

ATAGO® POCKET REFRACTOMETER

PAL™ Series

The Original Pocket Refractometer.

- Extremely water resistant (IP65)
- Revolutionary new ELI feature
- Calibration with water only
- Light & compact, 100g
- Automatic Temperature Compensation (ATC)
- Ergonomically designed for one-handed operation
- 2 carrying options: strap and case
- Hard plastic storage case
- Will float if accidentally dropped in water
- Measurement temperature up to 100°C



Can be washed under running water



Sample stage made of SUS



Bluetooth available



Backlight feature

* Contact Atago for more information.



External Light interference (ELI) Patented

When intense light penetrates the prism of a digital refractometer, the light waves interfere with the sensor, which may lead to inaccurate measurements. To ensure accurate measurement results, the PAL is programmed with the ELI function which displays the [nnn] warning message when intense direct light is detected. Forming a habit of shading the sample stage with your hand and re-pressing the START key (when the warning message from the ELI function is displayed) will ensure accurate measurement results each time.



PAL series comes with Data Transmission Function with NFC

Measurement history can be read by touching a contactless IC card reader / writer connected to a smartphone or a personal computer.



* The N-Mark is a trademark or registered trademark of NFC Forum, Inc. in the United States and in other countries.

Measurement Method



Apply 2 to 3 drops on the Prism surface.



Press the START key.



Measurement value and prism temperature are displayed in 3 seconds!

Optional Accessories



PAL™-case
Part No.RE-39409



Strap
Part No.RE-39410



Small Volume Sample Adapter
Part No.RE-39447

JORDAN for PAL™
(Silicon Cover)
Part No.RE-39414



MAGIC™
Part No.RE-39446

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agroQuimega.com

ATAGO® POCKET REFRACTOMETER

<Brix Scale>

Full Range & High Accuracy

PAL™ -3

Cat.No.3830



The PAL™ -3 has been modified to have a high measurement accuracy at $\pm 0.1\%$ Brix.

Brix
RNG : 0.0 to 93.0%
ACC : $\pm 0.1\%$
TMP : 10 to 100°C (ATC)
RES : 0.1%



Wide Brix Range

PAL™ -α

Cat.No.3840



The PAL™ -α is a special model with a wide Brix range (0 to 85%) offered at a very reasonable price.

Brix
RNG : 0.0 to 85.0%
ACC : $\pm 0.2\%$
TMP : 10 to 100°C (ATC)
RES : 0.1%



0.0 to 53.0 Brix

PAL™ -1

Cat.No.3810



The PAL™ -1 works perfectly in measuring almost any fruit juice, food, or drink, such as soup, sauce, ketchup, tomato sauce, and low-sugar jam.

Brix
RNG : 0.0 to 53.0%
ACC : $\pm 0.2\%$
TMP : 10 to 100°C (ATC)
RES : 0.1%



High temperature sample

PAL™ -H

Cat.No.3870



Mode H Technology measure high temperature sample in 2 seconds

Brix
RNG : 0.0 to 93.0%
ACC : $\pm 0.5\%$
TMP : 10 to 100°C (ATC)
RES : 0.5%



Improved Repeatability

PAL™ -S

Cat.No.3860



The PAL™ -S improves repeatability of samples that cause inconsistent readings. Ideal for fatty, dark, and/or emulsion samples, such as dairy products.

Brix
RNG : 0.0 to 93.0%
ACC : $\pm 0.2\%$
TMP : 10 to 100°C (ATC)
RES : 0.1%



Brix & Refractive Index

PAL™ -BX/RI

Cat.No.3852



Dual scales of Brix (0.0 to 93.0% full range, $\pm 0.1\%$ accuracy) and Refractive Index (0.0001 nD resolution).

Brix	Refractive Index (RI)
RNG : 0.0 to 93.0%	1.3306 to 1.5284
ACC : $\pm 0.1\%$	± 0.0003 (water at 20°C)
TMP : 10 to 100°C (ATC)	—
RES : 0.1%	0.0001



Standard accessory : MAGIC™

Common Specifications

Power supply	2×AAA Batteries	International protection class	IP65 Water resistant
Dimensions and weight			5.5×3.1×10.9cm, 100g (main unit only)

Reference: RNG=Measurement range, ACC=Measurement accuracy, TMP=Measurement temperature, RES=Resolution

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* ATC=Automatic Temperature Compensation
* 10 to 100°C (ATC) (Hot samples over 100°C can be measured under specified conditions. Please contact ATAGO for further details.)

<Special Scales>

Brix & Salt

PAL™ -BX | SALT + 5 Cat.No.4922

A hybrid product of Brix meter and salt meter was launched. PAL™.BXISALT+5 is equipped with an algorithm that saves dilution.

Brix	Salt Concentration
RNG : 0.00 to 90.0%	0.00 to 15.00%
ACC : ±0.2%	Displayed value : ±0.05% (0.00 to 0.99%) Relative precision : ±5% (1.00 to 9.99%) ±10% (10.00 to 15.00%)
TMP : 10 to 100°C (ATC)	10 to 100°C (ATC)
RES : 0.1%	0.01%



PAL™ -BX | SALT + 5 P70

Brix & Salt

PAL™ -BX | SALT Cat.No.4921

A hybrid product of Brix meter and salt meter was launched. Furthermore, it is equipped with an offset function to show the same value as other measurement methods.

Brix	Salt Concentration
RNG : 0.00 to 90.0%	0.00 to 15.00%
ACC : ±0.2%	Displayed value : ±0.05% (0.00 to 0.99%) Relative precision : ±5% (1.00 to 9.99%) ±10% (10.00 to 15.00%)
TMP : 10 to 100°C (ATC)	10 to 100°C (ATC)
RES : 0.1%	0.01%



PAL™ -BX | SALT P71

Sodium Chloride Snow-Melting Agent

PAL™ -03S Cat.No.4403

PAL™ -03S is suitable for measurement of salt water (g/100g). This model is also used as the important management tool of the spraying the snow-melting agent on the road. For the model with g/100ml, please choose PAL-106S. We also have Specific Gravity model and Baume model.

Sodium chloride
RNG : 0 to 28.0%
ACC : ±0.2%
TMP : 10 to 100°C (ATC)
RES : 0.1%



Sodium Chloride Specific Gravity

PAL™ -04S Cat.No.4404

PAL™ -04S is suitable to measure the specific gravity of salt water solution. We recommend this model to the customer who are using glass-made hydrometer as the scale is same as hydrometer.

Sodium chloride (S.G.)
RNG : 1.000 to 1.217
ACC : ±0.002
TMP : 10 to 40°C (ATC)
RES : 0.001



Sodium Chloride Baume

PAL™ -05S Cat.No.4405

PAL™ -05S is suitable to measure Baume of salt water concentration. We recommend to the customer who are using Hydrometer as the scale is same as Hydrometer.

Sodium chloride (Baume)
RNG : 0 to 25.7°
ACC : ±0.2°
TMP : 10 to 40°C (ATC)
RES : 0.1°



Seawater

PAL™ -06S Cat.No.4406

For measuring the salinity of seawater. The salinity is displayed in parts per mille (‰). Essential for aqua-culture.

Salinity
RNG : 0 to 100‰
ACC : ±2‰
TMP : 10 to 40°C (ATC)
RES : 1‰



Common Specifications

Power supply	2xAAA Batteries	International protection class	IP65 Water resistant
Dimensions and weight			5.5x3.1x10.9cm, 100g (main unit only)

Reference: RNG=Measurement range, ACC=Measurement accuracy, TMP=Measurement temperature, RES=Resolution

* ATC=Automatic Temperature Compensation
* 10 to 100°C (ATC) (Hot samples over 100°C can be measured under specified conditions. Please contact ATAGO for further details.)

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ATAGO® POCKET REFRACTOMETER

<Brix Scale>

Honey Moisture

PAL™ -22S

Cat.No.4422



For measuring the % water content of honey easily and displays readings digitally. Comfortable, easy to use, light & compact.

Honey moisture	
RNG :	12.0 to 30.0%
ACC :	±0.2%
TMP :	10 to 40°C (ATC)
RES :	0.1%



Soy Milk

PAL™ -27S

Cat.No.4427



Easy measurement for soy milk concentration in just 3 seconds. For crucial management of soy milk concentration in tofu production. To ensure and maintain the quality of soy milk beverages and products.

Concentration of Soy Milk	
RNG :	0.0 to 20.0%
ACC :	±0.2%
TMP :	10 to 100°C (ATC)
RES :	0.1%



Soy Milk & pH

PAL™ -Soymilk & PAL™ -Soymilk(pH)

Cat.No.4071



A pH meter can quantify the texture of tofu, as well as the concentration of soybean solids and soymilk. Can be measured at a hot temperature, and can be washed under running water after measurement which is hygienic.

Concentration of Soy Milk	pH
RNG :	0.0 to 20.0%
ACC :	±0.2%
TMP :	10 to 100°C (ATC)
RES :	0.1%
	0.0 to 14.00
	±0.10
	10 to 40°C (ATC)
	0.01



Brix & Baume

PAL™ -Pâtissier

Cat.No.4508



Dual scale of Brix and Baume. Ideal refractometer for pastry chefs. Wide range of 0.0 to 85.0% Brix.

Brix	Baume
RNG :	0.0 to 85.0%
ACC :	±0.2%
TMP :	10 to 100°C (ATC)
RES :	0.1%
	0 to 45°
	±1°
	10 to 100°C (ATC)
	1°



COFFEE

PAL™ -COFFEE(BX/TDS)

Cat.No.4533



A high resolution (to the 2nd decimal--0.01%) allows for hot, freshly brewed coffee to be measured. This makes it possible to measure and control even the slightest differences in the concentration of coffee. Stable, reliable measurements can be obtained without fluctuations due to temperature.

Brix	TDS
RNG :	0.00 to 25.00%
ACC :	±0.10%
TMP :	10 to 100°C (ATC)
RES :	0.01%
	0.00 to 22.00%
	±0.15%
	10 to 100°C (ATC)
	0.01%

* Separate Brix and TDS scale models are also available.



ATAGO's Coffee Recipe Management App



MY COFFEE RECIPE

Download on the App Store



MY COFFEE RECIPE is an application to assist users in skillfully managing the concentration of their coffee with the expertise akin to that of a barista. It allows users to recreate a consistent, quality cup of coffee every time.

Data can be exported via email (recipe data).

COFFEE & pH

PAL™ -COFFEE(BX/TDS)& PAL™ -COFFEE(pH)

Cat.No.4007



Selected by coffee professionals such as baristas! The set makes it possible to make the best coffee by controlling not only the concentration of coffee, but also the pH of the water, which highly affects the scent and taste.

PAL™ -COFFEE(pH)	
RNG :	0.00 to 14.00
ACC :	±0.10%
RES :	0.01%
TMP :	10.0 to 40.0°C

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Plato

PAL™ -Plato

Cat.No.4590



Designed for breweries to measure the wort's percent extract by weight in degrees Plato. Only a small amount of sample required for temperature-compensated readings. Digital display - no more guessing where the line is.

Plato	
RNG :	0.0 to 30.0°P
ACC :	±0.2°P
TMP :	10 to 75°C (ATC)
RES :	0.1°P



Soil Moisture

PAL™ - Soil

Cat.No.4571

Soil

PAL™-Soil has dual scales of Gravimetric soil moisture and Volumetric soil moisture. In accordance with ISO 16586:2003 "Soil quality – Determination of soil water content as a volume fraction on the basis of known dry bulk density – Gravimetric."

Gravimetric soil moisture	Volumetric soil moisture
RNG : 0 to 200%	0 to 100%
ACC : ±2% (0 to 40%), ±5% (41 to 100%) * ±1% (0 to 60%), ±2% (61 to 100%)	
TMP : 10 to 40°C (ATC)	10 to 40°C (ATC)
RES : 1%	1%



* Repeatability

Coolant

PAL™ - 88S/89S

Cat.No.4488,4489

W Scale

Propylene Glycol solutions and display the results digitally. The freezing point of the sample can also be measured and displayed.

Propylene Glycol (V/V)	Freezing Point
PAL™-88S / 89S	PAL™-88S / 89S
RNG : 0.0 to 90.0%	0 to -50°C / 32 to -60°F
ACC : ±0.4%	±1°C / ±1°F
TMP : 10 to 40°C (ATC)	10 to 40°C (ATC) / 50 to 104°F (10 to 40°C)
RES : 0.2%	1°C / 1°F



PAL™-88S

Cutting Oil

PAL™ - 102S

Cat.No.4502

Cutting Oil

For measuring the concentration of cutting oils. Suitable for measuring the percent dilution of hydraulic oil and cleaning liquids.

Cutting Oil
RNG : 0.0 to 70.0%
ACC : ±0.2%
TMP : 10 to 75°C (ATC)
RES : 0.1%



Potassium Hydroxide

PAL™ - 121S

Cat.No.4521

Potassium hydroxide

For concentration control of potassium hydroxide aqueous solution.

Potassium hydroxide (W/W)
RNG : 0.0 to 50.0%
ACC : ±0.3%
TMP : 10 to 40°C (ATC)
RES : 0.1%



Sodium Chloride (W/W)

PAL™ - 03CS

Cat.No.4393

NaCl

Measure the concentration and freezing point of brine / deicer. Ideal for winter road maintenance.

Sodium chloride (g/100g)	Freezing point
RNG : 0.0 to 28.0%	0 to -22°C
ACC : ±0.2%	±1°C
TMP : 10 to 100°C (ATC)	10 to 40°C (ATC)
RES : 0.1%	1°C



Pocket Milk Refractometer PAL™ - MILK

Cat.No.3807

The unit displays the non-fat solids contained in milk.

Non-Fat Milk Solids
RNG : 0.0 to 23.0%
ACC : ±0.2%
TMP : 10 to 100°C (ATC)
RES : 0.1%



Common Specifications

Power supply	2×AAA Batteries	International protection class	IP65 Water resistant
		Dimensions and weight	5.5×3.1×10.9cm, 100g (main unit only)

Reference: RNG=Measurement range, ACC=Measurement accuracy, TMP=Measurement temperature, RES=Resolution

* ATC=Automatic Temperature Compensation
* 10 to 100°C (ATC) (Hot samples over 100°C can be measured under specified conditions. Please contact ATAGO for further details.)

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ATAGO® POCKET REFRACTOMETER

Pocket Urine Specific Gravity Refractometer PAL™ -ATHLETE

Cat.No.4514



PAL™ -ATHLETE is designed on the basis of PAL™ -10S, which is well known in world famous sports games and by sport teams.

Urine S.G.
RNG : 1.0000 to 1.0600
ACC : ±0.001
TMP : 10 to 35°C (ATC)
RES : 0.0001



Pocket Cat urine Specific Gravity Refractometer

PAL™ -CAT

Cat.No.4511



The PAL™ -CAT is designed for measuring Urine Specific Gravity for cat.

Urine S.G.
RNG : 1.0000 to 1.0800
ACC : ±0.0010
TMP : 10 to 35°C (ATC)
RES : 0.0001



Pocket Milk Specific Gravity Refractometer PAL™ -MILK SG

Cat.No.3862



The specific gravity for normal raw milk (Jersey cows excluded) is 1.027 to 1.035 (average 1.032 (15°C)). Hydrometers (specific gravity meters) are made of glass, which makes them easy to break and hard to clean. ATAGO's digital meter for specific gravity can be used safely with no fear of breakage!

Brix
RNG : 1.008 to 1.036
ACC : ±0.001
TMP : 5 to 40°C
RES : 0.001%



Colostrum

PAL™ -Colostrum

Cat.No.3805



This model can be used for determining the quality of colostrum. It measures the Brix value of colostrum, which has a correlation with the immunoglobulin (IgG) value contained in colostrum.
* Correlation coefficients may vary depending on the species of animal.

Brix
RNG : 0.0 to 53.0%
ACC : ±0.2%
TMP : 10 to 100°C (ATC)
RES : 0.1%



Ethyl Alcohol

PAL™ -33S/34S

Cat.No.4433,4434



Ethanol concentration. Commonly used as a fuel (additive), antiseptic, and solvent.

PAL™-33S	PAL™-34S
RNG : 0.0 to 53.0% (mL/100mL)	0.0 to 45.0% (g/100g)
ACC : ±1.0%	±1.0%
TMP : 5 to 30°C (ATC)	10 to 35°C (ATC)
RES : 0.5%	0.5%



PAL™-34S

Isopropyl Alcohol (w/w)

PAL™ -37S

Cat.No.4437



0.0 to 60.0% IPA concentration. Commonly used as a solvent, sanitizer, and preservative in labs.

Isopropyl alcohol (g/100g)
RNG : 0.0 to 60.0%
ACC : ±0.6 (0.0 to 30.0%) , 40%...±1.0 , 60%...±1.6
TMP : 10 to 35°C (ATC)
RES : 0.2%



Common Specifications

Power supply	2×AAA Batteries	International protection class	IP65 Water resistant
Dimensions and weight	5.5×3.1×10.9cm, 100g (main unit only)		

Reference: RNG=Measurement range, ACC=Measurement accuracy, TMP=Measurement temperature, RES=Resolution

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* ATC=Automatic Temperature Compensation
* 10 to 100°C (ATC) (Hot samples over 100°C can be measured under specified conditions. Please contact ATAGO for further details.)

<Special Scales>

Hydrogen Peroxide (W/W)

PAL™ -39S

Cat.No.4439

H₂O₂

For measuring the concentration of hydrogen peroxide (H₂O₂) commonly used as a disinfectant.

Hydrogen peroxide (g/100g)

RNG : 0.0 to 50.0%

ACC : ±0.6%

TMP : 10 to 35°C (ATC)

RES : 0.2%



Sodium Hydroxide

PAL™ -40S

Cat.No.4440

NaOH

For measuring the concentration of Sodium hydroxide (g/100g)/water solution.

Sodium hydroxide (g/100g)

RNG : 0.0 to 38.0%

ACC : ±0.2%

TMP : 10 to 40°C (ATC)

RES : 0.1%



Hydrogen Peroxide (W/W)

PAL™ -RI

Cat.No.3850

nD Scale

The Refractive Index (resolution 0.0001) and temperature °C of the measurement will be displayed continuously.

Refractive Index

RNG : 1.3306 to 1.5284

ACC : ±0.0003

TMP : 5 to 45°C (ATC)

RES : 0.0001



Hydrocarbon Cleaner Contamination

PAL™ -Hydrocarbon Cleaner

Cat.No.4558

Hydro-carbon Cleaner

For measuring the concentration of contaminant in the hydrocarbon cleaner solution (water in-soluble) commonly used as an industrial cleaning solution.

Contam.

RNG : 0.0 to 30.0%

ACC : ±1.0%

TMP : 10 to 100°C (ATC)

RES : 0.1%



Ethyl Alcohol Refractometer (V / V)

PAL™ -COVID-19 Sanitizer % Checker

Cat.No.4553

Ethyl alcohol concentration can be easily measured in 3 steps. Includes dilution cup and spoon.

Ethyl Alcohol Refractometer (V / V)

RNG : 0.0 to 100%

ACC : ±1% (*±3% after dilution)

TMP : 5 to 30°C (ATC)

RES : 0.1%



Hypochlorous Acid

PAL™ -Hypochlorous acid(COVID-19)

Cat.No.4555

The concentration of hypochlorous acid can be easily measured in 3 steps.

Sodium hypochlorite (ppm)

RNG : 50 to 550ppm

ACC : About ±50ppm

TMP : 10 to 40°C (ATC)

RES : 1%



Peracetic Acid Concentration Meter

PAL™ -Peracetic acid(COVID-19)

Cat.No.4557

The concentration of hypochlorous acid can be easily measured in 3 steps.

Peracetic acid (ppm)

RNG : 10 to 1000ppm

ACC : About ±50 to 100ppm

TMP : 10 to 40°C (ATC)

RES : 1%



Urea

PAL™ -Urea

Cat.No.4518

Urea

The PAL™ -Urea is specifically designed to measure the Urea concentration of Diesel Exhaust Fluid (DEF), also known as AdBlue* in Europe. * AdBlue is a trademark of VDA.

Urea

RNG : 0.0 to 55.0%

ACC : ±0.3%

TMP : 10 to 40°C (ATC)

RES : 0.1%



Digital Hand-Held "Pocket" Refractometer PAL Special Scales

Cat.No.	Model	Scale	Cat.No.	Model	Scale	Cat.No.	Model	Scale
Food, Confectionery, Food Ingredients			4404	PAL™-04S	Sodium chloride (S.G.)	4489	PAL™-89S	Propylene glycol Freezing point of Propylene glycol (°F)
4422	PAL™-22S	Honey moisture	4405	PAL™-05S	Sodium chloride (Baume)	4491	PAL™-91S	Ethylene glycol Freezing point of Ethylene glycol (°C)
4508	PAL™-Pâtissier	Brix / Baume (Dual scale)	4406	PAL™-06S	Seawater (Concentration)	4492	PAL™-92S	Ethylene glycol Freezing point of Ethylene glycol (°F)
3807	PAL™-MILK	Non-fat milk solids	4407	PAL™-07S	Seawater (S.G.)	Refractive Index-Brix		
4427	PAL™-27S	Soymilk	4408	PAL™-08S	Seawater (Baume)	3852	PAL™-BX/RI	Brix / Refractive Index
4443	PAL™-43S	Bittern (Magnesium chloride)	Moisture			3850	PAL™-RI	Refractive Index
4496	PAL™-96S	Chinese noodle soup / Baume of Kansui (Dual scale)	4573	PAL™-Moisture	Moisture	3840	PAL™-α	Brix
4498	PAL™-98S	Condiment	4574	PAL™-Dried Fruit Moisture	Moisture	3842	PAL™-LOOP	Brix
4439	PAL™-39S	Hydrogen peroxide	4575	PAL™-Dates Moisture	Moisture	Chemical products		
4429	PAL™-29S	Citric acid	Clinical, Sports			4421	PAL™-21S	Dextrin
4430	PAL™-30S	Acetic acid	4442	PAL™-42S	Cesium chloride	4438	PAL™-38S	Dimethylformamide
4432	PAL™-32S	Phosphoric acid	4453	PAL™-53S	Copper sulfate (Concentration)	4440	PAL™-40S	Sodium hydroxide
4440	PAL™-40S	Sodium hydroxide	4454	PAL™-54S	Copper sulfate (S.G.)	4423	PAL™-23S	Glycerin (Low concentration)
4464	PAL™-64S	Sodium bicarbonate	4410	PAL™-10S	Urine (S.G.)	4424	PAL™-24S	Glycerin (High concentration)
4465	PAL™-65S	Sodium tartrate	4401	PAL™-11S	Serum protein	4430	PAL™-30S	Acetic acid
4470	PAL™-70S	Potassium phosphate	4529	PAL™-DOG&CAT	Dog Urine (S.G.) / Cat Urine (S.G.)	4431	PAL™-31S	Formic acid
4523	PAL™-COFFEE	Brix	4510	PAL™-DOG	Dog Urine (S.G.)	4432	PAL™-32S	Phosphoric acid
4532	PAL™-COFFEE (TDS)	TDS	4511	PAL™-CAT	Cat Urine (S.G.)	4444	PAL™-44S	Lithium chloride
4533	PAL™-COFFEE (BX/TDS)	Brix / TDS (Dual scale)	4512	PAL™-RABBIT	Rabbit Urine (S.G.)	4445	PAL™-45S	Barium chloride
4535	PAL™-Tea	Tea	Colostrum			4446	PAL™-46S	Cobalt chloride
Fruit and Vegetable Growers			3805	PAL™-Colostrum	Colostrum	4447	PAL™-47S	Ferric chloride
3847	PAL™-ORANGE	Brix	Alcohol liquid			4448	PAL™-48S	Strontium chloride
3848	PAL™-TOMATO	Brix	4433	PAL™-33S	Ethyl alcohol (mL/100mL)	4449	PAL™-49S	Potassium chloride
3849	PAL™-MAPLE	Brix	4434	PAL™-34S	Ethyl alcohol (g/100g)	4450	PAL™-50S	Potassium bromide
Sugar			4436	PAL™-36S	Methyl alcohol	4451	PAL™-51S	Sodium bromide
4412	PAL™-12S	Dextran	4437	PAL™-37S	Isopropyl alcohol (g/100g)	4452	PAL™-52S	Potassium iodide
4414	PAL™-14S	Fructose	4530	PAL™-131S	Isopropyl alcohol (mL/100mL)	4453	PAL™-53S	Copper sulfate (Concentration)
4415	PAL™-15S	Glucose	4485	PAL™-85S	Polyvinyl alcohol	4454	PAL™-54S	Copper sulfate (S.G.)
4416	PAL™-16S	High Fructose Corn Syrup (HFCS-42)	Pharmaceutical reagents			4455	PAL™-55S	Magnesium sulfate
4417	PAL™-17S	High Fructose Corn Syrup (HFCS-55)	4412	PAL™-12S	Dextran	4456	PAL™-56S	Potassium sulfate
4418	PAL™-18S	Inverted sugar	4413	PAL™-13S	Creatine	4457	PAL™-57S	Nickel sulfate
4419	PAL™-19S	Lactose	4423	PAL™-23S	Glycerin (Low concentration)	4458	PAL™-58S	Sodium sulfate
4420	PAL™-20S	Maltose	4424	PAL™-24S	Glycerin (High concentration)	4459	PAL™-59S	Zinc sulfate
Wine, Brew			4425	PAL™-25S	Inulin	4460	PAL™-60S	Silver nitrate
4479	PAL™-79S	T.A. 1990	4426	PAL™-26S	Mannitol	4461	PAL™-61S	Sodium nitrate
4480	PAL™-80S	T.A. 1971	4431	PAL™-31S	Formic acid	4462	PAL™-62S	Potassium carbonate
4483	PAL™-83S	KMW (or Babo)	4432	PAL™-32S	Phosphoric acid	4463	PAL™-63S	Sodium carbonate
4484	PAL™-84S	Baume	4451	PAL™-51S	Sodium bromide	4464	PAL™-64S	Sodium bicarbonate
4486	PAL™-86S	Oe (Ger) / Brix (Dual scale)	4455	PAL™-55S	Magnesium sulfate	4467	PAL™-67S	Potassium chromate
4487	PAL™-87S	Oe (Oechsle) / Brix (Dual scale)	4464	PAL™-64S	Sodium bicarbonate	4468	PAL™-68S	Potassium dichromate
4540	PAL™-Whiskey	Ethyl alcohol	4465	PAL™-65S	Sodium tartrate	4469	PAL™-69S	Sodium thiosulfate
4541	PAL™-Vodka	Ethyl alcohol	4466	PAL™-66S	Potassium oxalate	4470	PAL™-70S	Potassium phosphate
4542	PAL™-Tequila	Ethyl alcohol	4468	PAL™-68S	Potassium dichromate	4471	PAL™-71S	Sodium molybdate
4543	PAL™-Shochu	Ethyl alcohol	4470	PAL™-70S	Potassium phosphate	4472	PAL™-72S	Sodium tungstate
4544	PAL™-Gin	Ethyl alcohol	4472	PAL™-72S	Sodium tungstate	Metal working		
4545	PAL™-Rum	Ethyl alcohol	Automobile, Aviation, Heat Transfer, Industrial			4502	PAL™-102S	Cutting oil
4546	PAL™-Brandy	Ethyl alcohol	4518	PAL™-Urea	Urea	4537	PAL™-AntiRust	AntiRust
4590	PAL™-Plato	Plato (Sweet wort)	4403	PAL™-03S	Snow-melting agent (Sodium chloride)	4536	PAL™-Cleaner	Cleaner
Salinity, Seawater			4441	PAL™-41S	Snow-melting agent (Calcium chloride)	4558	PAL™-Hydrocarbon Cleaner	Hydrocarbon cleaner contamination
4403	PAL™-03S	Sodium chloride (g/100g)	4443	PAL™-43S	Snow-melting agent (Magnesium chloride)	Soil, Civil engineering		
4393	PAL™-03CS	Sodium chloride (g/100g) / Freezing point of Sodium chloride (°C) (Dual scale)	4488	PAL™-88S	Propylene glycol Freezing point of Propylene glycol (°C)	4571	PAL™-Soil	Gravimetric / Volumetric Soil moisture (Dual scale)
4506	PAL™-106S	Sodium chloride (g/100mL)						

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