles/carton

Mini bottle can drink

Aluminum bottle can with light and easy-to-carry. Two types of packages are selectable.

Material	Aluminum
Content	100ml
Packaging form	Cluster pack: 6 bottles Wrap round: 10 bottles

Large bottle drink

- Flexible production from small lot (1,000 or more) to 4,000 ~ 8,000 bottles per day.
- High versatility such as various bottle shapes and sizes including square bottles.
- Abundant variations of liquid contents.

Material	Glass
Content	180~900ml / bottle
Packaging form	Manual work such as labeling, cosmetic carton, and replacement tap insertion

Viscous filling

Viscous content can be filled into wide-open containers such as Pointed Cap.

Material	Glass, plastic
Content	About 100~500g
Packaging form	Labeling Container shrink Cosmetic carton etc.

Concentration

By lowering boiling point under vacuum, this process efficiently evaporates water and concentrates raw material (vacuum concentration type).

- Solid concentration adjustment: This process increases functional ingredient content, reduces transportation costs, increases preparation amount by lyophilization.
- Measures against bacteria: Water activity is reduced and microbial growth is suppressed.

Various concentrators are available according to the customer's application.

For small and medium lot size

- Vacuum Kneader: Moisture evaporation: 50~80 ℓ / h
- Effective for foaming material
- Flash type concentrator: Moisture evaporation: 1,200 ℓ / h

For large lot size

- Plate type concentrator: Moisture evaporation: 2,000 ℓ / h

Micronization

The raw material particles collision with high pressure in the liquid can reduce the particle size. The micronization of the raw materials can improve its functionality.

- Improved solubility: Improved dispersibility of insoluble components
- Improved absorbency: Improved absorbability of nutrients
- Flavoring improvement: Improved mouthfeel and going down smoothly

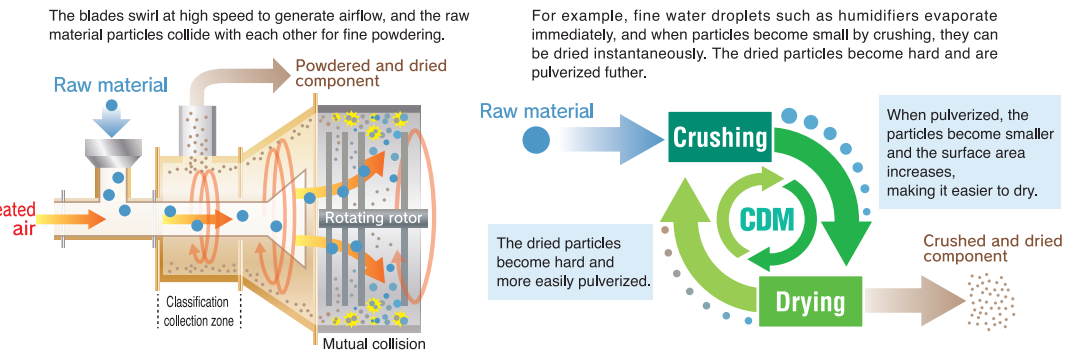
Powdering

Extract components are powdered by lyophilizing and spray drying. The most suitable powdering method is selected based on the quantity and ingredients.

Production method	Lyophilization	Spray drying	Centrifugal force dryer add mill
Lot size	Small	Large	Small
Continuous production	Not suitable	Suitable	Suitable
Drying time	Long	Short	Very short
Product loss	Small	Many	Small
Heat damage	Light	More	Light
Particle size adjustment	Impossible (Possible at powdering)	Possible	Possible

Centrifugal force dryer add mill (CDM) enables simultaneous drying and powdering

The blades swirl at high speed to generate airflow, and the raw material particles collide with each other for fine powdering.



Little PET bottle drink

It can be designed to match the request from the sales channel thanks to its high flexibility.



Material	PET
Content	30~140ml
Packaging form	① Seal shrink (up to the upper surface) ② Semi-shrink (up to shoulder) Cluster pack: 6 bottles, etc. Wrap round: 6, 10 bottles, etc.