**ISOPULLULANASE** from *Aspergillus niger* (Lot 151002a)

Recombinant

E-ISPUAN  02/18
(EC 3.2.1.57) pullulan 4-glucanohydrolase (isopanose-forming)
CAZy Family: GH49
CAS:  37288-43-0

**PROPERTIES**

1. **ELECTROPHORETIC PURITY:**
   - Single band on SDS-gel electrophoresis (MW ~ 60,500)
   - One major band on isoelectric focusing (pI ~ 5.2)

2. **SPECIFIC ACTIVITY:**
   65 U/mg protein (on pullulan) at pH 3.5 and 40°C.
   
   One Unit of isopullulanase activity is defined as the amount of enzyme required to release one µmole of glucose reducing sugar equivalents per minute from pullulan (10 mg/mL) in formic acid buffer (100 mM), pH 3.5 at 40°C.

3. **SPECIFICITY:**
   Hydrolysis of pullulan to isopanose (6-α-maltosylglucose).

4. **RELATIVE RATES OF HYDROLYSIS OF SUBSTRATES:**

<table>
<thead>
<tr>
<th>Substrate</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pullulan (P-PULLBH)</td>
<td>100</td>
</tr>
<tr>
<td>6³-α-D-Glucosyl-maltotriose (O-GMT)</td>
<td>&lt; 0.007</td>
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<tr>
<td>6³-α-D-Glucosyl-maltotriosyl-maltotriose (O-GMH)</td>
<td>~ 0.64</td>
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<tr>
<td>Isomaltose</td>
<td>&lt; 0.0004</td>
</tr>
<tr>
<td>Lactose</td>
<td>&lt; 0.0003</td>
</tr>
<tr>
<td>Maltose</td>
<td>&lt; 0.0004</td>
</tr>
<tr>
<td>Panose</td>
<td>~ 54</td>
</tr>
<tr>
<td>Sucrose</td>
<td>&lt; 0.0003</td>
</tr>
<tr>
<td>Starch</td>
<td>&lt; 0.0001</td>
</tr>
</tbody>
</table>

   Action on substrates was determined at final concentration of 5 mg/mL in formic acid buffer (100 mM), pH 3.5 at 40°C.

5. **PHYSICOCHEMICAL PROPERTIES:**

   Recommended conditions of use are at pH 3.0 - 5.0 and up to 40°C

   - pH Optima:  3.0 - 3.5
   - pH Stability:  3.0 - 9.0 (> 75% control activity after 24 hours at 4°C)
   - Temperature Optima:  40°C (10 min. reaction)
   - Temperature Stability:  up to 40°C

6. **STORAGE CONDITIONS**

   The enzyme is supplied as a solution containing 50% glycerol and 0.02% (w/v) sodium azide and should be stored at -20°C. For assay, this enzyme should be diluted in formic acid buffer (100 mM), pH 3.5 containing 1 mg/mL BSA. **Swirl to mix the enzyme immediately prior to use.**
7. EXPERIMENTAL DATA

- **pH Optima**

- **pH Stability**

- **Thermal Optima**

- **Thermal Optima**