

PRODUCT DATA SHEET

1-Palmitoyl-2-oleoyl-sn-glycero-3-phosphorylglycerol (Na⁺ salt)

Catalog number: 1438

Common Name: POPG

Source: synthetic

Solubility: chloroform/methanol (5:1)

CAS number: 202070-86-8

Molecular Formula: C₄₀H₇₆O₁₀P • Na

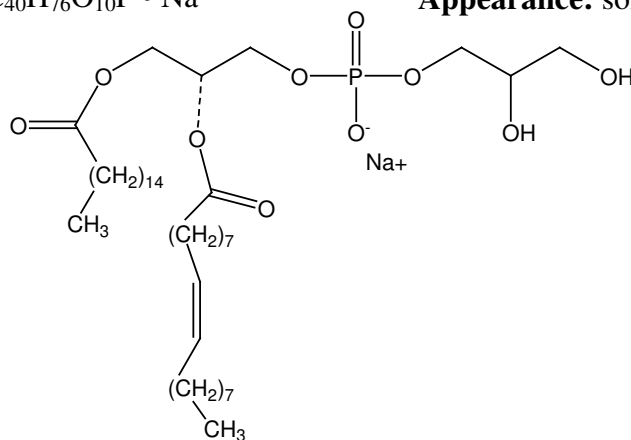
Molecular Weight: 771

Storage: -20°C

Purity: TLC > 98%

TLC System: chloroform/methanol/DI water
(65:25:4 by vol.)

Appearance: solid



Application Notes:

Phosphatidylglycerols are found in pulmonary surfactant, the lipoprotein complex that is formed by type II alveolar cells in the lung. They are important in spreading secreted surfactant over the type I alveolar cells. 1-Palmitoyl-2-oleoyl-sn-glycero-3-phosphorylglycerol has been found to be able to reduce the inflammation and infection of *syncytial virus*, the most common cause of hospitalization for respiratory tract infection in young children and a significant cause of morbidity and mortality in the elderly.¹ The enzyme cardiolipin synthase attaches two phosphatidylglycerols together to form cardiolipid which is a major component of the mitochondrial inner membrane.² Phosphatidylglycerol is the main component of some bacterial membranes where it contains diacyl, alkylacyl, or alkenylacyl groups. Phosphatidylglycerols generally have saturated and monoenoic fatty acids on position *sn*-2 and polyunsaturated fatty acids in position *sn*-1. This is the opposite of the other animal phospholipids and is due to its being synthesized by a different mechanism. Phosphatidylglycerol has been found to be essential for the development of thylakoid membranes in some plants.³ Besides being critical in membranes it is essential for the oligomerization of photosystems I and II in cyanobacteria, for the sensitivity to chilling in plants, and for cellular fission and division in bacteria.

Selected References:

1. M. Numata et al. "Pulmonary surfactant phosphatidylglycerol inhibits respiratory syncytial virus-induced inflammation and infection" *PNAS*, doi: 10.1073/pnas.0909361107, 2009
2. S. Vaena de Avalos et al. "The phosphatidylglycerol/cardiolipin biosynthetic pathway is required for the activation of inositol phosphosphingolipid phospholipase C, Isc1p, during growth of *Saccharomyces cerevisiae*" *Journal of Biological Chemistry*, Vol. 280(8) pp. 7170-7177, 2004
3. M. Hagio et al. "Phosphatidylglycerol is Essential for the Development of Thylakoid Membranes in *Arabidopsis thaliana*" *Plant & Cell Physiology*, Vol. 43(12), pp. 1456-1464, 2002

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