



## Main features



1| Supplied in a plastic case with sample pipettes, carrying case, screwdriver, blinkers and rubber handle.

2| A refractometer is a measuring instrument based on the refractive index of light passing through a sample placed on a prism. The Zuzi pocket refractometers with LED light allow you to instantly measure the concentration of your samples over a wide range of scales. You can measure your samples in a wide range of applications by determining sugar concentration, salinity or alcohol percentage, unaffected by ambient light, thanks to the built-in LED.

3| The portable light refractometer models are constructed with a robust metal body and a rubber handle and eyepiece. All have automatic temperature compensation between 10 and 30° C. In addition, they include the necessary elements for calibration: distilled water, sugar solution or test tube with naphthalene bromine.

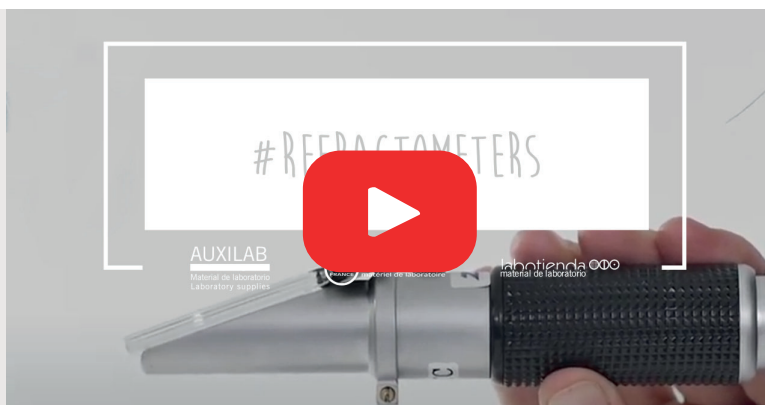
4| Calibration is performed by zeroing with distilled water.



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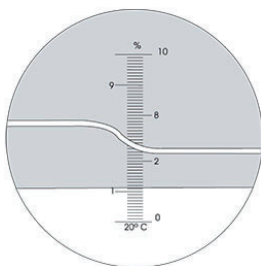
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## Resume chart of refractometers

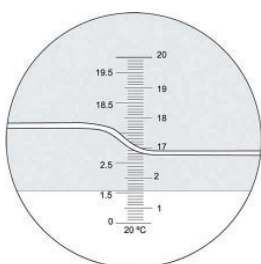
| Type                  | No CAT | CAT (10-30°C) | LED    | Range                                                                                                  | Accuracy                                    | Calibration                     |
|-----------------------|--------|---------------|--------|--------------------------------------------------------------------------------------------------------|---------------------------------------------|---------------------------------|
| BRIX                  |        | HPD012        |        | 0 - 10%                                                                                                | 0.1 %                                       | Distilled water                 |
|                       |        | HPD013        | HPD026 | 0 - 20%                                                                                                | 0.1 %                                       | Distilled water                 |
|                       |        | HPD014        | HPD027 | 0 - 32%                                                                                                | 0.2 %                                       | Distilled water                 |
|                       |        | HPD015        | HPD028 | 28 - 62%                                                                                               | 0.2 %                                       | Solution 28%sugar/water         |
|                       |        | HPD016        | HPD029 | 45 - 82%                                                                                               | 0.5 %                                       | Solution 45%sugar/water         |
|                       |        | HPD017        |        | 58-92%                                                                                                 | 0.5 %                                       | Solution 58%sugar/water         |
|                       |        | HPD018        | HPD030 | 58 - 92% Bx<br>38 - 43 ° Bé<br>12 - 27% Water                                                          | 0.5 % Bx<br>0.5 ° Bé<br>0.5 % Water         | Bromonaphtalene<br>+ test piece |
|                       |        | HPD019        |        | 0 - 50%                                                                                                | 0.5 %                                       | Distilled water                 |
|                       |        | HPD020        |        | 0 - 80%                                                                                                | 0.5 %                                       | Distilled water                 |
|                       |        | HPD010        |        | 0 - 42% Bx<br>42-71% Bx<br>41-90 % Bx                                                                  | 0,2 %                                       | Distilled water                 |
|                       |        | HPD011        |        | 0 - 90% Bx                                                                                             | 0.5 %                                       | Distilled water                 |
| SALINITY              |        | HPF004        |        | 0 - 100‰ Salt<br>1000-1070 g/mL                                                                        | 1‰<br>0.001 g/mL                            | Distilled water                 |
|                       |        | HPF005        |        | 0 - 28% Salt                                                                                           | 0.2 %                                       | Distilled water                 |
|                       |        | HPF007        | HPF010 | 0 - 100‰ Salt<br>0 - 10% Bx<br>1000-1070 g/mL                                                          | 1 ‰<br>0.1 %<br>0.001 g/mL                  | Distilled water                 |
|                       |        | HPF012        |        | 0-4% Salt (0-40ppt)<br>1,000-1,030sg                                                                   | ±0,1% Salt (1ppt)<br>±0,001sg               |                                 |
|                       |        | HPF013        |        | -4% Salt (20-40ppt)<br>1,015-1,030sg                                                                   | 0,1% Salt (1ppt)<br>±0,001sg                |                                 |
|                       |        | HPM002        |        | 0 - 12 g/dl Serum protein<br>1.000 - 1.050 Specific weight (sg)<br>1.333 - 1.360 nD (refractive index) | 0.2 % g/dL<br>0.002 sg<br>0.005 nD          | Distilled water                 |
| CLINICAL              |        |               |        |                                                                                                        |                                             |                                 |
| VETERINARY            | HPM003 |               |        | 2 - 14 g/100 mL Serum protein<br>1.000 - 1.060 Specific weight                                         | 0.1<br>0.001                                |                                 |
| MUSTS AND SPIRITS     |        | HPP014        |        | 0 - 80% Alcohol (w/w)                                                                                  | 1 %                                         | Distilled water                 |
|                       |        | HPH003        | HPH014 | 0 - 25% Alcohol probable<br>0-22° Bé<br>0-40% Bx                                                       | 0.2 % Alcohol probable<br>0.2° Bé<br>1 % Bx | Distilled water                 |
|                       |        | HPH002        | HPH013 | 0 - 25% Alcohol probable                                                                               | 0.2 % Alcohol probable                      | Distilled water                 |
|                       |        | HPP017        |        | 0-32% Brix<br>Gravity must thickness: 1,000-1,130                                                      | ±0,2% Brix<br>±0,001                        |                                 |
|                       |        | HPP018        |        | 0-18 Plato                                                                                             | ±0,1 Plato                                  |                                 |
| FRUIT JUICE           |        | HPH015        |        | 0-190° Oe<br>0-38° KMW Babo<br>0-44% Brix sacch                                                        | ±2°<br>±0,4°<br>±0,4%                       |                                 |
| MILK                  |        | HPP002        |        | -1%-20%                                                                                                | 0.2%                                        | Distilled water                 |
|                       |        | HPP019        |        | 0-25% Soya<br>0-32% Brix                                                                               | ±0,5% Soya<br>±0,2% Brix                    |                                 |
| BATTERIES AND FREEZES |        | HPK002        |        | -50 a 0 °C (EG/PG)<br>1.15 - 1.30 sg (Batteries)<br>-40 a 0 °C (Cleaner)                               | 5 °C<br>0.01 sg<br>5°C                      | Distilled water                 |
|                       |        | HPK004        |        | -50 a 0 °C (EG/PG)<br>1.15 - 1.30 sg (Batteries)<br>-40 a 0 °C (Cleaner)                               | 5 °C<br>0,01 kg/L<br>5° C                   | Distilled water                 |
|                       |        | HPK005        |        | -50 a 0 °C (EG/PG)<br>1.10 – 1.40 Kg/L (Batteries)<br>-40 a 0 °C (Cleaner)                             | 5 °C<br>0.01 Kg/L<br>10°C                   | Distilled water                 |
|                       |        | HPK008        |        | -50 a 0 °C (EG/PG)<br>1.10 – 1.40 Kg/L (Batteries)<br>30-35% (Cleaner)                                 | 5 °C<br>0.01 Kg/L<br>10°C                   | Distilled water                 |
|                       |        |               |        |                                                                                                        |                                             |                                 |
|                       |        |               |        |                                                                                                        |                                             |                                 |
|                       |        |               |        |                                                                                                        |                                             |                                 |
|                       |        |               |        |                                                                                                        |                                             |                                 |
| REFRACTIVE INDEX      | HPP003 |               |        | 1.333-1.400 nD<br>1.400-1.470 nD<br>1.470-1520 nD                                                      | 0.0005 nD                                   |                                 |



## 0-10% Brix

- 1 | Suitable for samples with low concentration of dissolved solids (lower than 10%) as for example tomatoes, low concentrated juices and industrial oils.
- 2 | Calibration is performed with distilled water adjusting to zero.

| Code   | Range    | Accuracy |
|--------|----------|----------|
| HPD012 | 0-10% Bx | 0.1%     |

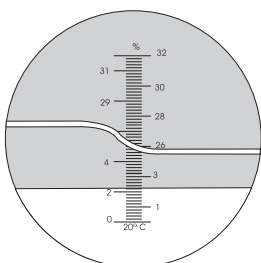


## 0-20% Brix

- 1 | Suitable for low concentrations (juices of fruits, alcohol-free beverages) except grape juice.
- 2 | Calibration is performed with distilled water.

| Code    | Range    | Accuracy |
|---------|----------|----------|
| HPD013  | 0-20% Bx | 0.1%     |
| HPD026* | 0-20% Bx | 0.1%     |

\*LED refractometer

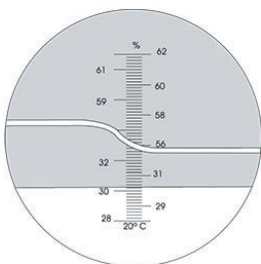


## 0-32% Brix

- 1 | Suitable for low concentrations usually used for fruits, juices, beverages, dairy products, milk products, industrial oils...
- 2 | Calibration is performed with distilled water.

| Code    | Range    | Accuracy |
|---------|----------|----------|
| HPD014  | 0-32% Bx | 0.2%     |
| HPD027* | 0-32% Bx | 0.2%     |

\*LED refractometer

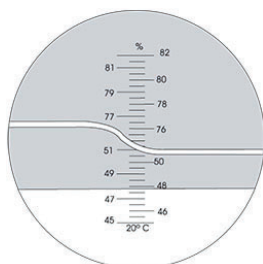


## 28-62% Brix

- 1 | Suitable for low concentrations usually used for fruits, juices, beverages, dairy products, milk products, industrial oils...
- 2 | Calibration is performed with a 28% sugar solution in distilled water, that means 28 g of sugar in a 100 ml of solution.

| Code    | Range     | Accuracy |
|---------|-----------|----------|
| HPD015  | 28-62% Bx | 0.2%     |
| HPD028* | 28-62% Bx | 0.2%     |

\*LED refractometer

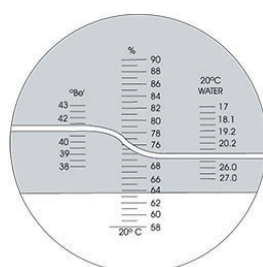


## 45-82% Brix

- 1 | Model suitable for high concentration as for example condensed milk, liquid caramel, high concentrated juices, jams, etc.
- 2 | Calibration is performed with a 45% sugar solution in distilled water, that means 45 g of sugar in a 100 ml of solution.

| Code    | Range     | Accuracy |
|---------|-----------|----------|
| HPD016  | 45-82% Bx | 0.5%     |
| HPD029* | 45-82% Bx | 0.5%     |

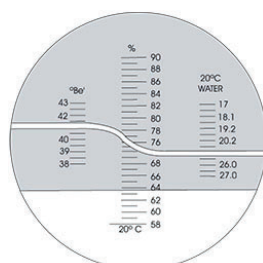
\*LED refractometer



## 58-92% Brix

- 1 | Model for high concentrations of sugar in honey.
- 2 | Calibration is performed with 58% sugar solution in distilled water, that means 58 g of sugar in a 100 ml of solution.

| Code   | Range     | Accuracy |
|--------|-----------|----------|
| HPD017 | 58-92% Bx | 0.5%     |

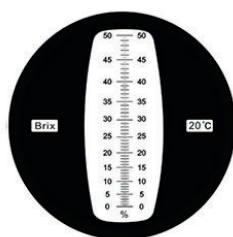


## 58-92% Brix | 38-43 ° Baume | 12-27% Water

- 1 | This refractometer is specially suited for analyzing the three main values in honey; sugar content, Baumé degrees and water content.
- 2 | Calibration is performed with a test piece and bromonaphtalene, both included.

| Code    | Range        | Accuracy |
|---------|--------------|----------|
| HPD018  | 58-92% Bx    | 0.5%     |
|         | 38-43 °Bé    | 0.5°     |
|         | 12-27% Water | 0.5%     |
| HPD030* | 58-92% Bx    | 0.5%     |
|         | 38-43 °Bé    | 0.5°     |
|         | 12-27% Water | 0.5%     |

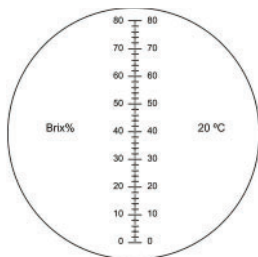
\*LED refractometer



## 0-50% Brix

- 1 | Model used for concentrated solutions of grape juice.
- 2 | Calibration is performed with distilled water.

| Code   | Range    | Accuracy |
|--------|----------|----------|
| HPD019 | 0-50% Bx | 0.5%     |



## 0-80% Brix | 0-80% Brix (2 escalas)

- 1 | This refractometer has a wide range 0-80% Brix, suitable for analyzing very different types of samples.
- 2 | The line in this model is in blue or white.
- 3 | It is used for fruit juices, alcohol-free beverages or even industrial oils.
- 4 | Calibration of models HPD009 and HPD020 is performed with distilled water.

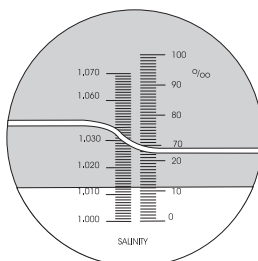
| Code   | Range    | Accuracy |
|--------|----------|----------|
| HPD020 | 0-80% Bx | 0.5%     |



## 0-90% Brix | 0-90% Brix (3 scales)

- 1 | Has a wide range 0-80% Brix, it allows the measurement of very different types of samples.
- 2 | Calibration is performed with distilled water (model HPD011)

| Referencia | Rango                                 | Precisión | CAT (10-30°C) |
|------------|---------------------------------------|-----------|---------------|
| HPD011     | 0-90% Bx                              | 0.5%      | Sí            |
| HPD010     | 0-90% Bx<br>(0-42% ; 42-71% ; 41-90%) | 0.2%      | Sí            |

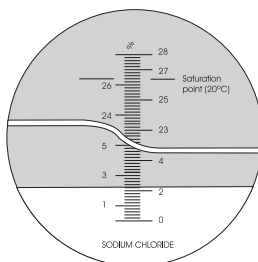


## 0-100‰ Salt

- 1 | Refractómetro de Accuracypara concentraciones medias de Salt bien en agua de mar natural o artificial, preparados alimenticios, etc. Dispone de escala de peso específico.
- 2 | La calibración se realiza conDistilled water.

| Code    | Range                                  | Accuracy          |
|---------|----------------------------------------|-------------------|
| HPF004  | 0-100‰ Salt<br>1000-1070 g/L           | 1‰<br>0.001 g/L   |
| HPF007  | 0-100‰ Salt<br>0-10% Bx; 1000-1070 g/L | 1‰<br>0.1%; 0.001 |
| HPF010* | 0-100‰ Salt<br>1000-1070 g/L           | 1‰<br>0.001 g/L   |

\*LED refractometer



## 0-28% Salt

- 1 | Suitable to measure Saltt concentration of sea water, fish farms, aquariums, brines...
- 2 | Calibration is performed with distilled water.

| Code   | Range      | Accuracy |
|--------|------------|----------|
| HPF005 | 0-28% Salt | 0.2%     |



## 0-4% and 2-4% Salt (2 scales)

| Code   | Range                                 | Resolution                  | Accuracy                     |
|--------|---------------------------------------|-----------------------------|------------------------------|
| HPF012 | 0-4% Salt (0-40ppt)<br>1,000-1,030sg  | 0,1% Salt (1ppt)<br>0,001sg | ±0,1% Salt(1ppt)<br>±0,001sg |
| HPF013 | 2-4% Salt (20-40ppt)<br>1,015-1,030sg | 0,1% Salt (1ppt)<br>0,001sg | ±0,1% Salt(1ppt)<br>±0,001sg |

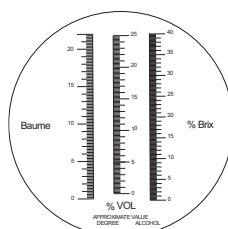


## 0-25% probable alcohol - oenology

- 1 | Refractómetro especialmente diseñado para medición del probable alcohol en uva.
- 2 | Dispone de Compensación Automática de Temperatura (Range 10-30°C).
- 3 | La calibración se realiza con Distilled water.

| Code    | Range                  | Accuracy |
|---------|------------------------|----------|
| HPH002  | 0-25% probable alcohol | 0.2%     |
| HPH013* | 0-25% probable alcohol | 0.2%     |

\*LED refractometer

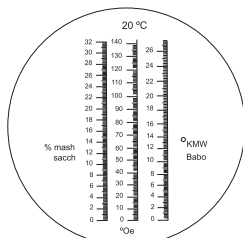


## 3 scales - oenology

- 1 | Suitable to measure alcohol content in grape juice, Baumé degrees and Brix degrees, thus allowing to check the ripening level of grapes before and during the harvest.
- 2 | Calibration is performed with distilled water.

| Code    | Range                                           | Accuracy           |
|---------|-------------------------------------------------|--------------------|
| HPH003  | 0-25% probable alcohol<br>0-22° Bé;<br>0-40% Bx | 0.2%<br>0.2°<br>1% |
| HPH014* | 0-25% probable alcohol<br>0-22° Bé;<br>0-40% Bx | 0.2%<br>0.2°<br>1% |

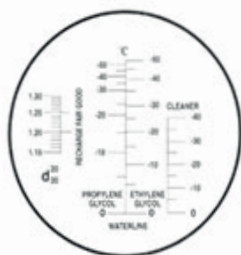
\*LED refractometer



## 3 scales - oenology

- 1 | Suitable to measure alcohol content in grape juice, Baumé degrees and Brix degrees, thus allowing to check the ripening level of grapes before and during the harvest.
- 2 | Calibration is performed with distilled water.

| Code   | Range                                           | Accuracy              |
|--------|-------------------------------------------------|-----------------------|
| HPH015 | 0-190° Oe<br>0-38° KMW Babo<br>0-44% Brix sacch | ±2°<br>±0,4°<br>±0,4% |

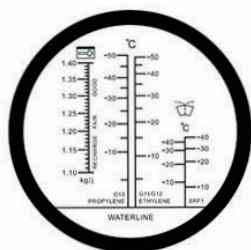


## Refractómetro baterías

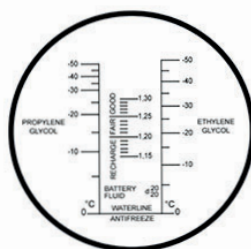
- 1| Suitable for measuring the freezing point of antifreezes based on propylene glycol and ethylene glycol, as well as the state of electrolytic solutions of batteries and cleaning liquids.
- 2| Calibration is performed with distilled water.

| Code    | Solution              | Range              | Accuracy  |
|---------|-----------------------|--------------------|-----------|
| HPK002  | Antifreeze            | -50 a 0 °C (EG/PG) | 5 °C      |
|         | Electrolytic solution | 1.15-1.30 sg       | 0.01 sg   |
|         | Cleaning liquid       | -40 a 0 °C         | 5°C       |
| HPK004* | Antifreeze            | -50 a 0 °C (EG/PG) | 10° C     |
|         | Electrolytic solution | 1.15-1.30 sg       | 0,01 kg/L |
|         | Cleaning liquid       | -40 a 0 °C         | 5° C      |

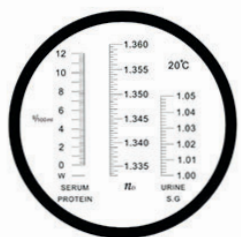
\* reference available while stocks lasts



| Code   | Solution              | Range              | Accuracy  |
|--------|-----------------------|--------------------|-----------|
| HPK005 | Antifreeze            | -50 a 0 °C (EG/PG) | 5°C       |
|        | Electrolytic solution | 1.10-1.40 Kg/L     | 0.01Kg/L  |
|        | Cleaning liquid       | -40 a 0 °C         | 10°C      |
| HPK008 | Antifreeze            | -50 a 0 °C (EG/PG) | 5°C       |
|        | Electrolytic solution | 1.10-1.40 Kg/L     | 0.01 Kg/L |
|        | Cleaning liquid       | -40 a 0 °C         | 10°C      |
|        | UreaAddblue           | 30-35 %            | 0.2%      |



| Code   | Solution              | Range              | Accuracy |
|--------|-----------------------|--------------------|----------|
| HPK006 | Antifreeze            | -50 a 0 °C (EG/PG) | 5 °C     |
|        | Electrolytic solution | 1.15-1.30 sg       | 0.01 sg  |



## Hand, clinical 3 scales

- 1| It has three scales; proteins in serum, urine specific gravity and refractive index.
- 2| Calibration is performed with distilled water (the separating line must match the value 1.333 of the refractive index scale).

| Code   | Range          | Accuracy   |
|--------|----------------|------------|
| HPM002 | 0 - 12 g/dl    | 0.2 % g/dL |
|        | 1.000-1.050 sg | 0.002 sg   |
|        | 1.333-1.360 nD | 0.005 nD   |

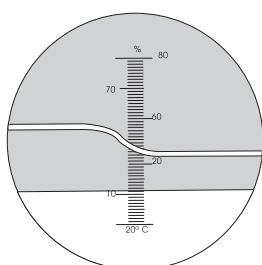




## Hand, clinical URIVET

1 | Designed for veterinary use, especially for the analysis of cats and dogs serum. Simple, easy and fast, only with a drop it gives you a result.

| Code   | Range                           | Accuracy                 |
|--------|---------------------------------|--------------------------|
| HPM003 | 2-14 g/100 mL<br>1.000-1.060 sg | 0.1 g/100 mL<br>0.001 sg |

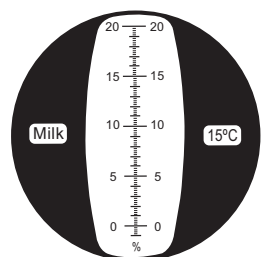


## Hand refractometer

1 | Suitable to measure the alcohol degree in a solution, it can be used for wines and spirits taking into consideration other parameters.

2 | Calibration is performed with distilled water.

| Code   | Range               | Accuracy |
|--------|---------------------|----------|
| HPP014 | 0-80% Alcohol (w/w) | 1%       |



## Refractometer for milk

1 | Suitable for measuring the water content in milk.

2 | Calibration is performed with distilled water.

| Code   | Range                    | Accuracy                 |
|--------|--------------------------|--------------------------|
| HPP002 | -1%-20%                  | 0.2%                     |
| HPP019 | 0-25% Soya<br>0-32% Brix | ±0,5% Soya<br>±0,2% Brix |



## Refractometer 1.333-1.520 nD, 3 scales

1 | For measuring the dissolved solid concentration (%Brix) or refractive index (nD) of aqueous solutions.

2 | Allow the analysis of a large variety of samples since they are provided with 3 scales that cover a wide range of measurement.

| Code   | Range                                                                            | Accuracy  |
|--------|----------------------------------------------------------------------------------|-----------|
| HPP003 | 1.333-1.515 nD (3 scales)<br>(1.333-1.400 nD<br>1.400-1.470 nD<br>1.470-1520 nD) | 0.0005 nD |





## Hand beer refractometer

| Code   | Range                                 | Accuracy   |
|--------|---------------------------------------|------------|
| HPP017 | 0-32% Brix                            | ±0,2% Brix |
|        | Specific gravity of must: 1,000-1,130 | ±0,001     |
| HPP018 | 0-18 Plato                            | ±0,1 Plato |



## Accessories for hand refractometer

| Reference | Description                             |
|-----------|-----------------------------------------|
| HPP004    | Cover prism plate, two pieces           |
| HPP005    | Blinker for hand refractometers         |
| HPP008    | Digital thermometer f/refractometer 325 |
| HPP015    | Carrying case for hand refractometer    |