

# ENZYMES

BY

# SORACHIM

## Glycerol Kinase from Cellulomonas sp.

### GYK-301

#### SPECIFICATIONS

Product name	ATP: Glycerol 3-phosphotransferase
EC	2.7.1.30
Appearance	White amorphous powder lyophilized
Activity	Grade III, 20 U/mg-solid or more (contains approx. 50% stabilizers)
Contaminants	Catalase : $\leq 1.0 \times 10^{-1}$ %, NADH oxidase : $\leq 1.0 \times 10^{-2}$ % Phosphatase (pH 6.0) : $\leq 2.0 \times 10^{-3}$ %
Stability	Stable at -20°C for at least 12 months
Molecular weight	approx. 128,000 (by gel filtration)
Structure	4 subunits of approx 58,000
Isoelectric point	4.2
Michaelis constants	$4.4 \times 10^{-5}$ M (Glycerol), $4.3 \times 10^{-4}$ M (ATP)
Inhibitors	p-Chloromercuribenzoate, Hg <sup>++</sup> , Ag <sup>+</sup> , Pb <sup>++</sup> , Fe <sup>++</sup>
Optimum pH	9.8 (G-3-PDH system), 7.8 (G-3-P oxidase system)
Optimum temperature	50°C
pH Stability	pH 5.5 - 10.0 (25°C, 20hr)
Thermal stability	below 40°C (pH 7.5, 15min)

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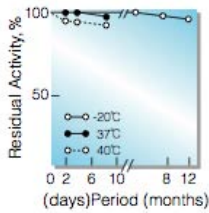


Fig.1. Stability (Powder form)  
(kept under dry conditions)

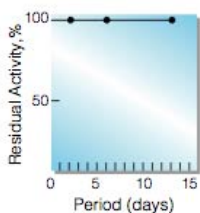


Fig.2. Stability (Liquid form at 37°C)  
[enzyme concentration: 400-500 U/ml  
buffer composition: 50mM K-phosphate buffer,  
contg. 3.2M ammonium sulfate, pH6.3]

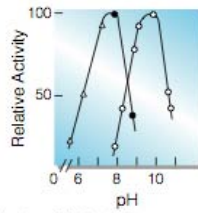


Fig.3. pH-Activity  
[25°C; G-3-PDH system (○—○, 0.18M glycine-hydrazine buffer); G-3-P oxidase system (●—●, 50mM Tris-HCl buffer; △—△, 50mM (2-N-Morpholino)ethanesulfonic acid-NaOH buffer.)]

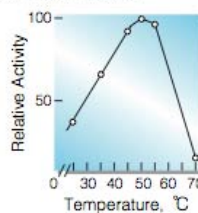


Fig.4. Temperature activity  
[in 0.18M glycine-hydrazine buffer, pH9.8]

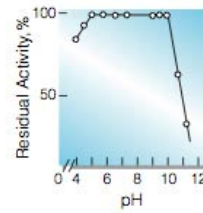


Fig.5. pH-Stability  
[25°C; 20hr-treatment with 50mM buffer solution:  
pH4.0-6.0, acetate; pH6.0-9.0, K-phosphate;  
pH9.0-11.0, K<sub>2</sub>CO<sub>3</sub>-NaHCO<sub>3</sub>]

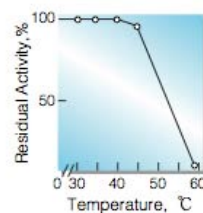


Fig.6. Thermal stability  
[15min-treatment with 50mM K-phosphate buffer, pH7.5]

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