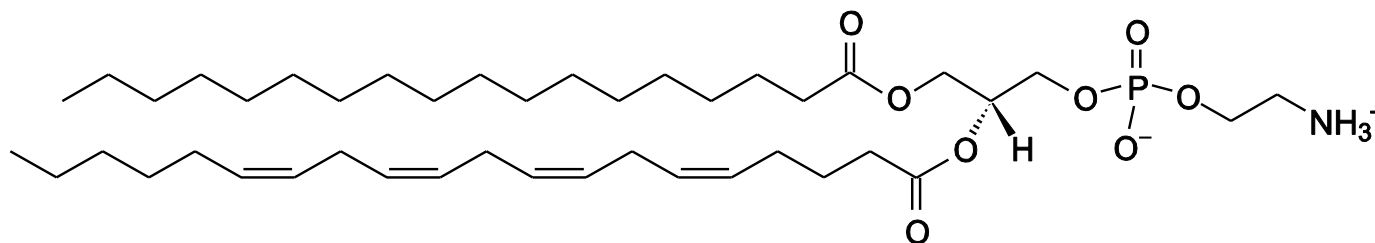


Research Certificate of Analysis

Heart PE

L- α -phosphatidylethanolamine (Heart, Bovine)

Molecular Weight: Average MW: 763.968
 Molecular Formula: C₄₃H₇₈NO₈P
 Storage: -20°C
 Shelf Life (Unopened): 3 Months
 Physical Form: Chloroform
 Lot Number: HPE-146v



Structure of predominant species

Product Specifications

| Test | Limits | Results |
|------------------|----------------------------|---|
| GC-FAME (AUC) | Consistent with Historical | Consistent with Historical |
| Mass Spec | Consistent with Structure | Consistent with Structure |
| UV/VIS Oxidation | Run and Report | 234nm = 1.95% 268nm = 0.27% 278nm = 0.39% |
| TLC Analysis | >99% | >99% |
| Ninhydrin | Positive | Positive |
| Iodine | One Spot | One Spot |
| Phosphorus | Positive | Positive |
| Char | Positive | Positive |

Signed: Electronically Signed By QC
Release Date: June 18, 2014