# CAZymes

## Carbohydrate Active Enzymes


*Discover our **ultra-pure** enzyme range*
*for analytical and research applications*

NEOGEN | Megazyme

# Contents



## The Megazyme Advantage

### Diversity

Megazyme's portfolio of ultra-pure enzymes includes a wide range of enzymes for use in analytical, diagnostic and research applications.

Carbohydrate-acting enzymes (or CAZYmes) are the single largest group in our enzyme range. CAZymes are segmented according to the nature of the substrate on which they act.

We also offer other 'analytical' enzymes which are not active on carbohydrate substrates. These are listed according to their EC number.

### Stability

Megazyme's enzymes are provided in various formats including:

- freeze-dried powder
- ammonium sulphate suspension
- 50% glycerol solution

All enzymes have undergone rigorous stability studies and the recommended storage conditions are provided with every product.

### Purity

At Megazyme, we take great pride in the purity of our enzymes. All of our enzymes are either produced recombinantly through various expression systems, or are purified from crude industrial enzyme formulations using conventional protein purification techniques.

### Characterisation

Each enzyme is extensively characterised by our R&D scientists. A data sheet is shipped with each enzyme describing the:

- specific activity on a suitable substrate
- relative activities on any other relevant substrates
- pH/temperature activity optima and stability ranges

# Cellulose and β-Glucan

| Product code | Product name | Source organism | EC number | CAZy family | T (°C) / pH optima | Activity per vial (U) | Form |
|---|---|---|---|---|---|---|---|
| **E-CBHI** | Cellobiohydrolase I | *Trichoderma longibrachiatum* | 3.2.1.176 | GH7 | 70 / 4.5 | 5 | susp |
| **E-CELAN** | *endo*-1,4-β-Cellulase (*endo*-1,4-β-D-Glucanase) | *Aspergillus niger* | 3.2.1.4 | GH12 | 60 / 4.5 | 2000 | susp |
| **Rec E-LAMHV** | *endo*-1,3-β-D-Glucanase | *Hordeum vulgare* | 3.2.1.39 | GH17 | 50 / 5.0 | 5000 | solut |
| **E-LAMSE** | | *Trichoderma* sp. | 3.2.1.39 | GH16 | 40 / 4.5 | 100 | susp |
| **Rec E-EXBGTV** | *exo*-1,3-β-D-Glucanase | *Trichoderma virens* | 3.2.1.58 | GH55 | 50 / 4.5 | 400 | susp |
| **E-EXBGOS** | *exo*-1,3-β-D-Glucanase & β-Glucosidase | *Trichoderma* sp. | 3.2.1.58 | GH55 | 40 / 4.0 | 300 | susp |
| | | *Aspergillus niger* | 3.2.1.21 | GH3 | | 60 | susp |
| **E-BGLUC** | β-Glucosidase | *Aspergillus niger* | 3.2.1.21 | GH3 | 70 / 4.0 | 200 | susp |
| **Rec E-BGOSAG** | | *Agrobacterium* sp. | 3.2.1.21 | GH1 | 50 / 6.5 | 600 | susp |
| **E-LICHN** | Lichenase (*endo*-1,3:1,4-β-D-Glucanase) | *Bacillus subtilis* | 3.2.1.73 | GH16 | 60 / 6.0 | 5000 | susp |

**Rec: recombinant enzyme** **susp: suspension – solut: solution – powd: powder**

# Xylan

## Including Arabinoxylan, Glucuronoxylan & Xyloglucan

| Product code | Product name | Source organism | EC number | CAZy family | T (°C) / pH optima | Activity per vial (U) | Form |
|---|---|---|---|---|---|---|---|
| **E-AFASE** | α-L-Arabinofuranosidase | *Aspergillus niger* | 3.2.1.55 | GH51 | 40 / 4.0 | 480 | susp |
| **Rec E-FAERU** | Feruloyl esterase | Rumen microorganism | 3.1.1.73 | CE1 | 40 / 7.0 | 1000 | susp |
| **Rec E-AGUBS** | α-Glucuronidase | *Geobacillus stearothermophilus* | 3.2.1.139 | GH67 | 70 / 7.0 | 200 | solut |
| **Rec E-GERF** | Glucuronyl esterase | *Ruminococcus flavefaciens* | 3.1.1.B11 | CE15 | 40 / 7.0 | 250 | susp |
| **Rec E-XYNACJ** | *endo*-1,4-β-Xylanase | *Cellvibrio japonicus* | 3.2.1.8 | GH10 | 60 / 5.0 | 500 | susp |
| **Rec E-XEGP** | Xyloglucanase | *Paenibacillus* sp. | 3.2.1.151 | GH5 | 50 / 5.5 | 3000 | susp |
| **Rec E-BXSR-1KU** | β-Xylosidase | *Selenomonas ruminantium* | 3.2.1.37 | GH43 | 50 / 5.0 | 1000 | susp |

**Rec: recombinant enzyme** **susp: suspension – solut: solution – powd: powder**

# Mannan

## Including Glucomannan & Galactomannan

| Product code | Product name | Source organism | EC number | CAZy family | T (°C) / pH optima | Activity per vial (U) | Form |
|---|---|---|---|---|---|---|---|
| **E-AGLANP** | α-Galactosidase | *Aspergillus niger* | 3.2.1.22 | GH36 | 60 / 4.5 | 3000 | powd |
| **E-BMANN** | *endo*-1,4-β-Mannanase | *Aspergillus niger* | 3.2.1.78 | GH26 | 60 / 3.0 | 600 | susp |

# Fructan

| Product code | Product name | Source organism | EC number | CAZy family | T (°C) / pH optima | Activity per vial (U) | Form |
|---|---|---|---|---|---|---|---|
| **E-FRMXLQ** | Fructanase Mixture (*endo*- & *exo*-inulinase, non-recombinant) | *Aspergillus* sp. | 3.2.1.7<br>3.2.1.80 | GH32 | 40 / 4.5 | 20000 | solut |
| **E-FRMXPD** | | *Aspergillus* sp. | 3.2.1.7<br>3.2.1.80 | GH32 | 40 / 4.5 | 20000 | powd |
| **E-FRLQPU** | Fructanase Mixture (*endo*- & *exo*-inulinase, ultrapure, recombinant) | *Aspergillus niger* | 3.2.1.7<br>3.2.1.80 | GH32 | 60 / 4.5 | 20000 | solut |
| **E-FRPDPU** | | *Aspergillus* sp. | 3.2.1.7<br>3.2.1.80 | GH32 | 60 / 4.5 | 20000 | powd |
| **Rec E-EXOIAN** | *exo*-Inulinase | *Aspergillus niger* | 3.2.1.80<br>3.2.1.26 | GH32 | 60 / 4.5 | 5000 | susp |
| **E-SUCR** | Sucrase (Maltase) | Yeast | 3.2.1.20 | G13 | 30 / 6.8 | 300 | powd |
| **E-SUCRBG** | Sucrase plus β-Galactosidase | Yeast<br>*Aspergillus niger* | 3.2.1.20<br>3.2.1.23 | | 40 / 5.0 | 170<br>3000 | powd |

**Rec: recombinant enzyme** **susp: suspension – solut: solution – powd: powder**

# Starch & Pullulan

| Product code | Product name | Source organism | EC number | CAZy family | T (°C) / pH optima | Activity per vial (U) | Form |
|---|---|---|---|---|---|---|---|
| **E-ANAAM** | α-Amylase | *Aspergillus oryzae* | 3.2.1.1 | GH13 | 50 / 5.0 | 20000 | susp |
| **E-BLAAM-40ML** | | *Bacillus licheniformis* | 3.2.1.1 | GH13 | 75 / 6.5 | 120000 | solut |
| **E-BLAAM-100ML** | | | | | | 300000 | solut |
| **E-BLAAM-A-100ML** | | | | | | 75000 | solut |
| **E-BSTAA** | | *Bacillus* sp. | 3.2.1.1 | GH13 | 100 / 7.0 | 3000 | solut |
| **E-PANAA-12G** | | Porcine Pancreatic | 3.2.1.1 | GH13 | 53 / 6.9 | 900000 | powd |
| **E-BARBL-50KU** | β-Amylase | *Hordeum vulgare* | 3.2.1.2 | GH14 | 60 / 6.0 | 50000 | susp |
| **E-BARBP-2G** | | *Hordeum vulgare* | 3.2.1.2 | GH14 | 60 / 6.0 | 40000 | powd |
| **E-MAST** | Malt Amylase Standard (α-Amylase & β-Amylase) | *Hordeum vulgare* | 3.2.1.1 | GH13 | 40 / 5.4 | 95000<br>570000 | solut |
| **E-AMGDF-40ML** | Amyloglucosidase | *Aspergillus niger* | 3.2.1.3 | GH15 | 70 / 4.0 | 130400 | solut |
| **E-AMGDF-100ML** | | | | | | 326000 | solut |
| **E-AMGDF-A-100ML** | | | | | | 326000 | solut |
| **E-AMGDFPD** | | *Aspergillus niger* | 3.2.1.3 | GH15 | 70 / 4.0 | 144000 | powd |
| **E-AMGDFNG-20ML** | | *Aspergillus niger* | 3.2.1.3 | GH15 | 70 / 4.0 | 130400 | solut |
| **E-AMGFR-500MG** | | *Aspergillus niger* | 3.2.1.3 | GH15 | 70 / 4.0 | ~ 17500 | powd |
| **E-AMGPU** | | *Rhizopus* sp. | 3.2.1.3 | GH15 | 60 / 5.5 | 5000 | powd |
| **E-MALTS** | α-Glucosidase | Yeast | 3.2.1.20 | GH13 | 40 / 6.8 | 2000 | susp |
| **Rec E-TSAGS** | | *Bacillus stearothermophilus* | | GH13 | 60 / 6.5 | 3000 | susp |
| **Rec E-BGOG** | Oligo-α-1,6-Glucosidase plus β-Galactosidase | Microbial | 3.2.1.10 | GH35 | 50 / 4.5 | 10000 | susp |
| | | *Aspergillus niger* | 3.2.1.23 | GH13 | | 10000 | |
| **E-ISAMY** | Isoamylase (Glycogen 6-glucanohydrolase) | *Pseudomonas* sp. | 3.2.1.68 | GH13 | 50 / 4.0 | 600<br>200 | susp |
| **E-ISAMYHP** | | *Flavobacterium odoratum* | 3.2.1.68 | GH13 | 50 / 6.0 | 800 | susp |
| **E-PULBL** | Pullulanase | *Bacillus licheniformis* | 3.2.1.41 | GH13 | 55 / 5.0 | 2000 | susp |
| **E-PULKP** | | *Klebsiella planticola* | 3.2.1.41 | GH13 | 40 / 5.0 | 700 | susp |

# Pectin

## Including Arabinan, Galactan, Rhamnogalacturonan and Polygalacturonic Acid

| Product code | Product name | Source organism | EC number | CAZy family | T (°C) / pH optima | Activity per vial (U) | Form |
|---|---|---|---|---|---|---|---|
| **E-BGLAN** | β-Galactosidase | *Aspergillus niger* | 3.2.1.23 | GH35 | 60 / 5.0 | 8000 | susp |
| **E-PCLYAN** | Pectate lyase | *Aspergillus* sp. | 4.2.2.2 | PL1 | 55 / 8.0 | 7000 | solut |
| **E-PGALPC** | *endo*-Polygalacturonanase | *Pectobacterium carotovorum* | 3.2.1.15 | GH28 | 50 / 6.0 | 5000 | susp |
| **Rec E-RHAMS** | α-Rhamnosidase | Prokaryote | 3.2.1.40 | GH78 | 50 / 6.5 | 3000 | susp |

# Miscellaneous CAZymes

| Product code | Product name | Source organism | EC number | CAZy family | T (°C) / pH optima | Activity per vial (U) | Form |
|---|---|---|---|---|---|---|---|
| **Rec E-CHITN** | Chitinase | *Clostridium thermocellum* | 3.2.1.14 | GH18 | 40 / 6.2 | 5 | susp |
| **Rec E-FUCTM** | α-Fucosidase | *Thermotoga maritima* | 3.2.1.51 | GH29 | 95 / 5.0 | 10 | susp |
| **Rec E-FUCHS** | α-(1,2,3,4,6)-L-Fucosidase | *Homo sapiens* | 3.2.1.51 | GH29 | 50 / 4.0 | 10 | susp |
| **Rec E-BGLAEC** | β-Glucuronidase | *Escherichia coli* | 3.2.1.31 | GH2 | 37 / 6.8 | 500000 | solut |
| **Rec E-SIALCP** | *exo*-α-Sialidase | *Clostridium perfringens* | 3.2.1.18 | GH33 | 37 / 7.0 | 50 | susp |

**Rec: recombinant enzyme** **susp: suspension – solut: solution – powd: powder**


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