

## SPECIFICATION SHEET

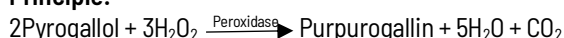
**Product Name: Peroxidase**
**Catalog # PER01-E52A**

**Product Description:** This enzyme is a diagnostic grade reagent from a horseradish host. It is useful for enzymatic determination of  $H_2O_2$  in clinical analysis. On the other hand, the enzyme contributes for the reduction of phenol in wastewater.

**EC 1.11.1.7**

**Storage and Stability:** Product can be stored at 2–8°C for transportation process up to ten days but long-term storage should be at –20°C.

**Principle:**



|                                    |                                                                                                                     |                              |
|------------------------------------|---------------------------------------------------------------------------------------------------------------------|------------------------------|
| <b>Unit Definition</b>             | : One purpurogallin unit causes the formulation of one micromole of purpurogallin in 20 seconds at 20°C and pH 6.0. |                              |
| <b>Appearance</b>                  | : Reddish brown amorphous powder, lyophilized                                                                       |                              |
| <b>Activity</b>                    | : $\geq 180$ U/mg solid                                                                                             |                              |
| <b>Contaminants</b>                | : Phosphatase                                                                                                       | $\leq 1.0 \times 10^{-3} \%$ |
| <b>Molecular Weight</b>            | : 40 kDa                                                                                                            |                              |
| <b>Inhibitors</b>                  | : Cyanide, sulfide, fluoride, azide                                                                                 |                              |
| <b>Optimum pH</b>                  | : 6.0–7.0                                                                                                           | (Figure 1)                   |
| <b>Optimum Temperature</b>         | : 45°C                                                                                                              | (Figure 2)                   |
| <b>pH Stability</b>                | : pH 5.0–10.0 (25°C, 20 hr)                                                                                         | (Figure 3)                   |
| <b>Thermal Stability</b>           | : Below 50°C (pH 6.0, 10 min)                                                                                       | (Figure 4)                   |
| <b>Effect of various chemicals</b> | : (Table 1)                                                                                                         |                              |

**Table 1. Effect of Various Chemicals on Peroxidase**

The enzyme dissolved in 0.1 M phosphate buffer, pH 6.0 (50 U/mL) was incubated with each chemical at 25°C for 1 hr.

| Chemical          | Conc. (mM) | *Residual activity (%) | Chemical         | Conc. (mM)  | *Residual activity (%) |
|-------------------|------------|------------------------|------------------|-------------|------------------------|
| None              | —          | 100                    | MIA              | 2           | 99                     |
| CaCl <sub>2</sub> | 2          | 102                    | NaF              | 2           | 98                     |
| MgCl <sub>2</sub> | 2          | 102                    | NaN <sub>3</sub> | 2           | 75                     |
| ZnCl <sub>2</sub> | 2          | 99                     | o-Phenanthroline | 2           | 98                     |
| NiCl <sub>2</sub> | 2          | 96                     | a,a'-Dipyridyl   | 1           | 96                     |
| CoCl <sub>2</sub> | 2          | 97                     | Borate           | 50          | 98                     |
| MnCl <sub>2</sub> | 2          | 97                     | Hydroxylamine    | 2           | 98                     |
| FeCl <sub>3</sub> | 2          | 98                     | EDTA             | 5           | 95                     |
| CuSO <sub>4</sub> | 2          | 98                     | Na-Cholate       | 0.1%(w/v)   | 97                     |
| AgNO <sub>3</sub> | 2          | 91                     | Tween-20         | 0.1%(v/v)   | 89                     |
| HgCl <sub>2</sub> | 2          | 92                     | Triton X-100     | 0.1% (v/v)  | 98                     |
| 2-Mercaptoethanol | 2          | 94                     | Brij-35          | 0.1% (w/v)  | 80                     |
| PCMB              | 2          | 98                     | Span-20          | 0.1% (v/v)  | 98                     |
| NEM               | 2          | 97                     | SDS              | 0.05% (w/v) | 98                     |

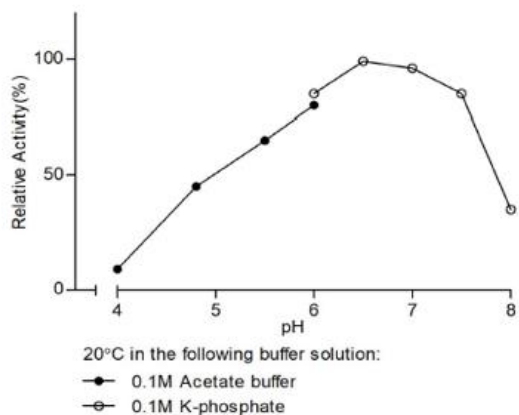
**Table 1(Continued)**

| Chemical | Conc. (mM) | *Residual activity (%) | Chemical | Conc. (mM)  | *Residual activity (%) |
|----------|------------|------------------------|----------|-------------|------------------------|
| IAA      | 2          | 99                     | DAC      | 0.04% (w/v) | 102                    |

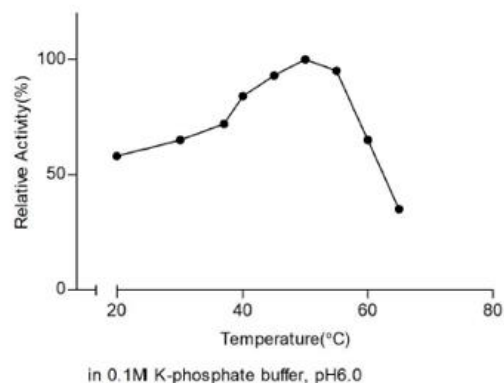
\*: Residual activity was measured by 4AA-DEA method 4AA,4-Aminoantipyrine; DEA, Diethylaniline

PCMB, p-Chloromercuribenzoate; MIA, Monoiodoacetate; DAC, Dimethylbenzylalkylammonium chloride

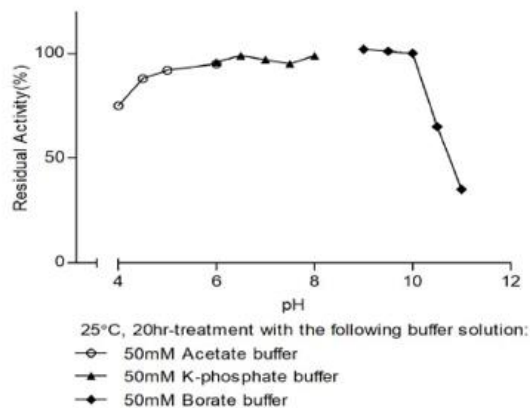
**Fig.1. pH-Activity**



**Fig.2. Temperature Activity**



**Fig.3. pH-Stability**



**Fig.4. Thermal Stability**

