**Heart CA**
Cardiolipin (Heart, Bovine) (sodium salt)

**840012P-25mg**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Molecular Weight</strong></td>
<td>1493.895 (average based on fatty acid distribution in product)</td>
<td></td>
</tr>
<tr>
<td><strong>Physical State</strong></td>
<td>Powder</td>
<td></td>
</tr>
<tr>
<td><strong>Storage</strong></td>
<td>-20°C</td>
<td></td>
</tr>
<tr>
<td><strong>Expiration Date</strong></td>
<td>Three months from date of receipt</td>
<td></td>
</tr>
<tr>
<td><strong>M Lot Number</strong></td>
<td>5484PJDN549</td>
<td></td>
</tr>
<tr>
<td><strong>Avanti Lot Number</strong></td>
<td>840012P-25MG-D-549</td>
<td></td>
</tr>
</tbody>
</table>

### ANALYSIS

#### Physical Examination
**Powder:** White solid which contains no foreign matter

#### TLC
- >99% Purity
- Ninhydrin: negative
- Iodine: one major spot
- Phosphorus: positive
- Charring: positive
- Water dip: one major spot

#### Proton NMR
- Spectrum consistent with structure

#### FAME (GC/FID)
- Consistent with historical data
  - 18:1 = ~5%
  - 18:2 = ~90%

#### UV Oxidation
- NMT 5% total all wavelengths
- 3.97% total

#### Calcium (ICP/MS)
- NMT 500 ppm
- None detected

#### Mass Spectroscopy
- Exact Mass: \([M-2Na+H] = 1447.94 \pm 1\text{ amu}; [M-2Na]^2 = 723.47 \pm 1\text{ amu}\)
- Molecular Weight: \([M-2Na+H] = 1448.92 \pm 1\text{ amu}; [M-2Na]^2 = 723.95 \pm 1\text{ amu}\)
- \([M-2Na]^2 = 723.7\text{ amu}\)

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**Approved By:** [Signature]

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