At NZYTech we work passionately to achieve our goals. Our mission is to provide the scientific and industrial communities with a wide range of first class high quality products & services at very competitive prices. Our strong commitment to science and innovation is instrumental to develop, manufacture and market solutions that simplify, accelerate and improve life sciences research and industrial efficacy. Independently or in collaboration with research groups in both academia and industry, we continuously look at innovative ways to create novel solutions in our main areas of expertise. In particular, we are dedicated to serve the community working in the fields of Molecular Biology, Synthetic Biology, Recombinant Protein Production and Food and Feed Analysis, through the provision of high quality genes, enzymes and test kits.

Customers are NZYTech first priority. In this 2017 catalogue, you will find an enlarged portfolio of highly robust and extensively tested analytical test kits. These were developed to help you implementing the most demanding analytical procedures. Colleagues working in a diversity of research areas, in particular those operating in the agro-food, biotech and biomedicine industries, are already benefiting from the enjoyable experience of using NZYTech distinguished products and services that we provide at affordable prices. If you want to optimize your procedures do not hesitate in using highly effective assay kits. NZYTech’s portfolio of products also includes the largest commercial bank of Carbohydrate- Active enZymes (CAZymes), PDZ proteins and Molecular Biology products that will exceed your best expectations concerning performance and quality.

NZYTech is an ISO 9001:2008 certified company. We are continuously improving the excellence of our operational and quality systems.

NZYTech, the pleasure to serve!
UV Tests
NZYTech test kits are based on enzymatic reactions and performed using spectrophotometric methods. The principle of the enzymatic tests is based on the NAD(P) / NAD(P)H system and uses highly pure enzymes engineered to display a premium performance. The enzymes used in these analytical kits produce or consume NAD(P)H, which strongly absorbs the UV radiation at 340 nm (extinction coefficient of 6300 M⁻¹ cm⁻¹).

Colorimetric tests
The principle of the enzymatic tests based on a chromogenic reaction is the formation of a coloured compound, which absorbs at the visible region of the spectrum. The coloured compound results from the interaction between the product of a first enzymatic reaction and a chromogenic compound. In this case, the concentration of the analyte must be determined by using a standard curve.

Required material
- Spectrophotometer
- Micropipettes set with disposable plastic tips to accurately dispense volumes from 20 µL to 1000 µL
- Cuvettes
- Basic filtering or other simple sample treatment device
<table>
<thead>
<tr>
<th>Analyte</th>
<th>Food Industry</th>
<th>Feed Industry</th>
<th>Wine Industry</th>
<th>Fermentation Industry</th>
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<th>Biofuels</th>
<th>NZYTech Kits</th>
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</table>
Acetaldehyde, UV method

Enzymatic method for the determination of acetaldehyde. Based on the spectrophotometric measurement of NADH produced through the reaction, after addition of aldehyde dehydrogenase (AIDH).

\[
\text{Acetaldehyde} + \text{NAD}^+ + \text{H}_2\text{O} \xrightarrow{\text{AIDH}} \text{Acetate} + \text{NADH} + \text{H}^+
\]

- Catalogue No: AK00051
- Kit size: 50 tests (for 2.52 mL reaction)
- Range: 0.25-200 mg/L
- Detection limit: 0.176 mg/L
- Price: 89.00 €

- Simple format
- Stable AIDH suspension
- Suitable for manual and micro volume formats

Acetic acid, UV method

Enzymatic method for the determination of acetic acid. Based on the spectrophotometric measurement of NADH produced through the coupled reactions, after addition of Acetyl-CoA synthetase (ACS), Citrate synthase (CS) and L-Malate dehydrogenase (L-MDH).

\[
\begin{align*}
\text{Acetate} + \text{ATP} + \text{CoA} &\xrightarrow{\text{ACS}} \text{Acetyl-CoA} + \text{AMP} + \text{Pyrophosphate} \\
\text{Acetyl-CoA} + \text{oxaloacetate} + \text{H}_2\text{O} &\xrightarrow{\text{CS}} \text{Citrate} + \text{CoA} \\
\text{L-Malate} + \text{NAD}^+ &\xrightarrow{\text{L-MDH}} \text{Oxaloacetate} + \text{NADH} + \text{H}^+
\end{align*}
\]

- Catalogue No: AK00081
- Kit size: 53 tests (for 2.84 mL reaction)
- Range: 0.15-200 mg/L
- Detection limit: 0.14 mg/L
- Price: 107.00 €

- Prevention of tannins inhibition (PVPP included)
- Stable ACS suspension
Ammonia, UV method

Enzymatic method for the determination of ammonia (main inorganic source of yeast available nitrogen, YAN). Based on the spectrophotometric measurement of NADPH consumed through the reaction, after addition of glutamate dehydrogenase (GlDH).

\[
2\text{-Oxoglutarate} + \text{NADPH} + \text{NH}_4^+ \xrightarrow{\text{GlDH}} \text{L-Glutamate} + \text{NADP}^+ + \text{H}_2\text{O}
\]

- Very rapid
- Stable GlDH suspension
- Suitable for manual and micro volume formats

Catalogue No: AK00091
Kit size: 96 tests (for 2.62 mL reaction)
Range: 10-70 mg/L
Detection limit: 0.07 mg/L
Price: 94.00 €

L-Arginine/Urea/Ammonia, UV method

Enzymatic method for the determination of L-arginine, urea and ammonia (yeast available nitrogen, YAN). Based on the spectrophotometric measurement of NADPH consumed through the coupled reactions, after addition of arginase (ARG), urease (URE) and glutamate dehydrogenase (GlDH).

\[
\begin{align*}
\text{L-Arginine} + \text{H}_2\text{O} & \xrightarrow{\text{ARG}} \text{urea} + \text{ornithine} \\
\text{Urea} + \text{H}_2\text{O} & \xrightarrow{\text{URE}} 2\text{NH}_4^+ + \text{CO}_2 \\
2\text{-Oxoglutarate} + \text{NADPH} + \text{NH}_4^+ & \xrightarrow{\text{GlDH}} \text{L-Glutamate} + \text{NADP}^+ + \text{H}_2\text{O}
\end{align*}
\]

- Nitrogen determination without formaldehyde
- Rapid reactions
- Stable enzyme suspensions

Catalogue No: AK00171
Kit size: 50 tests of each (for 2.66 mL reaction)
Range: 50-400 mg/L L-arginine
20-140 mg/L urea
10-70 mg/L ammonia
Detection limit: 0.37 mg/L L-arginine
0.13 mg/L urea
0.07 mg/L ammonia
Price: 118.00 €
### Ethanol, UV method

Enzymatic method for the determination of ethanol. Based on the spectrophotometric measurement of NADH produced through the reactions, after addition of alcohol dehydrogenase (ADH) and aldehyde dehydrogenase (AIDH).

\[
\begin{align*}
\text{Ethanol} + \text{NAD}^+ & \xrightarrow{\text{ADH}} \text{Acetaldehyde} + \text{NADH} + H^+ \\
\text{Acetaldehyde} + \text{NAD}^+ + H_2O & \xrightarrow{\text{AIDH}} \text{Acetate} + \text{NADH} + H^+
\end{align*}
\]

- **Catalogue No:** AK00061  
  **Kit size:** 60 tests  
  (for 2.54 mL reaction)  
  **Range:** 0.12-120 mg/L  
  **Detection limit:** 0.093 mg/L  
  **Price:** 92.00 €

- Rapid reaction  
- Stable AIDH suspension  
- Suitable for manual and micro volume formats

### D-Fructose plus D-Glucose, colorimetric method

Enzymatic method for the determination of D-Fructose plus D-Glucose (total sugars). Based on the spectrophotometric measurement of INT-formazan formed through the combined action of hexokinase (HK), phosphoglucose isomerase (PGI), Glucose-6-phosphate dehydrogenase (G6PDH) and diaphorase.

\[
\begin{align*}
\text{D-Fructose} + \text{ATP} & \xrightarrow{\text{HK}} \text{Fructose-6-phosphate (F6P)} + \text{ADP} \\
\text{D-Glucose} + \text{ATP} & \xrightarrow{\text{HK}} \text{Glucose-6-phosphate (G6P)} + \text{ADP} \\
\text{F6P} & \xrightarrow{\text{PGI}} \text{G6P} \\
\text{G6P} + \text{NAD}^+ & \xrightarrow{\text{G6PDH}} \text{D-Gluconate-6-phosphate} + \text{NADH} + H^+ \\
\text{NADH} + \text{INT} + H^+ & \xrightarrow{\text{Diaphorase}} \text{NAD}^+ + \text{INT-formazan}
\end{align*}
\]

- **Catalogue No:** AK00211  
  **Kit size:** 5 x 10 tests  
  (for 3.04 mL reaction)  
  **Range:** 25-1200 mg/L  
  **Detection limit:** 29.5 mg/L  
  **Price:** 100.00 €

- Simple and robust format  
- Use of inexpensive visible spectrophotometer  
- Rapid reaction
**D-Fructose/D-Glucose, UV method**

Enzymatic method for the determination of D-fructose and D-glucose. Based on the spectrophotometric measurement of NADPH produced through the coupled reactions, after addition of hexokinase (HK), phosphoglucose isomerase (PGI) and glucose-6-phosphate dehydrogenase (G6PDH).

\[
\begin{align*}
\text{D-Fructose + ATP} & \xrightarrow{\text{HK}} \text{Fructose-6-phosphate (F6P) + ADP} \\
\text{D-Glucose + ATP} & \xrightarrow{\text{HK}} \text{Glucose-6-phosphate (G6P) + ADP} \\
\text{F6P} & \xrightarrow{\text{PGI}} \text{G6P} \\
\text{G6P + NADP}^+ & \xrightarrow{\text{G6PDH}} \text{D-Gluconate-6-phosphate + NADPH + H}^+
\end{align*}
\]

- Catalogue No: AK00041
- Kit size: 110 tests of each (for 2.34 mL reaction)
- Range: 2-800 mg/L
- Detection limit: 0.66 mg/L
- Price: 128.00 €

- Rapid reaction
- Prevention of tannins inhibition (PVPP included)
- Suitable for manual and micro volume formats

**β-Glucan (mixed linkage), colorimetric method**

Enzymatic method for the determination of mixed linkage β-glucans (AOAC method 955.16; AACC method 32-23). Mixed linkage β-glucans are hydrolyzed to β-gluco-oligosaccharides using lichenase. β-gluco-oligosaccharides are hydrolyzed to D-glucose with β-glucosidase, and measured as D-glucose. Free D-glucose in the sample is determined directly with GOD-POD Reagent by conversion to a red coloured quinoneimine dye compound through the combined action of glucose oxidase and peroxidase.

\[
\begin{align*}
\text{β-Glucan + H}_2\text{O} & \xrightarrow{\text{Lichenase, pH 6.5}} \text{β-gluco-oligosaccharides} \\
\text{β-gluco-oligosaccharides + H}_2\text{O} & \xrightarrow{\text{β-glucosidase, pH 4.0}} \text{D-Glucose} \\
\text{D-Glucose + O}_2 + \text{H}_2\text{O} & \xrightarrow{\text{GOD, POD}} \text{D-Gluconate + H}_2\text{O}_2 \\
2 \text{H}_2\text{O}_2 + p\text{-hydroxybenzoic acid + 4-aminoantipirine} & \xrightarrow{\text{POD}} \text{Quinoneimine dye + 4 H}_2\text{O}
\end{align*}
\]

- Catalogue No: AK00271
- Kit size: 100 tests
- Range: 0.5 - 100% sample weight
- Price: 160.00 €

- Simple format
- Very specific
- Very cost effective
Glucomannan, UV method

Enzymatic method for the determination of glucomannan. Acetylated-glucomannan is depolymerized to acetylated glucomannooligosaccharides by endo-β-mannanase (β-Man). After the acetyl-groups have been removed (by increasing the pH to 12.5), the glucomannooligosaccharides are quantitatively hydrolysed to D-glucose and D-mannose by the combined action of β-glucosidase (β-Gos) and β-mannosidase (β-Mos). D-Glucose quantification is based on the spectrophotometric measurement of NADPH produced after addition of hexokinase (HK), glucose-6-phosphate dehydrogenase (G6PDH), phosphoglucose isomerase (PGI) and phosphomannose isomerase (PMI).

D-Glucose HK, UV method

Enzymatic method for the determination of D-glucose. Based on the spectrophotometric measurement of NADPH produced through the coupled reactions, after addition of hexokinase (HK) and glucose-6-phosphate dehydrogenase (G6PDH).
D-Glucose (GOD-POD), colorimetric method

Enzymatic colorimetric method for the determination of D-glucose. Based on the combined action of glucose oxidase (GOD) and peroxidase (POD).

D-Glucose + O₂ + H₂O  \[ \rightarrow \]
2 H₂O₂ + p-hydroxybenzoic acid + 4-aminoantipirine  \[ \rightarrow \]
D-Gluconate + H₂O₂

Quinoneimine dye + 4H₂O

Catalogue No: AK00161
Kit size: 660 tests
(for 3.10 mL reaction)
Range: 100-1000 mg/L
Detection limit: 100 mg/L
Price: 132.00 €

D-Glucose Oxidase Activity

This simple colorimetric method is used for the determination glucose oxidase activity. Based on measurement of increase of absorbance at 510 nm. The amount of quinineimine formed per minute through the combined action of Glucose Oxidase (GOD) and Peroxidase (POD), is equivalent to the H₂O₂ liberated.

D-Glucose + O₂ + H₂O  \[ \rightarrow \]
2 H₂O₂ + p-hydroxybenzoic acid + 4-aminoantipirine  \[ \rightarrow \]
D-Gluconate + H₂O₂

Quinoneimine dye + 4H₂O

Catalogue No: AK00231
Kit size: 200 tests
Range: 0.01-0.08 U/mL sample
(for 3.00 mL reaction)
Detection limit: 0.01 U/mL
Price: 96.00 €
D-Glucuronic acid & D-Galacturonic acid, UV method

This rapid and simple method is used for the determination of D-glucuronic acid and D-galacturonic acid. Based on the spectrophotometric measurement of NADH formed through the action of uronate dehydrogenase (UDH).

\[ \text{D-Glucuronic acid} + \text{NAD}^+ + \text{H}_2\text{O} \xrightarrow{\text{UDH}} \text{D-Glucarate} + \text{NADH} + \text{H}^+ \]
\[ \text{D-Galacturonic acid} + \text{NAD}^+ + \text{H}_2\text{O} \xrightarrow{\text{UDH}} \text{D-Galactarate} + \text{NADH} + \text{H}^+ \]

- Simple format
- Stable reagents
- Suitable for manual and micro volume formats

L-Glutamine/Ammonia, UV method

Enzymatic method for the determination of L-glutamine and ammonia. Based on the spectrophotometric measurement of NADPH consumed through the combined action of glutaminase (GLT) and glutamate dehydrogenase (GIDH).

\[ \text{L-Glutamine} + \text{H}_2\text{O} \xrightarrow{\text{GLT}} \text{L-Glutamate} + \text{NH}_4^+ \]
\[ 2\text{-Oxoglutarate} + \text{NADPH} + \text{NH}_4^+ \xrightarrow{\text{GIDH}} \text{L-Glutamate} + \text{NADP}^+ + \text{H}_2\text{O} \]

- Very rapid reaction
- Stable enzyme suspensions

<table>
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<tr>
<th>Catalogue No: AK00221</th>
<th>Kit size: 100 tests (for 3.10 mL reaction)</th>
<th>Range: 0.05-1.5 g/L</th>
<th>Detection limit: 14.7 mg/L</th>
<th>Price: 145.00 €</th>
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</thead>
</table>

| Catalogue No: AK00111 | Kit size: 50 tests of each (for 2.34 mL reaction) | Range: 10-400 mg/L L-glutamine, 10-70 mg/L ammonia | Detection limit: 0.54 mg/L L-glutamine, 0.07 mg/L ammonia | Price: 128.00 € |
D-Lactic acid, UV method

Enzymatic method for the determination of D-lactic acid. Based on the spectrophotometric measurement of NADH formed through the combined action of D-lactate dehydrogenase (D-LDH) and D-alanine aminotransferase (D-ALT/D-GPT).

\[
\begin{align*}
\text{D-Lactate + NAD}^+ & \rightarrow \text{Pyruvate + D-Glutamate} \\
\text{D-LDH} & \rightarrow \text{Pyruvate + NADH + H}^+ \\
\text{D-ALT} & \rightarrow \text{D-Alanine + 2-Oxoglutarate}
\end{align*}
\]

**Catalogue No:** AK00121  
**Kit size:** 50 tests (for 2.24 mL reaction)  
**Range:** 0.30-300 mg/L  
**Detection limit:** 0.30 mg/L  
**Price:** 118.00 €

- Very rapid reaction  
- Stable reagents  
- Suitable for manual and micro volume formats

L-Lactic acid, UV method

Enzymatic method for the determination of L-lactic acid. Based on the spectrophotometric measurement of NADH formed through the combined action of L-lactate dehydrogenase (L-LDH) and D-alanine aminotransferase (D-ALT/D-GPT).

\[
\begin{align*}
\text{L-Lactate + NAD}^+ & \rightarrow \text{Pyruvate + D-Glutamate} \\
\text{L-LDH} & \rightarrow \text{Pyruvate + NADH + H}^+ \\
\text{D-ALT} & \rightarrow \text{D-Alanine + 2-Oxoglutarate}
\end{align*}
\]

**Catalogue No:** AK00131  
**Kit size:** 50 tests (for 2.24 mL reaction)  
**Range:** 0.30-300 mg/L  
**Detection limit:** 0.30 mg/L  
**Price:** 78.00 €

- Very rapid reaction  
- Stable reagents  
- Suitable for manual and micro volume formats
**D-/L-Lactic acid, UV method**

Enzymatic method for the determination of D- and L-lactic acids. Based on the spectrophotometric measurement of NADH formed through the combined action of D-lactate dehydrogenase (D-LDH), L-lactate dehydrogenase (L-LDH) and D-alanine aminotransferase (D-ALT/D-GPT).

```
D-Lactate + NAD  →  Pyruvate + NADH + H⁺
Pyruvate + D-Glutamate  →  D-Alanine + 2-Oxoglutarate
L-Lactate + NAD⁺  →  Pyruvate + NADH + H⁺
```

- Very rapid reaction
- Stable reagents

**Lactose/Sucrose/D-Glucose, colorimetric method**

Simple colorimetric method for the determination of lactose, sucrose and D-glucose. Based on the combined action of ß-galactosidase, ß-fructosidase, glucose oxidase (GOD) and peroxidase (POD).

```
D-Glucose  + O₂ + H₂O  →  D-Gluconate + H₂O₂
2 H₂O₂ + p-hydroxybenzoic acid + 4-aminoantipirine  →  Quinoneimine dye + 4 H₂O
```

- Rapid reaction
- Simple method
- Very specific
D-Malic acid, UV method

Enzymatic method for the determination of D-malic acid. Based on the spectrophotometric measurement of NADH formed through the action of D-malate dehydrogenase (D-MDH).

\[
\text{D-Malate} + \text{NAD}^+ \xrightarrow{\text{D-MDH}} \text{Pyruvate} + \text{CO}_2 + \text{NADH} + H^+
\]

Catalogue No: AK00021
Kit size: 100 tests (for 2.42 mL reaction)
Range: 0.25-400 mg/L
Detection limit: 0.26 mg/L
Price: 135.00 €

- Stable D-MDH suspension
- Stable reagents
- Very rapid reaction
- Suitable for manual and micro volume formats

L-Malic acid, UV method

Enzymatic method for the determination of L-malic acid. Based on the spectrophotometric measurement of NADH formed through the combined action of L-malate dehydrogenase (L-MDH) and aspartate aminotransferase (AST).

\[
\text{L-Malate} + \text{NAD}^+ \xrightarrow{\text{L-MDH}} \text{Oxaloacetate} + \text{NADH} + H^+
\]
\[
\text{Oxaloacetate} + \text{L-Glutamate} \xrightarrow{\text{AST}} \text{L-Aspartate} + 2\text{-Oxoglutarate}
\]

Catalogue No: AK00011
Kit size: 58 tests (for 2.34 mL reaction)
Range: 0.25-300 mg/L
Detection limit: 0.25 mg/L
Price: 75.00 €

- Stable enzyme suspension
- Prevention of tanins inhibition (PVPP included)
- Very rapid reaction
- Suitable for manual and micro volume formats
**L-Malic acid, colorimetric method**

Enzymatic and rapid colorimetric method for the determination of L-malic acid. Based on the spectrophotometric measurement of INT-formazan formed through the combined action of L-malate dehydrogenase (L-MDH), aspartate aminotransferase (AST) and diaphorase.

![Chemical reaction]

- **Catalogue No:** AK00191
- **Kit size:** 5 x 10 tests (for 3.04 mL reaction)
- **Range:** 8-800 mg/L
- **Detection limit:** 8 mg/L
- **Price:** 100.00 €

**Pectin Identification**

Enzymatic method for the qualitative identification of pectin. After demethylation of pectin to pectate (by increasing the pH to 12.0), the pectate is hydrolyzed by pectate lyase which cleaves the polygalacturonic acid, releasing unsaturated oligosaccharides which absorb strongly at 235 nm.

![Chemical reaction]

- **Catalogue No:** AK00301
- **Kit size:** 250 test of each
- **Price:** 85.00 €
Pyruvic acid, UV method

Enzymatic method for the determination of pyruvic acid. Based on the spectrophotometric measurement of NADH consumed through the action of D-lactate dehydrogenase (D-LDH).

Pyruvic acid + NADH + H⁺ → D-Lactic acid + NAD⁺

- Stable reagents
- Very rapid reaction
- Suitable for manual and micro volume formats

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<td>Price:</td>
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D-Raffinose/Sucrose/D-Glucose, colormetric method

Simple colorimetric method for the determination of raffinose, sucrose and D-glucose. Based on the combined action of β-galactosidase, β-fructosidase, glucose oxidase (GOD) and peroxidase (POD).

D-Glucose determination

D-Glucose + O₂ + H₂O → D-Gluconate + H₂O₂
2 H₂O₂ + p-hydroxybenzoic acid + 4-aminoantipirine → Quinoneimine dye + 4 H₂O

- Simple method
- Stable reagents
- Rapid reaction
- Very specific

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<th>Catalogue No:</th>
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<td>Detection limit:</td>
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Sucrose/D-Fructose/D-Glucose, UV method

Enzymatic method for the determination of sucrose, D-fructose and D-glucose. Based on the spectrophotometric measurement of NADPH produced through the coupled reactions, after addition of hexokinase (HK), phosphoglucone isomerase (PGI) and glucose-6-phosphate dehydrogenase (G6PDH). The D-glucose concentration is determined before and after hydrolysis of sucrose by β-fructosidase. The sucrose content is calculated from the difference in D-glucose concentrations before and after hydrolysis by β-fructosidase.

**hydrolysis of sucrose (at pH 4.5)**

- **Sucrose + H₂O** → **D-Glucose + D-Fructose**
- **D-Fructose + ATP** → **Fructose-6-phosphate (F6P) + ADP**
- **D-Glucose + ATP** → **Glucose-6-phosphate (G6P) + ADP**
- **F6P** → **G6P**
- **G6P + NADP⁺** → **D-Gluconate-6-phosphate + NADPH + H⁺**

**Catalogue No:** AK00201
**Kit size:** 100 tests of each
**Range:** 20-800 mg/L (for 2.44 mL reaction)
**Detection limit:** 1.40 mg/L
**Price:** 137.00 €

- Stable reagents
- Rapid reaction

Sucrose/D-Glucose, colorimetric method

Simple colorimetric method for the determination of sucrose and D-glucose. Based on the combined action of β-fructosidase, glucose oxidase (GOD) and peroxidase (POD).

**hydrolysis of sucrose**

- **Sucrose + H₂O** → **D-Glucose + D-Fructose**

**D-Glucose determination**

- **D-Glucose + O₂ + H₂O** → **D-Gluconate + H₂O₂**
- **2 H₂O₂ + p-hydroxybenzoic acid + 4-aminoantipirine** → **Quinoneimine dye + 4 H₂O**

**Catalogue No:** AK00241
**Kit size:** 250 tests of each
**Range:** 50-1000 mg/L (for 3.3 mL reaction)
**Detection limit:** 3.30 mg/L
**Price:** 145.00 €

- Simple method
- Stable reagents
- Rapid reaction
Sulfite, UV method

Enzymatic method for the determination of sulfite. Based on the spectrophotometric measurement of NADH consumed through the combined action of sulfite oxidase (SOD) and NADH-peroxidase (NADH-POD).

\[
\begin{align*}
\text{SO}_3^2^- + \text{O}_2 + \text{H}_2\text{O} & \quad \xrightarrow{\text{SOD}} \quad \text{SO}_4^{2-} + \text{H}_2\text{O} + \text{H}^+
\\
\text{H}_2\text{O}_2 + \text{NADH} + \text{H}^+ & \quad \xrightarrow{\text{NADH-POD}} \quad 2\text{H}_2\text{O} + \text{NAD}^+
\end{align*}
\]

Total Starch HK, UV method

Enzymatic method for the determination of total starch (AOAC method 996.11 - adapted). Thermostable α-amylase hydrolyses starch into soluble branched and unbranched maltodextrins. Amyloglucosidase (AMG) hydrolyses maltodextrins to D-glucose. D-glucose obtained is determined through the hexokinase/glucose-6-phosphate dehydrogenase/NADP⁺ format.

\[
\begin{align*}
\text{Starch granules} + \text{H}_2\text{O} & \quad \xrightarrow{\alpha\text{-amylase}} \quad \text{Maltodextrins}
\\
\text{Maltodextrins} + \text{H}_2\text{O} & \quad \xrightarrow{\text{AMG}} \quad \text{D-Glucose}
\\
\text{D-Glucose} + \text{ATP} & \quad \xrightarrow{\text{HK}} \quad \text{Glucose-6-P (G6P)} + \text{ADP}
\\
\text{G6P} + \text{NADP}^+ & \quad \xrightarrow{\text{G6PDH}} \quad \text{D-Gluconate-6-P} + \text{NADPH} + \text{P}^+
\end{align*}
\]
**Total Starch, colorimetric method**

Enzymatic method for the determination of total starch (AOAC method 996.11 - adapted). Thermostable α-amylase hydrolyses starch into soluble branched and unbranched maltodextrins. Amyloglucosidase (AMG) hydrolyses maltodextrins to D-glucose. D-glucose obtained is determined directly with GOPOD Reagent by conversion to a red coloured quinoneimine dye compound through the combined action of glucose oxidase (GOD) and peroxidase (POD).

![Starch hydrolysis diagram]

- **Starch granules + H₂O** → α-amylose → Maltodextrins + H₂O
- **Maltodextrins + H₂O** → AMG → D-Glucose

**D-Glucose determination**

- **D-Glucose + O₂ + H₂O** → GOD → D-Gluconate + H₂O₂
- **2H₂O₂ + p-hydroxybenzoic acid + 4-aminoantiprine** → POD → Quinoneimine dye + 4H₂O

- **Catalogue No:** AK00291
- **Kit size:** 100 tests of each (for 3.1 mL reaction)
- **Range:** 1-100% sample weight
- **Detection limit:** 0.65 mg/L D-glucose/L
  0.58 mg starch/L
- **Price:** 164.00 €

- **Simple method**
- **Very specific**
- **Very cost effective**

---

**Urea/Ammonia, UV method**

Enzymatic method for the determination of urea and ammonia. Based on the spectrophotometric measurement of NADPH consumed through the combined reactions, after addition of urease (URE) and glutamate dehydrogenase (GIDH).

![Urea hydrolysis diagram]

- **Urea + H₂O** → URE → 2 NH₃ + CO₂
- **2-Oxoglutarate + NADPH + NH₄⁺** → GIDH → L-Glutamate + NADP⁺ + H₂O

- **Catalogue No:** AK00101
- **Kit size:** 50 tests of each (for 2.64 mL reaction)
- **Range:** 1.5-140 mg/L urea
  10-70 mg/L ammonia
- **Detection limit:** 0.13 mg/L urea
  0.07 mg/L ammonia
- **Price:** 112.00 €

- **Stable enzyme suspensions**
- **Very rapid reaction**
NZYTech Vintage Pack allows performing a range of assay reactions that are particularly important to wineries. The NZYTech Vintage Pack, dedicated to the wine industry, is composed by 4 analytical test kits enabling the determination of 7 important analytes during the control of the vinification process.

For more information, see individual kit specifications

**Vintage Pack**

- D-Fructose/D-Glucose
- L-Malic acid
- Acetic acid
- L-Arginine/Urea/ammonia

**Catalogue No:** AK00181  
**Pack size:** 371 tests (total)  
**Price:** 350.00 €

---

**Monitoring**

- **Grape Maturity**
  - D-Fructose
  - D-Glucose
  - L-Malic acid
  - Sucrose

- **Nutritive Status**
  - D-Fructose
  - D-Glucose
  - Sucrose
  - YAN*
  - L-Arginine
  - Urea
  - Ammonia

---

**NZYTech Vintage Pack**
Fermentation

Primary Fermentation (alcoholic)

- Acetic acid
- D-Fructose
- D-Glucose
- D-Lactic acid

YAN*
- L-Arginine
- Urea
- Ammonia

Secondary Fermentation (malolactic)

- L-Lactic acid
- L-Malic acid

Quality Control

- Acetaldehyde
- Acetic acid
- Ammonia
- D-Fructose
- D-Glucose
- Ethanol
- L-Malic acid
- D-Lactic acid
- Sucrose
- Sulfite
- Urea

*YAN: yeast available nitrogen
RELATED PRODUCTS

Analytical enzymes
Cofactors
### ANALYTICAL ENZYMES

<table>
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<th>Enzyme</th>
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<td>6.2.1.1</td>
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<td>D-Alanine aminotransferase</td>
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<td>Alcohol dehydrogenase</td>
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<td>Aldehyde reductase YqhD</td>
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<td>Arginase</td>
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### COFACTORS

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<td>β-NADPH</td>
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<tr>
<td>β-NADH</td>
<td>AC00041</td>
<td>1 g</td>
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Product Shipping and Delivery
All our products are transported in the appropriated conditions to maintain intact all the properties inherent to its expected output. For most countries the delivery occurs within two to five working days, except in case of stock rupture. Shipping costs may apply. The necessity of dry ice is signalized in the products and extra charge may apply.

Use of Products
NZYTEch’s kits and reagents are for laboratory research and in vitro use only. They should NOT be used as Agricultural or Pesticide Products, Cosmetics, Drugs, Food Additives or Household Chemicals.

Warranty
NZYTEch warrants that its products conform to the specifications in the accompanying technical brochure. If a product fails to conform to its specifications, NZYTEch may choose to replace it free of charge or refund the purchase price.

Pricing
Prices are shown in Euro (€). Prices may be subjected to change without notice. We guarantee written quotations for 30 days. When placing your order, please refer our quoted prices or pro-forma invoice number. If you order by phone, we will confirm our current price by them. If you order via our website, we will guarantee the price shown at the website by that time. Prices shown in this catalogue exclude VAT, which might be applied when the invoice is issued. Shipment will be made promptly even if prices have been nominally changed. Price increases and reductions, if any, will be automatically applied to your invoice.

Payment Terms
Invoices will be due within 30 days from issue date. Advanced Payment may be required. Banking expenses are fully supported by the client. In case of advanced payment orders will only be processed upon payment validation.

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We reserve the right to discontinue the offering of any item without prior notice.

Return Policy
NZYTEch’s Customer Service is available to assist you if a problem arises with your order. Please inspect all packages immediately upon receipt and notify us promptly if any damage or discrepancy occurs. If damages occur, please retain the damaged goods, packing material and shipping documents. If the damage requires that you have to send us back the materials please contact our Quality Service Department to obtain shipping instructions and authorizations. If an item is shipped to you incorrectly, as the result of a mistake from our team, we will take a quick and appropriate action to correct the problem. Returns accepted for items that have been ordered by mistake may be subject to a processing fee of 20% to cover costs.