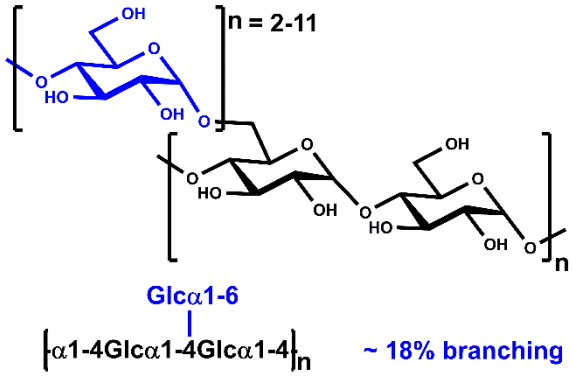
GLYCOGEN (ALGAE) (Lot 210101)

CAT. NO: P-GLYAL **02/21**
CAS: 9005-79-2
Source: *Galdieria sulphuraria*

STRUCTURE



Schematic representation of algae glycogen subunit composed of α-(1,4) linked glucose monosaccharide backbone with α-(1,6) branches of α-(1,4) linked glucose monosaccharides.

DESCRIPTION

Algae glycogen is a branched polysaccharide containing a Glc-α-1,4-linked backbone. Branching points are connected via a α-1,6 linkage and side-chains are composed of Glc-α-1,4-linked oligosaccharides. Its structure is similar to that of glycogen from other sources (e.g. oyster), however, algae glycogen has higher degree of branching and shorter side chains.[1]

PROPERTIES

Purity:	> 77% (Enzyme incubation using amyloglucosidase, alpha-amylase and isoamylase followed by glucose quantitation)
Sugar Composition:	Glucose = 100
Protein:	1.5%
Ash:	0.08%
Moisture:	5.15%
Physical Description:	White/Off-white/Slightly off-white, odourless powder
Solubility:	> 150 mg/mL

[1] Martinez-Garcia, M., Stuart, M. C. A. & van der Maarel, M. J. E. C. (2016). *Int. J. Biol. Macromol.*, **89**, 12-18.

STORAGE CONDITIONS

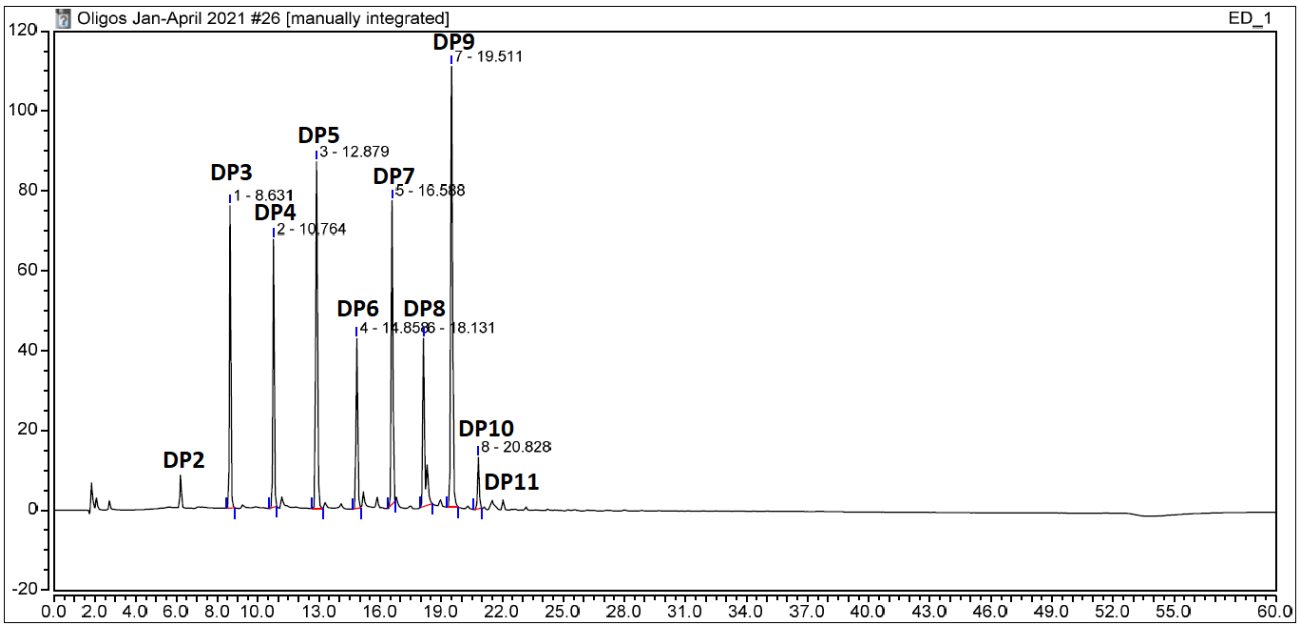
Store dry at room temperature in a well-sealed container. Under these conditions, the product is stable for several years.

HPAEC-PAD

Column: CarboPac PA200 guard and analytical columns (3 x 250 mm)
Temperature: 30°C
Detector: Au electrode; waveform Carbohydrate, standard quad
Flow rate: 0.5 mL/min
IC system: Dionex ICS5000 + DP system and Chromeleon 7 software

A stepwise linear gradient method was employed as shown.

Time (min)	100 mM NaOH (%)	320 mM NaOAc (%) in 100 mM NaOH
0	100	0
40	0	100
50	0	100
50.5	100	0
60	100	0



HPAEC-PAD chromatogram showing algae glycogen side-chain composition after enzymatic hydrolysis with a purified debranching enzyme (i.e. isoamylase).

Enzymatic hydrolysis conditions:
10 mg of **P-GLYAL** was incubated with 6 µL of isoamylase **E-ISAMYHP** (Megazyme) in 1 mL of 0.1 M pH 4.0 Sodium Acetate buffer at 40°C for 90 min. Sample was then centrifuged and supernatant injected on the HPAEC-PAD system.