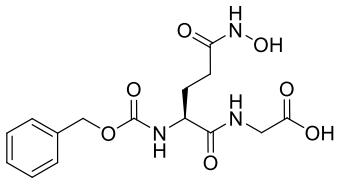
Product Data Sheet

Product number **Z018**
Revision number RN3.1

Product Name	Z-Glutamyl(γ-hydroxamate)-glycine Z-Glu(γ-hydroxamate)-Gly-OH
Application	Reference substance to determine the concentration of product formed by microbial transglutaminase (MTG). The standard hydroxamate assay uses Z-Gln-Gly-OH as peptidic glutamine substrate and hydroxylamine as amine donor. In the presence of MTG, hydroxylamine is enzymatically incorporated into the peptide to form Z-Glutamyl(γ-hydroxamate)-glycine. The hydroxamate forms a red colored complex with iron (III) ions quantified at 525 nm. One unit of microbial transglutaminase activity is defined as the amount of enzyme, which causes the formation of 1.0 µmole of hydroxamate per minute at 37ºC (Folk and Cole, 1966). Z018 represents the reaction product to be measured by the chromogenic endpoint assay, allowing the determination of a calibration curve. For each setting, molar attenuation coefficient (ε) needs to be determined individually. We recommend using Z018 to replace G048, which represents the glutamyl(γ-hydroxamate) as a surrogate only.
Molecular Formula	$C_{15}H_{19}N_3O_7$
Molecular Weight	353.33
Chemical Structure	
Purity by HPLC	>95 %
Solubility	>50 mM in buffer “Reagent 1”, see page 2 Dissolve e.g. 10 mg (28.3 µmol) of Z018 in 566 µL of aqueous buffer (Reagent 1, see page 2) to obtain a 50 mM (17.7 mg/mL) stock solution. NOTE: The solubility of Z018 is not fully investigated. Z018 is not soluble in pure water. Also, solubility seems to be pH dependent. We recommend checking the solubility of e.g. 1 mg of Z018 in the buffer to be used before the experiment.
Appearance	White solid
Storage	Store at -20°C, desiccate
Related products	T001 - Recombinant microbial (bacterial) transglutaminase Z009 - Zedi*Xclusive* Microbial Transglutaminase Assay Kit C001 - Z-Gln-Gly-OH
Release date	16 January 2025
NOTE	INTENDED FOR RESEARCH USE ONLY, NOT FOR USE IN HUMAN, THERAPEUTIC OR DIAGNOSTIC APPLICATIONS.

Exemplary determination of ε

The molar attenuation (extinction) coefficient (ε) was determined using a serial dilution of Z018 ranging from 1.9 to 0.05 mM in duplicates at ambient temperature. Briefly, a 40 mM stock solution of Z-Glu(γ-hydroxamate)-Gly-OH (Z018) was dissolved and diluted in Reagent 1 (0.2 M TRIS, 0.1 M hydroxylammonium chloride, 10 mM glutathione, pH 6.0). Subsequently, another 500 µl of Reagent 1 were combined with 50 µl of each Z018 dilution described above.

By adding 500 µl of the stop solution consisting of equal volumes of 12% HCl, 50 g/l $FeCl_3$ in 0.1N HCl and 12 % trichloroacetic acid, the hydroxamate forms a red colored complex with iron (III) ions, quantified at 525 nm (Fig. 1).

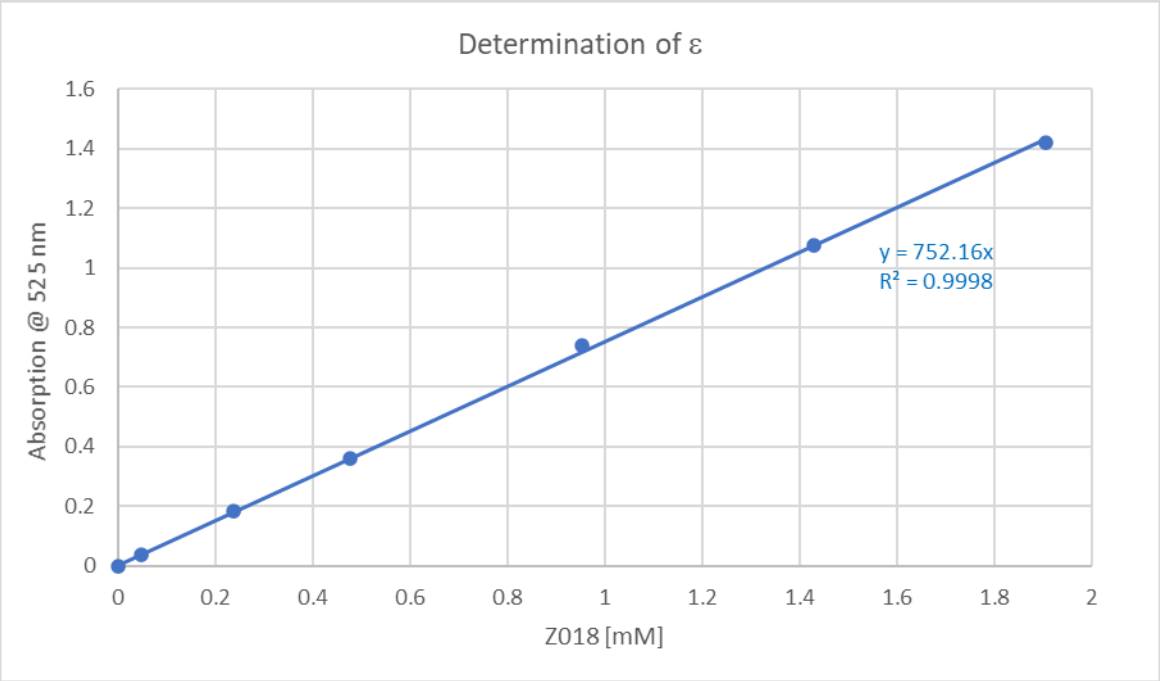


Fig. 1: Determination of molar attenuation (extinction) coefficient ε = 0.75 ml/(µmol*cm)