SIGNALCHEM DIAGNOSTICS

Sarcosine Oxidase

EC 1.5.3.1

Catalog # SX01D1-E311H
Lot # 146L2124B001

Product Description

This enzyme is a diagnostic grade reagent from a microorganism host. It is useful for enzymatic determination of creatinine, creatine and sarcosine when coupled with creatinine amidohydrolase and creatine amidinohydrolase in clinical analysis.

PRINCIPLE

Sarcosine + O2 + H2O $\xrightarrow{\text{sarcosine oxidase}}$ Glycine + Formaldehyde + H2O2

2H2O2 + 4-Aminoantipyrine + Phenol $\xrightarrow{\text{peroxidase}}$ Quinoneimine + 4H2O

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

SPECIFICATION

Unit Definition	One unit causes the formation of one micromole of hydrogen peroxide (half a micromole of quinoneimine dye) per minute at pH8.0 and 37 ℃.	
Appearance	: Slight yellow amorphous powder, lyophilized	
Activity	: 10 U/mg-solid or more	
Contaminants	: Catalase	≤1.0 %
Stabilizers	: Sucrose	

PROPERTIES

Molecular weight	: 44.0 kDa	
Isoelectric point	: 5.61	
Michaelis constant	: 6.938×10^{-3}M (Sarcosine)	
Inhibitors	: Cu^{2+}, Ag^{+}, Hg^{2+}, NEM	
Optimum pH	: 7.5	(Fig.1)
Optimum temperature	: 55~60 °C	(Fig.2)
pH stability	: pH 6.5~9.5 (25°C, 24hr)	(Fig.3)
Thermal stability	: below 55°C (pH 7.5, 30 min)	(Fig.4)
Effect of various chemicals	: (Table 1)	

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Table 1. Effect of Various Chemicals on Sarcosine oxidase

The enzyme dissolved in 50mM K-phosphate buffer, pH7.5 (10U/ml) was incubated with each chemical at 30°C for 30 minutes.

Chemical	Concn.(mM)	Residual activity (%)	Chemical	Concn.(mM)	Residual activity (%)
None	—	100	BME	2	95
$CaCl_2$	2	95	Hydroxylamine	2	95
$MgSO_4$	2	91	EDTA	5	96
$ZnSO_4$	2	92	NaF	20	93
$NiCl_2$	2	77	NaN_3	20	75
$CoCl_2$	2	87	Proclin-300	0.045% (v/v)	85
$MnCl_2$	2	95	SDS	0.05% (w/v)	81
$FeCl_3$	2	95	Na-Cholate	0.1%(w/v)	95
$CuSO_4$	2	15	Tween-20	0.1%(v/v)	95
$AgNO_3$	2	3.3	Triton X-100	0.1% (v/v)	106
$HgSO_4$	2	2.4	Span-20	0.1% (v/v)	102
NEM	2	68	Brij-35	0.1% (w/v)	101
IAA	2	97			

Fig.1. pH-Activity

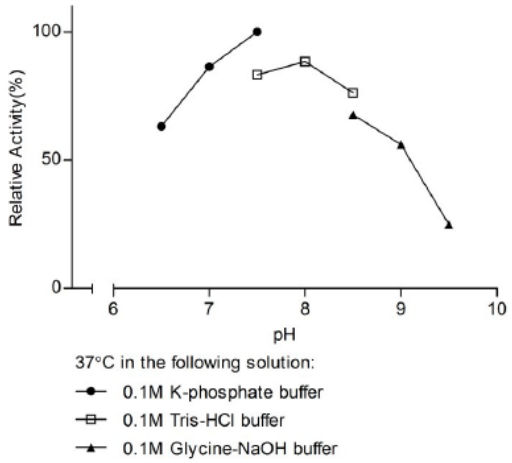

Fig.2. Temperature Activity

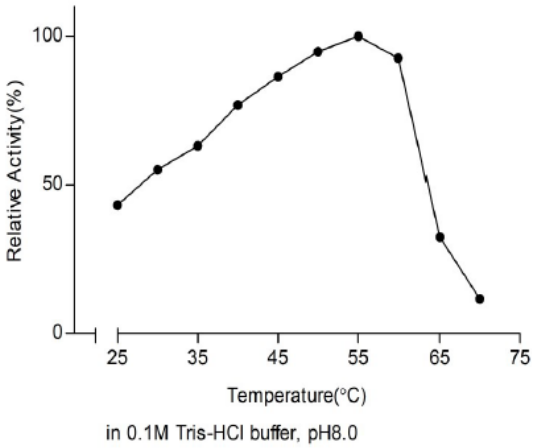

Fig.3. pH Stability

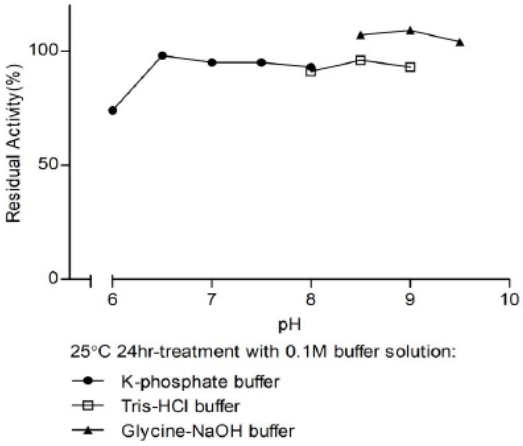

Fig.4. Thermal Stability