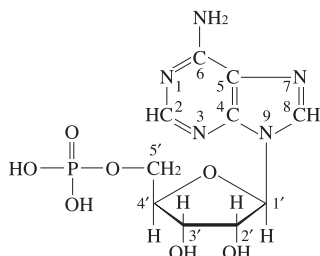# A M P

Adenosine 5'-monophosphate (free acid)
5'-Adenylate (free acid)
Crystalline

## *from Yeast*

## Structure



**Formula** : $C_{10} H_{14} N_5 O_7 P$

**Formula weight** : 347.2

## Specification

### Purity

Determined by Enzymatic Method
(PK, LDH, MK)

### Water Content

### UV Spectral Analysis

$\varepsilon$ at 260 nm and pH 7.5
Ratio at pH 7.5
  $A_{250}/A_{260}$
  $A_{280}/A_{260}$

| Specifications |
| --- |
| $\geqq 95\%$ |
| $< 8\%$ |
| $(15.4 \pm 0.5) \times 10^3$ |
| $0.78 \pm 0.03$ |
| $0.16 \pm 0.02$ |

## Assay Procedure

### I. Spectrophotometric Method

Wavelength ; 340 nm,  Light path length ; 1 cm

Pipette the following reagents into a cuvette

|  | a | b | c | d |
| --- | --- | --- | --- | --- |
| Tris-HCl/K⁺ & Mg²⁺ (0.1 mol/L, pH 7.5/0.12 mol/L & 0.012 mol/L) | 5.0 mL | 5.0 mL | 5.0 mL | 5.0 mL |
| Substrate mixture*[1] | 0.3 mL | 0.3 mL | 0.3 mL | 0.3 mL |
| AMP (0.2 mg/mL) | 0.5 mL | 0.5 mL | — | — |
| Distilled water | — | 0.1 mL | 0.5 mL | 0.6 mL |
| LDH & PK (200 IU/mL & 150 IU/mL) | 0.1 mL | 0.1 mL | 0.1 mL | 0.1 mL |
| MK (100 IU/mL) | 0.1 mL | — | 0.1 mL | — |

*[1] PEP monocyclohexyl ammonium salt (14 mg/mL) :
  ATP (3 mg/mL) : NADH (8 mg/mL)*[2] = 1 : 1 : 1
*[2] Dissolved in Tris (50 mmol/L)

## II. Calculation

$$\frac{\Delta A \cdot V \cdot MW \times 100}{2^{*(3)} \cdot 6.3 \times 10^3 \cdot d \cdot v \cdot s} \times \frac{100}{100 - W} = \text{Purity of AMP}$$

$\Delta A = (Ab - Aa) - (Ad - Ac)$
$V = $ Total volume of reaction mixture (6.0 mL)
$MW = 347.2$, as of anhydrate
$6.3 \times 10^3 = $ Molar extinction coefficient of NADH at
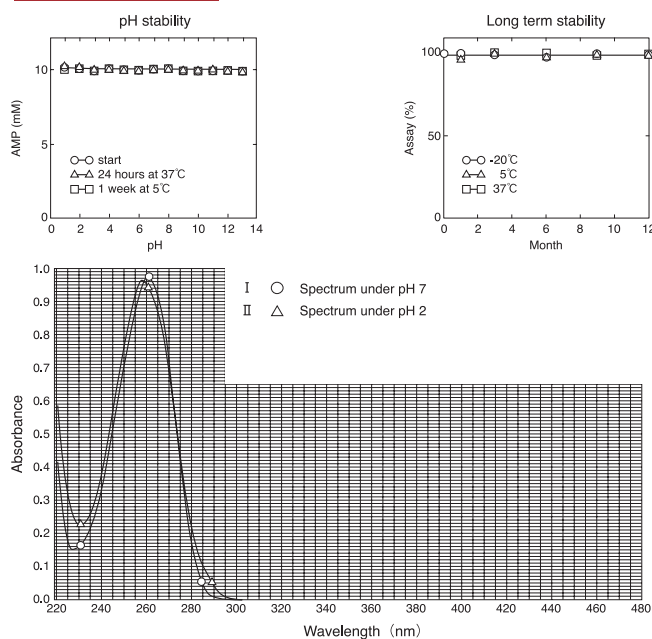       340 nm $(L \cdot mol^{-1} \cdot cm^{-1})$
$d = $ Light path length (1 cm)
$v = $ Sample volume (0.5 mL)
$s = $ Sample concentration (0.2 mg/mL)
$W = $ Water Content (%)
*[3] $AMP + ATP = 2\ ADP$

## Reference Data



pH stability



Long term stability



I ◯ Spectrum under pH 7
II △ Spectrum under pH 2

## Storage

Stable for more than 12 months if kept dry in the dark.
Solution is most stable at pH 2～13

## OYC No./Package

| OYC No. | Package |
| --- | --- |
| 45100000 | 1 g |
| 45102000 | 10 g |
| 45100900 | Bulk |

(Research reagent use only, not for medical use.)

**ORIENTAL YEAST CO., LTD.**