

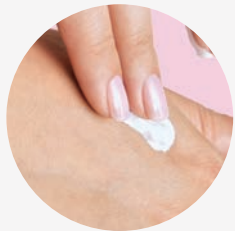


~ From food products to industrial oil ~

20 Applications

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20 Applications



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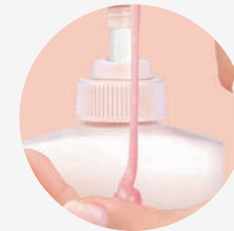
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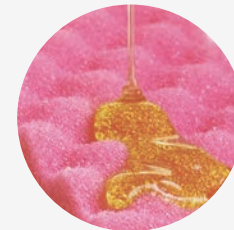
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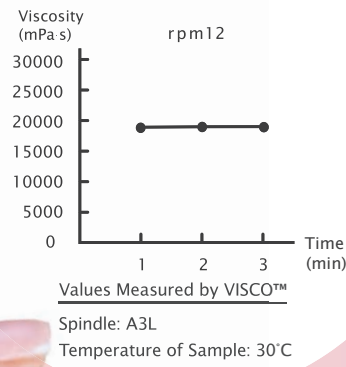
Lotion and Hand Cream

The texture when applied to skin is one of the most important elements

The main purpose of lotion is to protect and moisturize the skin. There are many types such as body cream, hand

cream, and lip cream but all are basically composed of some kind of oil, such as mineral oil or Vaseline, water, an emulsifier in order to mix the two, a moisturizing agent, and fragrance. There are differences in texture depending on the balance of the combined ingredients, anything from a lotion that is light and absorbs quickly to thicker deep moisturizing creams. Texture is an important factor in choosing a hand cream and many consumers choose based on the season or even their mood.

★ Viscosity of Hand Cream



Hand cream



Compared to other parts of the body, hands are frequently exposed to water and other outside stimuli elements so hand creams contain either solid or highly viscous oil.

Body Cream



Body cream tends to be of lighter texture and contains less oil so that it can be easily applied all over the body. Some body creams are thicker and contain more oil to moisturize dry parts of the body, like knees or heels.

Customer comments

The customer's company produces many types of hand lotions and body creams. The customer does not only use the VISCO™ for quality purposes but to test samples from products returned as defective or in the case of a user dispute. Due to the fact that the customer has users all over the world, the products are exposed to many different climates and temperatures. The consistency of the products can change due to climate. The company makes a wide range of lotions from very high to low viscosity. Products of the highest and lowest viscosity were the hardest to get a stable measurement. But since using the VISCO™, the customer has been able to go stable results despite the viscosity of the product.

Quality control of Lotion and Creams

A refractometer or polarimeter is used for the intake inspection of raw materials. For Polarimeters the portable RePo™-5 or for high accuracy, the AP™-300 and SAC-i™ are recommended. As for refractometers, either the easily portable PAL™ series or the highly accurate RX™ series are recommended. For pH management PAL™-pH is recommended.



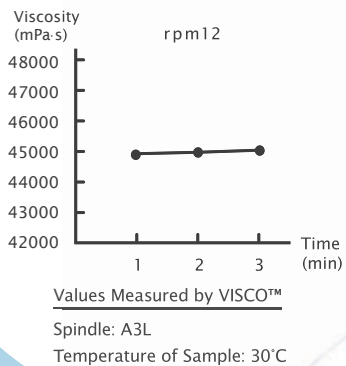
Toothpaste

Toothpaste is called tooth power because long ago powder was used.

Toothpaste not only keeps the mouth clean but prevents cavities, stained teeth and periodontal diseases. Plaque is bacteria that is adhered to the tooth. Just one centimeter of plaque can contain one hundred million bacterium. It is difficult to rinse plaque with just water as it strongly adheres to the teeth. Plaque buildup causes not only poor oral health but bad breath, cavities, and periodontal diseases so it is important to brush teeth thoroughly using a toothbrush. It is possible to remove plaque with just a toothbrush but by using toothpaste, you can prevent the formation of

plaque. Toothpaste, being a highly viscous paste, allows the active ingredients of the toothpaste to absorb deeply into the periodontal pocket or gums. If toothpaste is too hard, it is difficult to squeeze out of the tube and if too runny, one ends up using too much toothpaste and it is difficult to get on the brush. Viscosity has a very important role in the makeup of toothpaste.

★ Viscosity of Toothpaste



General Ingredients of Toothpaste



- Polishing Agent: To remove plaque, discoloration or stains.
- Lubricant: To prevent toothpaste from drying out.
- Foaming Agent: The foam helps distribute the active ingredients throughout the mouth.
- Binding Agent: Keeps toothpaste in paste form.
- Flavoring Agent: Adds flavor and scent to make the toothpaste easier to use and makes it more refreshing
- Preservatives: to keep the product from deteriorating

Quality control of toothpaste

A refractometer or polarimeter is used for the intake inspection of raw materials. For polarimeters the portable RePo™-5 or for high accuracy, the AP™-300 and SAC-i™ are recommended. As for Refractometers the either the easily portable PAL™ series or the highly accurate RX™ series is recommended. For pH management the PAL™-pH is recommended.



Yogurt

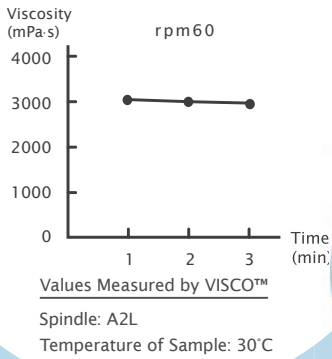
Thicker yogurt is better for health!?

The two major reasons that yogurt is said to be good for your health is that it is high in nutrients and full of healthy bacteria such as lactic acid bacteria. There are many types of bacterium found in yogurt and the mix depends

on the type or even brand of yogurt. The type of bacteria used can determine the texture and taste. For example thicker yogurts tend to include EPS, which is one of the byproducts produced by the bacteria during the

fermentation process. EPS or Exopolysaccharide is known to boost the immune system which is one of the reasons yogurt is considered to be healthy.

Viscosity of Yogurt



Manufacturing Process of Yogurt

There are two ways yogurt is manufactured. It is either fermented in the package or fermented in a tank before being packaged. This manufacturing process affects the texture of the yogurt. Yogurt that is fermented before being packaged is of a thinner, smoother, consistency and mainly used as yogurt drinks and yogurt with fruits. As for thicker, pudding like yogurts, the fermentation process happens after being packaged.

Ezaki Glico Corporation Ltd.

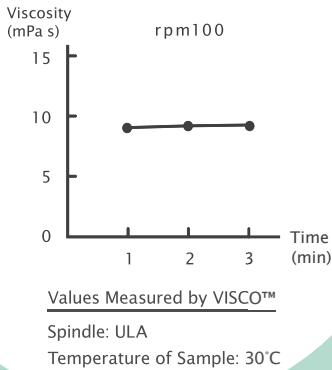
At Ezaki Glico they are measuring the viscosity of the yogurt and custard pudding. They purchased VISCO™ (Package B) to use at their factories because of its portability. The VISCO™ received highly positive feedback saying not only is the VISCO™ small and stylish but the measurements are very accurate.

Ice cream

Smooth, melt in your mouth texture key?!



Viscosity of Ice cream



On a hot summer day, one tends to yearn for ice cream. Just the sight of ice cream can be refreshing. As of late, ice cream is eaten not only during summer but also during winter months many find eating ice cream in the comfort of their warm, cozy, room can be particularly satisfying, making ice cream popular all year round. During winter creamy and more flavorful ice creams tend to be preferred and it turns out that there is a particular reason for this. In the winter, the body's metabolism increases to maintain body temperature and, concentrations of Leptin in the blood to decrease as fat decreases. When Leptin levels in the blood decrease the body tends to crave sugary foods and causes sugary foods to taste all the better. The key to the happiness one bite of ice cream can bring you is the smooth and melt in your mouth quality and behind all of it is the proper viscosity management.

Foremost Blue Seal Ice Cream

At Foremost Blue Seal Ice Cream, the VISCO™ is used to control the viscosity of the ice cream mix. How the ice cream melts in your mouth directly relates how delicious the ice cream is, so Foremost Blue Seal uses the VISCO™, especially while developing new flavors. It is important to determine the proper viscosity for each development stages. in order to later prevent equipment failure, when refilling the ice cream tubs. The customer loved the fact that the VISCO™ was so easy to use, even for first time users and that very little sample was needed to get an accurate measurement.

Quality control of yogurt

Manufacturing yogurt, not only viscosity is important but also controlling the thickness and acidity of the yogurt, as it determines the taste. When controlling the thickness and acidity, the PAL™-BX|ACID96 is recommended. For pH management, the PAL™-pH is recommended.



PAL™-BX|ACID96

PAL™-pH

Quality control of ice cream

Because ice cream is eaten cold, it is important to control the sweetness that can be tasted once placed in the mouth. To monitor sweetness, the PAL™-Pâtissier is recommended and as for pH control the PAL™-pH is recommended.



PAL™-Pâtissier

PAL™-pH

'Anko' (Bean paste)

Said to be eaten in Japan from the Kamakura period (1185-1333) and essential in Japanese Confectionary.

Red bean paste or Anko is essential in Japanese Confectionary. There are many types of sweets made with red bean paste including red bean mochi, Oban-Yaki (a muffin type sweet with red bean paste inside), red bean doughnuts, and Monaka (wafer sandwich with red bean paste inside). The secret to the deliciousness of red bean paste is in the elegant sweetness of the Azuki beans, and smooth creamy texture.

The texture of red bean paste is said to come from the starch in the beans expanding as they come in contact with water during the cooking process. The starchiness of

the beans depends on the bean type and can affect the overall flavor of the paste.

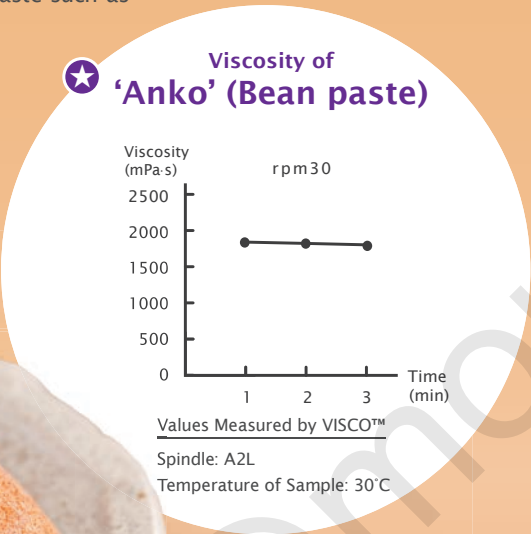
It is said that the viscosity of red bean paste comes from one of the starch component found in beans called Amylose. Beans with low levels of Amylose tend to be more viscous. Once again, the flavor and sweetness of red bean paste is determined by the type of bean used. How the paste is made can also affect the texture and taste such as

the cooking time, temperature, and how long the beans are steamed. If the beans are over cooked the red bean paste becomes too sticky. The careful selection of high quality beans and the right manufacturing technology or method is essential in order to produce delicious red bean paste.



The delicious relationship of 'Anko' (red bean paste) and sugar

'Anko' (red bean paste) is made by adding sugar to cooked red beans and is further into a paste. Preferences regarding sweetness of the red bean paste depends on region and climate. The sweetness of red bean paste depends on the sweetness of the beans and the amount of sugar added, and how long the beans were cooked. Each manufacturer uses their own know how to determine the flavor of their red bean paste.



Miso

Traditional Japanese Fermented Food

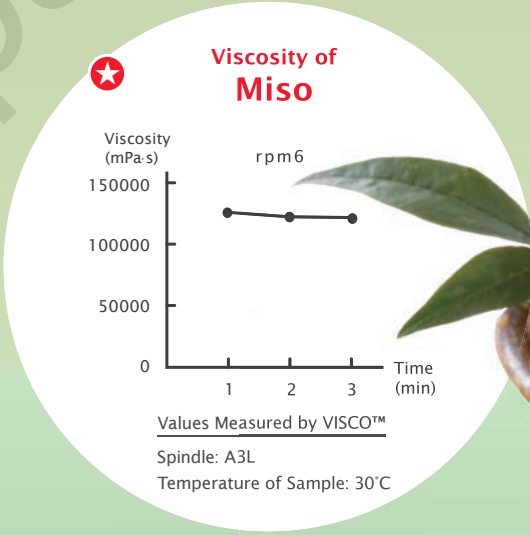
Miso is a traditional Japanese food that has been a staple of the Japanese diet for over 1,300 years. As of late, miso being fermented food, has gained attention from all over the world for its health benefits. Miso is an essential ingredient for many Japanese dishes. It is most commonly used in miso soup, which is known to Japanese people as a comfort food and considered to be Ofukuro no aji which means "Mom's Taste". The flavor of miso is comprised of a complex mixture of sweetness, saltiness,

umami, acidity, and bitterness of which all components must be in harmony. Unlike soy sauce, miso does not have any Japanese Agricultural Standards (JAS). There are so many varieties that it would be difficult to classify them all. Miso contains live, active cultures and cannot be classified as it is constantly changing. Also, there are many miso products which do not undergo heat sterilization, and for this reason, setting or maintaining physicochemical analytical values is impossible. Miso manufacturers check the

moisture content, temperature, and conduct chemical testing and microorganism testing. Lastly sensory inspections are conducted daily to ensure the taste of the miso and safety of the consumer.

Types of miso

Miso is classified largely by its raw ingredients; kome (rice), mugi (barley), mame (bean) and 'chougou' or mixed miso. Each type of miso has different ratios of soybean, rice, barley, and salt.



Tsuru Miso Jozo Co., Ltd.

Tsuru Miso Jozo was founded during the Meiji period (1871) and is located in Yanagawa City in the Fukuoka Prefecture. Having a history of over 140 years, their motto is to follow tradition and keep up the same formula and taste. They also make miso used in miso dispensers in the food industry. The miso used in dispensers has to be of a certain consistency or viscosity in order to dispense the same amount every time.

Miso that is too viscous will cause the dispenser to become clogged and break, so it is all the more important to make sure the miso is at the right viscosity. When Tsuru Miso Jozo tried the VISCO™, they were very pleased at just how easy it was to use. The VISCO™ only requires a small amount of product in order to get a measurement so Tsuru Miso Jozo was happy that their miso would not go to waste.

Quality control of Anko (red bean paste)

The PAL™-J is recommended to measure sugar levels of Anko (red bean paste) and the PAL™-SALT for salt levels. As for pH, the PAL™-pH is recommended.



Quality Control of Miso

In order to monitor the concentration of miso, PAL™-J is recommended and for salt content, the PAL™-SALT is recommended. For pH, the PAL™-pH is recommended.



Sauce

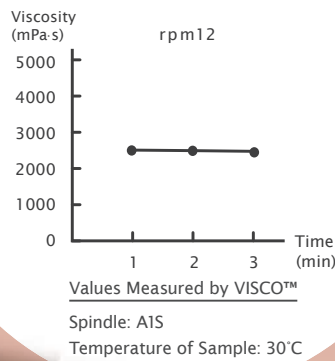
The Proper Viscosity is the Key to Delicious Sauce that Mixes Well with Food

Whether it be Japanese, Western, or Chinese food, there are many different types of sauces to bring out the delicious flavor of a dish. Demi-glace sauce, gravy sauce, oyster sauce, 'gyudon' sauce or beef bowl sauce, and 'unagi' sauce or eel sauce are just some of the many sauces used for dishes from appetizers to desserts. How well sauces cling to food depends on the thickness of the sauce so the key to delicious sauce is its viscosity. Without proper thickness, the sauce will not properly coat the food resulting in a bland flavor. Even sauces with same 'umami' flavor and amount of

salt, the food the flavor will differ depending on its viscosity. The viscosity of the sauce corresponds to how well it goes well the dish and it can vary from watery, non-viscous to very viscous sauces. To thicken a sauce, butter,

cream, flour, corn starch or potato starch is used. Viscosity, changes depending on how much it has been heated so it is important be aware of the right timing to turn off the heat.

★ Viscosity of 'Tonkatsu' Sauce (Pork Cutlets Sauce)



Customer comments

Our customer, a restaurant that offers Hamburg steaks uses the VISCO™ to manage their sauces, 'tare' (Japanese dipping sauce), and salad dressings. This customer is not only testing viscosity, but also carefully checking the concentration and salt content of their food.

Quality Control of Sauces

The PAL™-H is recommended for testing consistency and PAL™-SALT for testing salt content. For monitoring pH PAL™-pH is recommended.



PAL™-H



PAL™-SALT



PAL™-pH

Curry

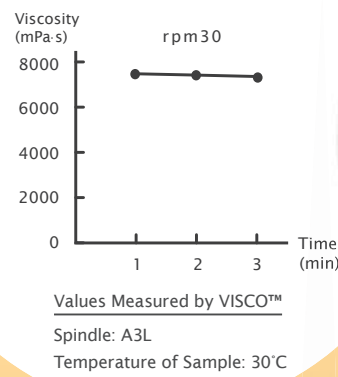
What's Behind Curry Rice's thickness?

Curry is a popular dish and eaten all over the globe. The ingredients and spices used in curry differs depending on the country, region, and dietary habits, which means each curry has a different aroma, color and spiciness. Japanese curry, which is popular in Japan, is thick and is generally eaten over rice. On the contrary, In-

dian Curry is of a thinner silky consistency and eaten with Indica rice or Indian flat bread, 'naan'. Indica rice is not sticky and compared to Japonica rice, when cooked, the rice does not stick together so goes well with the soupy curry. The thickness of Japanese curry comes from flour-based

starch. When heat is applied to flour, the starch becomes gelatinous. Additionally, curry 'Udon', (curry noodle) is a unique type of curry that that was developed in Japan, it consists of curry sauce thickened with potato starch to allow the curry sauce to adequately cling to the noodles.

★ Viscosity of Curry



The origins of the word Curry

According to All Japan Curry Manufactures Association, there are few theories involving the word curry which is said to have originated from 'Kari' meaning sauce in the Tamil language or it may have come from 'Turcarri' which means highly aromatic or delicious in the Hindu language. Spicy food from India and other subtropical surrounding areas are said to have been given the general term "curry" in the English language.

Customer comments

Our customer started using the VISCO™ during the production process after receiving a customer complaint saying "The sauce is not as thick as usual." Our tastes is affected by changes in physical condition and such so in order to measure the thickness objectively and numerically they choose the VISCO™. They are especially pleased with ease of use and low cost of the VISCO™.

Customer comments

Another customer started using the VISCO™ because if the viscosity of curry is too low, when curry is served over the rice, the sauce will run through the rice to the bottom of the plate which does not make it "delicious looking curry".

Quality Control of Curry

For measuring the viscosity, the heat tolerant PAL™-H is recommended. For salt concentration the PAL™-SALT is recommended. As for pH the PAL™-pH is recommended.



PAL™-H



PAL™-SALT



PAL™-pH

Tomato Ketchup

Tomato: The Most Produced Vegetable in the World.

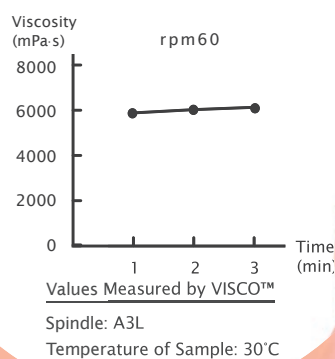
Tomato puree is made by applying heat, straining, and boiling down ripe tomatoes into a thick puree.

When seasonings such as sugar, salt, vinegar, also vegetables such as onions and celery are added, to the tomato puree, it becomes ketchup. Ketchup is a versatile condiment that is loved by people from all over the world. It is used for western style food such as hot dogs, French fries, omelets, and

in Chinese food, it is used to make such food as stir-fried shrimp in chili sauce. When you think of a ketchup container what do you see? A container of ketchup can range from a glass bottle to a flexible plastic tube. When a ketchup container is turned upside down, the ketchup does not readily come out unless shaken or squeezed. Ketchup is a thixotropic fluid which is classified as a non-Newtonian fluid which has property of becoming a liquid like state when force is

applied and returns to gel like state without force. The thick viscous consistency of ketchup comes from the pectin in the tomato. Pectin is easily broken down by the enzymes found in tomatoes. For this reason, when making highly viscous ketchup or jam, this enzyme needs to be inhibited. On the contrary, when making other processed tomato products like juice that is low in viscosity, it is important to break down the pectin. In such a way, viscosity can influence the mouth feel.

★ Viscosity of Tomato Ketchup



Customer comments

VISCO™ was selected for its portability and data storage capacity for onsite and quality control of tomato processing. This company manufactures various types of ketchup and tomato sauces for different uses. Their raw ingredients, viscosity, consistency, salt content, and pH levels varies. In addition to the VISCO™, this company is using ATAGO's salt meters and concentration meters.

Quality control of processed tomato products

For processed tomato products, concentration, salinity, and pH are generally tested. The highly accurate RX™ series or the CM™-800α with capability to test continuously on the production line are recommended. For salt content the PAL™-SALT is recommended. As for monitoring pH the PAL™-pH is recommended. To measure the sugar content or acidity of the raw tomatoes, the PAL™-BX|ACID3 is recommended.



Butter

A breakfast favorite, buttered toast

Not only is butter delicious but the aroma and richness are appealing to the senses. How do you like your buttered toast? Spreading butter on freshly toasted bread is simply divine. Some spread butter into their toast while others place slices of butter on their toast in order to further enjoy the aroma and texture of the butter. The basic simplicity of buttered toast is the very reason that there are so many ways to enjoy it, including how it is toasted, and how the butter is spread. Butter is considered to be a Bingham fluid meaning butter becomes more viscous with constant force. By applying

constant force to the knife one is easily able to spread butter on bread. Butter is a perishable item so must be stored below 10 degrees so butter is very hard when first taken out of the refrigerator. Cold butter is easily cut but too hard to spread on toast so there are, even when cold, easily spreadable butter spreads. These products are made softer with vegetable oil and other ingredients and in production process the butter spread's viscosity is studied under many different conditions.

Butter

Butter is according to the Japanese ministerial ordinance considering the compositional standards of milk products butter is defined as a highly concentrated form of fluid milk. It must have over 80% milk fat and less than 17% water content in order to be labeled and classified as butter.

Classifications butter by Manufacturing Method

[Fermented Butter]

Butter made by adding lactic acid to heavy cream and allowing it to ferment. Has a very rich aroma.

[Non Fermented Butter]

Butter made with heavy cream not by lactic acid fermentation. It has a fresh smooth taste and is the most commonly consumed butter in Japan.

Salted and Unsalted Butter

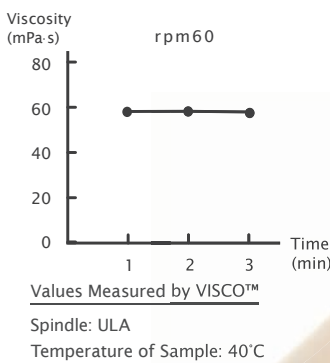
[Salted Butter]

Salt is added to butter during the whipping process. Salt enhances the flavor and allows for a longer shelf life. The amount of salt is roughly 1.5%.

[Unsalted butter]

Used mainly for cooking and baking. As there is no added salt the shelf life is shorter than salted butter

★ Viscosity of Butter



Quality Control of Butter

The PAL™-SALT is recommend to measure salt content. To measure the acidity of the milk the PAL™-BX|ACID91 is recommended For pH measurement the PAL™-pH is recommended.



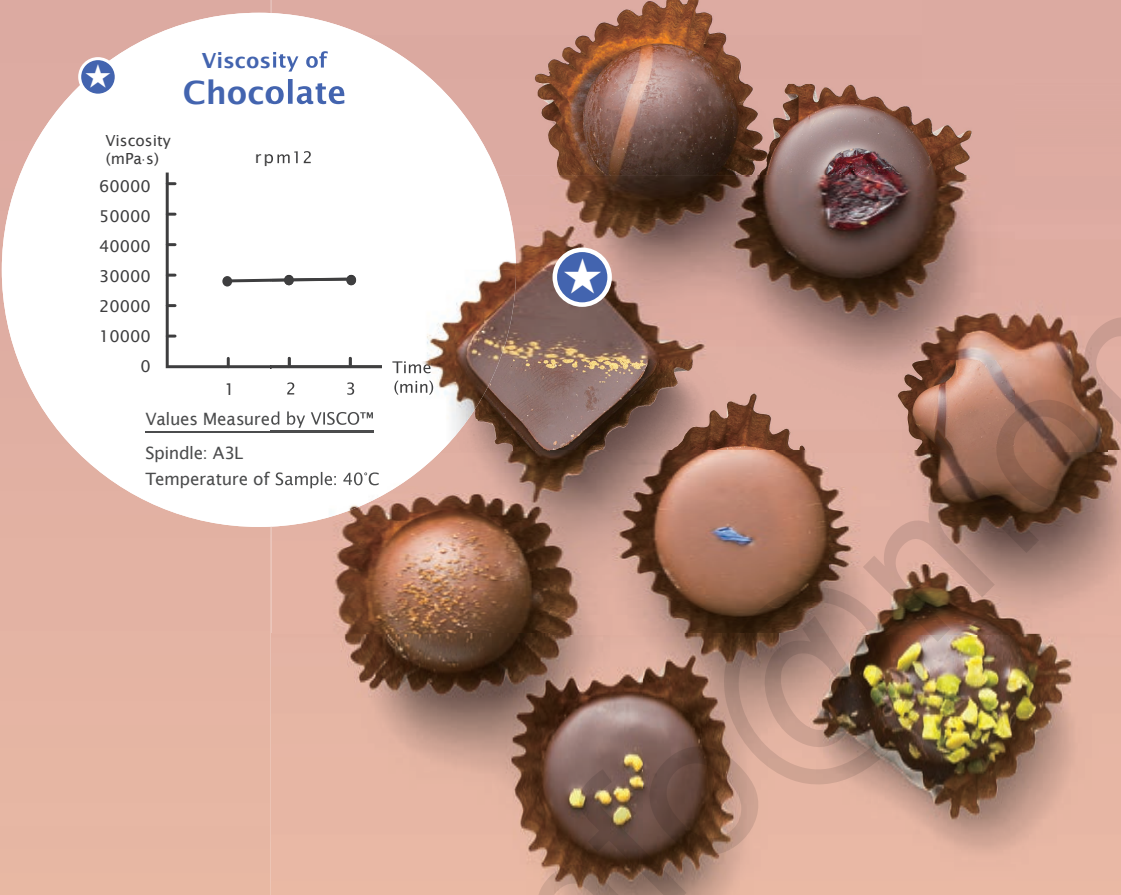
Chocolate

Why does chocolate melt in your mouth?

Chocolate has the perfect balance of sweetness and bitterness. Chocolate is made by mixing crushed cocoa beans, cocoa butter, salt, milk, and other flavoring agents. The oil found in cocoa butter is of a composition that is not seen in other natural oils. It is sold below room temperature yet

when bit into melts at from 30–35 degrees, slightly lower than body temperature. Because this nature chocolate begins to melt when placed in the mouth. Many manufacturers use from 5–10% vegetable oil in chocolate in place of cocoa butter. But in other parts of the world any

chocolate that contains more than 5% vegetable oil is not considered chocolate. Chocolates viscosity, luster, hardness, aroma are all affected by the blend and type of raw ingredients which causes differences in taste and texture



Customer comments

A manufacturer of chocolate, jellies and syrups, test the viscosity of their products at their research lab during product development and while testing new products. They chose the VISCO because of its portability.

Quality control of chocolate

As for refractometers the PAL™-Pâtisserie or RX™ series are recommended. To measure pH the PAL™-pH is recommended. To measure the conversion rate of sucrose the RePo™-3 is recommended.



Beverages

Does the viscosity of beverages affect how it goes down the throat!?

Whether carbonated drinks on a hot summer day, a glass of tart 100% orange juice to beat fatigue, and unsweetened beverages when cutting back on sugar, there are many different types of beverages in the world.

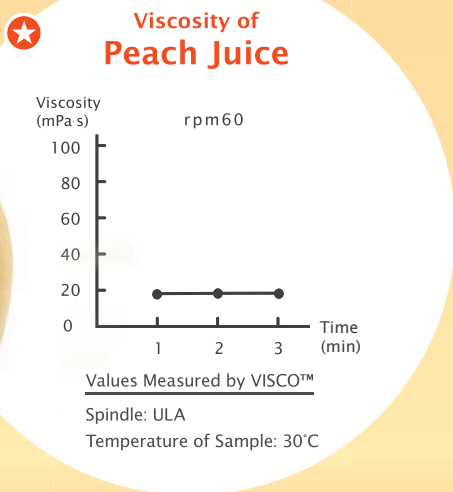
A study published in the American Journal of Clinical Nutrition “Empty Calories and Phantom Fullness,” they

compared two drinks of the same caloric and nutritional content with varying viscosity and found that viscosity determined one’s fullness rather than the caloric or nutritional content.

Additionally, a journal published by The Japan Society of Cookery Science “Effects of Drink Viscosity on Nodogoshi” found that in addition to flavors tasted on the tongue, nodogoshi sensation of liquid passing through the throat is important and nodogoshi influences the likings.

Nodogoshi varies with age and it is known that younger age group prefers less viscous liquids whereas older age group tend to like more viscous liquids.

Furthermore, posture when drinking is said to influence how the viscosity is felt. Drinking with the chin up and head tilted as when one is drinking out of a bottle, versus drinking with a straw will feel differently as it goes down the throat. Even beverages that one may not think it has much to do with viscosity will have slight differences from one product to another.



Customer comments

A manufacturer of various beverages and milk products who have been using ATAGO refractometers in their lab and field demonstrated VISCO™ as soon as it was released. They commented that they had never seen a viscosity meter that is so easy to use and can take stable measurements regardless of where the measurements are taken. They were also very impressed about its compact size.

Quality Control of Beverages

Concentration, salt content, pH, and acidity are important parameter for beverages. For concentration, the RX™ series or inline concentration meter is recommended. PAL™-SALT for salt content, and PAL™-pH for pH is recommended. To measure the acidity of citrus and other fruit juices a Brix-Acidity Meter is recommended.



Okayu (Rice Porridge/Congee)

Rice porridge everyone loves: What is the Difference Between 30% or 100%?

Rice porridge, congee or okayu is a rice dish that is cooked in the same manner as the regular rice, but with a higher volume of water.

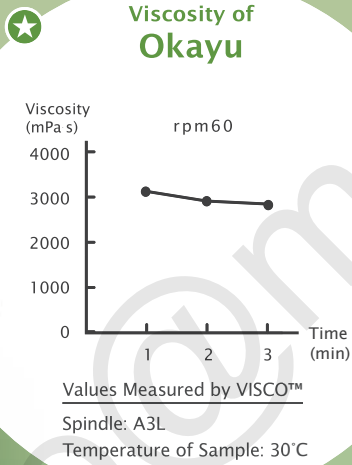
Rice porridge or congee has been loved by everyone. It is gentle on the stomach, prevents colds, and increases stamina and so on. Rice porridge is made not only for those that are sick but also as baby or care food.

Different types of rice porridge are defined by the amount of water added.

<Rice-to-water ratio>	
Zen-gayu-	1:5
Shichibu-gayu-	1:7
Gobu-gayu-	1:10
Sanbu-gayu-	1:20

For example, when okayu is used for baby food, one would start with very runny okayu and gradually reduce the amount of water as the baby gets older. When taking care of a sick person, the thickness of the rice porridge is adjusted depending on their appetite and condition.

Also, with age, elderly may have difficulties swallowing food. To prevent aspiration, rice porridge is put in a mixer to make a paste like texture and a thickening agent is added. In recent years, due to the increase in the elderly population with dysphagia, research is currently underway, especially concerning the thickness of (viscosity and hardness) dysphagia friendly foods.



Dysphagia Friendly Diet

In the recent years, with an aging society, dysphagia friendly food products are being developed. Dysphagia diets are meals for elderly that have difficulties chewing and swallowing where thickness and size are adjusted. Viscosity control is very important when it comes to dysphasia diet as wrong thickness can be life threatening. VISCO™ is acknowledged in the nursing industry for its ease of use the kitchen by anyone.

Quality Control of Okayu (Rice Porridge/Congee)

PAL™-SALT is recommended for salt control. Instead of using uncooked rice, when okayu is made using cooked rice, G-50 can measure water content once the rice is done cooking. PAL™-pH is recommended to manage pH levels.



PAL™-SALT



G-50



PAL™-pH

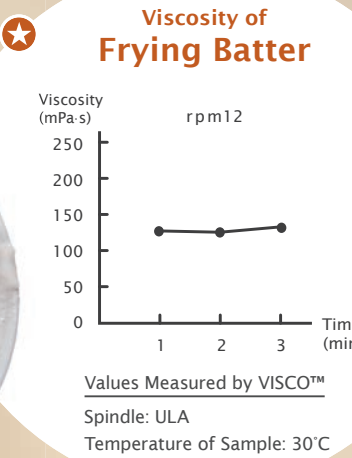
Frying Batter

Batter: A key factor that determines the texture and flavor of fried foods

Batters are made by combining some sort of flour with egg, milk and/or water and coat foods in a thick layer. When making batter at home, do you check its thickness by scooping the batter with

chopsticks? This is also a proper way of checking viscosity. Professionals check to make sure that the batter has good viscosity so that food would have good contact with the frying oil and proper

texture after fried. A viscosity of the batter is an important element and the deciding factor as to whether deep fried food has the crispy or crunchy texture.



Muginoho Co., Ltd.

Muginoho Co., Ltd operates franchise cream puff specialty stores called, "Beard Papa's Fresh and Natural Cream Puffs." Viscosity is measured for a consistent hardness of the pastry dough. In the pursuit of the perfect crunchiness upon first bite and smooth, creamy, taste in the mouth, Beard Papa's is very particular about their preparation methods and ingredients they use. To deliver fresh, light, creamy, and flaky consistency, Beard Papa's chose the VISCO™ for "potability" and "usability" that anyone can easily use onsite.

Katori Foods

Katori Foods has been manufacturing specialty handmade frozen foods for over thirty years. Katori Foods focuses on monitoring the frying batter when making fried foods such 'rolled katsu' (fried pork rolls) or tatsuta-age (fried chicken) and so on. If batter is too viscous, it will be too thick and heavy, resulting in customer complaints and when it is runny the layer will not adequately cover the food and ruin the taste. Katori Foods was met with difficulties keeping viscosity managed as most viscosity meters cannot be used on the production floor and it is difficult to operate such instrument without prior knowledge. VISCO™ was able to offer solutions to these problems and because it is battery operated, it can take measurements anywhere. Katori Foods was extremely pleased with VISCO™'s capabilities. Giving a number to taste provides shortcut to employee training and ATAGO is very pleased that VISCO™ has been of such help.

Quality control of frying oil

The DOM™-24 is a popular unit that can measure acid value of frying oil. For more information, please contact ATAGO for a copy of our Perfect Oil Guide. As for testing the pH of batter, PAL™-pH is recommended.



DOM™-24



Perfect Oil Guide



PAL™-pH

Shampoo

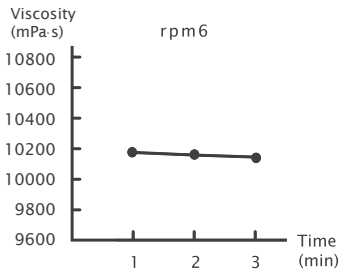
Cleans the scalp and washes away excess oil

The primary purpose of shampoo is to clean the scalp and wash away any excess oils. It is important to wash thoroughly because when pores on the scalp become clogged, decreased metabolism will result in hair loss. The best hair washing tip is to massage gently making sure not to scratch the scalp.

The main ingredients of shampoo are water and surfactant with roughly 80% water and 10–20% surfactants. Conditioning agents, thickening agents, preservatives, and fragrances constitute about 1%. Surfactants or cleansing agents can be classified into three categories, amino acids, soaps, and high grade alcohol agents and it can further be separated according to its ingredients such as botanical, organic, non-silicone, and scalp.

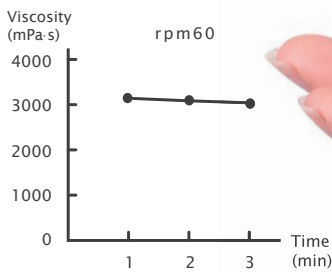
Shampoos are made viscous for ease of handling. Viscosity allows appropriate amount of shampoo in the hand without spilling and it also creates lather. The viscosity of shampoo can also influence the shape of the bottle. Shampoo bottles with pump dispensers will require a larger nozzle diameter for viscous shampoos whereas, shampoo squeezed from cap style shampoo bottles will need hardness of the bottle, amount of force applied to the bottle, and appropriate viscosity to be in balance.

Viscosity of Shampoo



Values Measured by VISCO™
Spindle: A2L
Temperature of Sample: 30°C

Viscosity of Conditioner



Values Measured by VISCO™
Spindle: A3L
Temperature of Sample: 30°C

Horitech Co.

Horitech Co. is a small-lot contractor and OEM distributor of shampoos, facial lotions and other cosmetic products. At Horitech Co., VISCO™ is used to manage how well it comes out of the bottle, or how it spread on the skin. Their shampoo has many repeat customers and viscosity is important for those that buys the product for "its usual texture."

Prior to purchasing the VISCO™, Horitech Co. was using a B type viscosity meter, but because it required 500mL of sample per measurement, they have decided the switch to VISCO™ that only requires 15mL of sample and to save cost and cleaning time.

Quality Control of Shampoo

For managing the concentration of shampoos, the RX™ series or CM™ series is recommended and as for pH, the PAL™-pH is recommended.



RX™-5000i

CM™-800α

PAL™-pH

Quality Control of Conditioner

For monitoring the density of conditioner, the RX™ series or the CM™ series is recommended and for monitoring pH, the PAL™-pH is recommended.



RX™-5000i

CM™-800α

PAL™-pH

Paint

The viscosity of paint is an index of how well it paints.

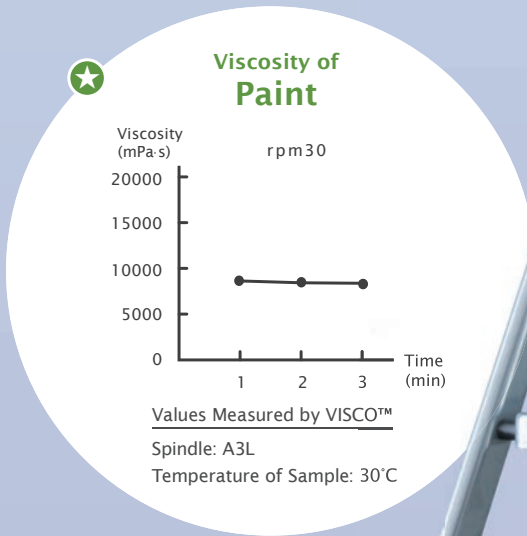
There are three purposes of paint- protection, aesthetics, functionality.

Protection: When metal and wood is exposed to wind, rain, and sunlight, it may rust or rot. The paint on the surface creates a coating layer that can act to preserve and protect it.

Aesthetics: There are many painted goods like cellular phones, cars, etc. around us. A coat of paint is aesthetically pleasing and gives color and shine.

Functionality: A coat of paint can provide heat insulation and/or resistance.

An important factor in making these roles fully demonstrated is viscosity. The viscosity of the paint is related to ease of application, finish and long-term stability of the paint.



Neotec Co.

Neo Tech specializes in metal cutting and special surface treatment for automotive parts and molding and high-quality coating for medical device parts. Before purchasing a VISCO™, they were using a cup-style viscosity meter, but decided to switch to VISCO™ for more precise control.

Equipment and conditions of the coatings are separated according to the product. For example, medical coatings are often made into thin films, and the coating method is changed according to the viscosity of the coating material. The plant for manufacturing medical equipment and the plant for automobile parts are separate building, and the painting area spans several areas. In addition, they said that the ability to quantify viscosity, the simplicity of measurement method, and the stability of measurement accuracy were reasons for selecting VISCO™.

Customer comments

A manufacture of strippable paint used to prevent corrosion, protection, and repel water mixes their own blend of paint has decided to purchase VISCO™ after their customer complained about inconsistent viscosity. Neo Tech uses VISCO™ to numerically capture their product viscosity for improved and consistent viscosity. They are especially fond of the VISCO™ for accuracy, price, and connectivity to PC for data management.

Quality Control of Paint

A refractometer is used to check the properties of the organic solvent used to dilute the paint. The portable PAL™-RI or RX series are recommended for high accuracy lab readings. To measure the pH of the paint, the PAL™-pH is recommended.



PAL™-RI



RX™-5000i



PAL™-pH

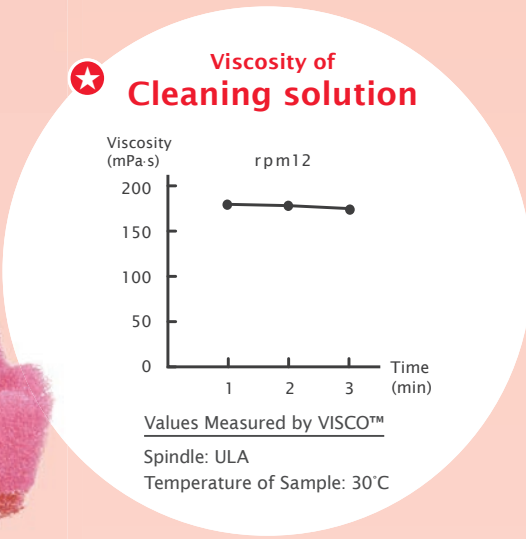
Cleaning solution

The viscosity of cleaning solution directly relates to its cleaning power

There are many different types of cleaning solutions. Depending on the type of soils or stain, for example, water, glycol, hydrocarbon, alcohol, and chlorine base cleaning solutions each with distinct characteristics.

When choosing a cleaner, how well it can clean is one of the most important points. To increase cleaning power, it is important to enhance the absorption rate of the cleaner to the surface of the dirt and the key factor for absorption is surface tension and viscosity. A surface tension refers to fluid characteristic when it tries to decrease surface area. For it to penetrate soil better, decreased surface tension and low viscosity is necessary. Surface tensions are usually controlled by use

of additives such as surfactant and its concentration. As for viscosity, in some cases, high viscosity is desired to keep the cleaning solution on the stain long. High viscosity lowers how much it penetrates beyond surface, but depending on the use of the cleaning solution, there is a proper balance. In the world of cleaning solutions, density and viscosity are managed and adjusted depending on the use of the product in order to have a high level of cleaning power.



Customer comments

A manufacture of cleaning solution tests the viscosity when purchasing the raw materials. Viscosity is checked every time the materials are received. For this reason, they chose the portable VISCO™ for its portability and ease of use on site. Additionally, the product development team is also using the VISCO™ to study the correlation between viscosity and cleaning power.

Quality control of cleaning solution

Cleaning solution will become increasing dirty over time. A concentration meter is essential to check how dirty it is. For a portable type, the PAL™-Cleaner is recommended. For higher spec measurements in the lab, the RX™ series or if one wants continuous measurements on the line the PAN™-1 or CM™-800α is recommended. For pH, the PAL™-pH is recommended.



PAL™-Cleaner



RX™-5000i



CM™-800α



PAL™-pH

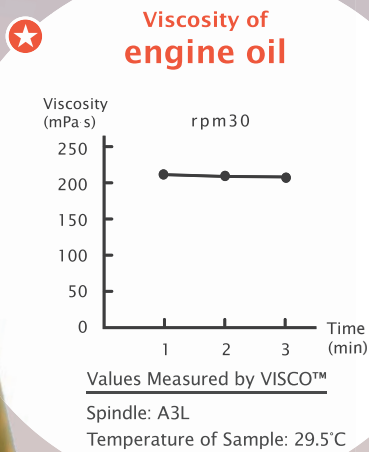
Engine oil

Accommodating various driving conditions

Engine oil is a lubricating oil used in the engine. Normally engine oil is located in an oil pan below the engine and is drawn up into different parts of the engine using a pump. The main role of engine oil is said to help lubricate, keep the engine cool and air tight, disperse detergents, and prevents rust in the inner parts of the engine. The viscosity

of engine oil characteristically changes with temperatures so is designed to handle many different driving conditions. For example, at colder temperatures, the viscosity of the engine oil helps start engine smoothly, and in parts of the engine that are high temperature where more stress is placed on the engine, the increased viscosity helps to protect the engine and also get the most out of the lubricant effect of the oil. There

are many different variations of these temperature vs viscosity relationships of engine oils. For ecological cars, where the engine power low and the fuel efficiency are the focus, relatively low viscous all-season motor oil is recommended by the manufacturers, whereas higher viscosity motor oil is recommended for sports cars with a high-power engine that are designed to get the best possible performance out the engine. Engine oil and viscosity have a close relationship and it is controlled by strict quality control.



Engine oil and viscosity standards

As a representative of an engine oil viscosity standard, there is the SAE standards. This is a standard that was set by the American Society of Automotive Engineers. For example, 5W-30 denotes the viscosity of the oil at low and high temperatures respectively. The 5W is the viscosity at low temperature and the W means winter which represents the viscosity during winter months. The lower the number the more viscous the oil is, even during cold temperatures. This means even at colder temperatures the higher viscous oil will allow for better engine performance and gas mileage. The last set of number indicates the viscosity at high temperatures. The higher the value, the engine oil will remain hard even at high revolution rates so is fit sports cars.

Quality control of Engine oil

A refractometer is used to check the raw materials of the engine oil. As for a portable type, the PAL™-BX/RI or the PAL™-RI is recommended. If using in the laboratory and one wants high spec measurements, the RX™ series is recommended. For monitoring pH the PAL™-pH is recommended.



PAL™-BX/RI



PAL™-RI



RX™-5000i



PAL™-pH

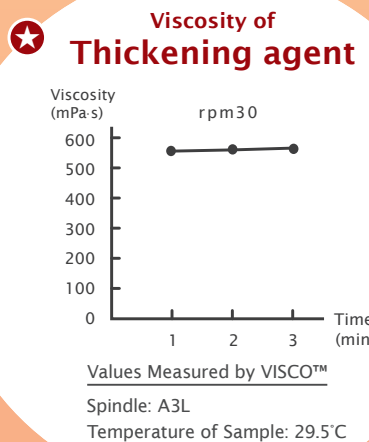
Thickening agent

Thickening agent is used in a wide variety of goods for foods, pharmaceuticals and industrials.

One will see by looking at the labels of many common products such as medical products, senior foods, cosmetics, adhesives, polymers, and paints that thickeners are used for many different types of products. Thickening agents are called three different names depending on its purposes. When it is in a small amount, but highly viscous, it is labeled as a thickening agent. When used

to thicken a liquid or jelly, it is known as gelling agents. If it is used to increase and stabilize the thickness of a food, it is known as a stabilizer. For example, when it is used for medical use, stabilizers are used to suspend the active ingredients where it needs to stay. Specifically, by having a certain viscosity, eye drops for example, when applied, thickeners will keep the medicine from dripping out of

the eyes and also help the medicine spread evenly. Also, in the medical field, for those that have trouble swallowing, adding thickeners can make it easier for patients to eat.



Demlite Co., Ltd.

Demliete Co., Ltd. measures viscosity during production process to check the swelling of the raw materials used for cosmetic, cleaning agent. The materials used for cosmetics and cleaning agent can increase in viscosity during production and optimal viscosity varies depending on products. For this reason, choosing the right viscosity is very important. Once past the optimal viscosity, it is not reversible. Demlite Co., Ltd chose VISCO™ for its portability and ease of use on the production floor.

Quality control of Thickening agent

To measure pH of thickening reagents, PAL™-pH is recommended.



PAL™-pH