


Specification

Luminol

A2185

Physical Description:	Solid
Product Code:	A2185
Product Name:	Luminol
Specifications:	<p>Assay (HPLC): min. 95 %</p> <p>$\lambda_{\text{max. 1}}$ (0.1 M NaOH): 344 -350 nm</p> <p>$\lambda_{\text{max. 2}}$ (0.1 M NaOH): 297 - 303 nm</p> <p>Water (K.F.): max. 1 %</p>
Hazard pictograms	
WGK:	1
Storage:	<p>RT</p> <p>under argon</p>
Signal Word:	Attention
GHS Symbols:	GHS07
H Phrases:	<p>H315</p> <p>H319</p> <p>H335</p>
P Phrases:	P305+P351+P338
Molecular Formula:	$\text{C}_8\text{H}_7\text{N}_3\text{O}_2$
M:	177.17 g/mol
CAS:	521-31-3
EINECS:	208-309-4

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Specification

Luminol

A2185

CS:	29339980
<p>Comment</p> <p>The cyclic diacylhydrazide Luminol is oxidized by hydrogen peroxide, generating a radical of Luminol. This radical forms an endoperoxide which decomposes to form an 3-aminophthalate anion. If this molecule falls back into its ground state, light is emitted. The emission of light is enhanced by derivatives of 6-hydroxybenzothiazole or substituted phenols by a factor of up to 1000. The enhancer serve as mediators of the electron transfer. The chemiluminescence reaction with Luminol can be performed in several solvents, such as water, DMSO, DMF, lower alcohols etc. The pH optimum is pH 9.0 or above that value. Oxidation is the type of chemical reaction, using hypochloride, potassium ferricyanide and persulfate, respectively, as oxidant (1). Several enzyme reactions, e. g. with dismutase (2) or peroxidases (3), have been coupled with the reaction of Luminol and oxygen radicals to emit light. The optimum conditions of the peroxidase system include approximately 0.2 mM Luminol, 4 mM 4-iodophenol and 17.6 mM hydrogen peroxide (4). The detection limit is far below one nanogram of protein. For preparing a stock solution one can dissolve 100 mg/ml of Luminol in either DMSO or 10 mM (1.7717 mg/ml) in 50 % of DMSO. The developing solution contains (Ref. 4) 0.5 mM Luminol, 4 mM 4-iodophenol and 50 mM glycine-NaOH buffer (pH 9.6) and can be stored indefinitely at room temperature when protected from light. Hydrogen peroxide (17.6 mM final concentration) is added just before use. The reagent can be used several times. Just hydrogen peroxide has to be added again (4).</p>	
<p>Bibliography</p> <p>(1) Roswell, D.F. & White, E.H. (1978) <i>Methods Enzymol.</i> 57, 409-423 The chemiluminescence of Luminol and related Hydrazides. (2) Huu, T.P. <i>et al.</i> (1984) <i>Anal. Biochem.</i> 142, 467-472 Luminol assay for microdetermination of Superoxide Dismutase activity: Its application to human fetal blood. (3) Leong, M.M.L. & Fox, G.R. (1990) <i>Methods Enzymol.</i> 184, 442-451 Luminescent detection of immunodot and Western blot. (4) Yakunin, A.F. & Hellenbeck, P.C. (1998) <i>Anal. Biochem.</i> 258, 146-149 Luminol/Iodophenol Detection system for Western-Immunoblots.</p>	
	

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