

TOYOTA XyloAce® +A

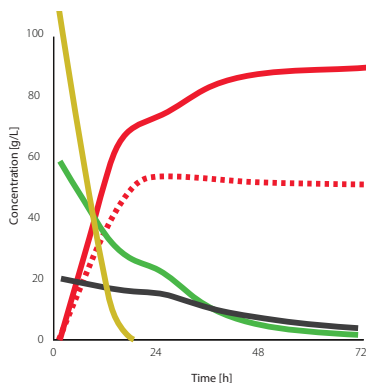


TOYOTA XyloAce® +A is an advanced strain of *Saccharomyces cerevisiae* able to ferment xylose, arabinose and glucose with a high ethanol yield in the presence of inhibitory compounds. It is used in the production of fuel ethanol from cellulosic substrates.

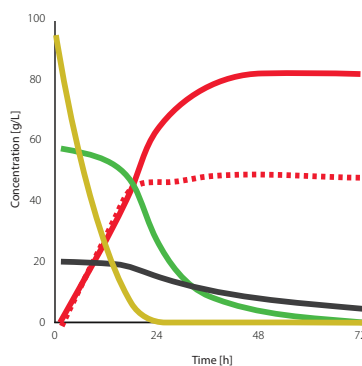
ATTRIBUTES

- Rapid xylose and arabinose fermentation
- Can reach ethanol titers above 100g/L
- Performance proven in SHF andSSF
- Low pitch ≤ 0.5 g/L dry cell weight
- Ferments xylose in the presence of significant concentrations of inhibitors commonly found in cellulosic substrates (e.g. furfural, HMF, acetic acid, vanillin, ferulic acid, coumaric acid)
- Temperature range 30- 35°C, pH range 4.0 to 6.5
- Ethanol yields between 0.42 and 0.48 g/g consumed sugar
- Tested on cellulosic substrates derived from the following materials: corn stover, corn fiber, sugarcane bagasse, hard wood, Napier grass
- Tested on substrates pretreated with dilute acid pretreatments

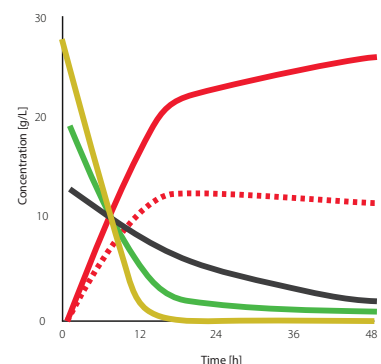
Synthetic substrate initial pH5.0



Synthetic substrate initial pH4.0



Corn fiber



TOYOTA XyloAce®+A — Glucose — Ethanol — Xylose — Arabinose
 Conventional Yeast - - - - Ethanol



DIRECTIONS FOR USE

Due to the variety of different substrates and pretreatment conditions, dosing of TOYOTA XyloAce®+A will vary from condition to condition. Please consult your local technical sales representative for more detailed information for your specific plant.

The optimal temperature range for fermentation is 86°F-95°F (30°C-35°C). The yeast are able to tolerate short temperature excursions up to 100°F (38°C), though this is to be avoided especially in the later stages of fermentation when ethanol and inhibitory compound concentration is high. The ideal pH range for fermentation is 5 to 6.

The yeast should be provided sufficient nutrients to ensure a robust and complete fermentation. Due to more inhibitory compounds that are liberated from various pretreatments, a nutrient package may be necessary to complete fermentation.

GUIDELINES FOR PRODUCT STORAGE

TOYOTA XyloAce®+A is supplied as a stabilized cream yeast (20% solids) packaged in 1000 kg (2205 lb) totes. The product is stable for up to 3 months from date of manufacture when stored at refrigeration temperatures (33.8 - 40°F, 1- 4°C). The product is stable for approximately 1 week when removed from refrigeration and stored at plant temperatures (86°F, 30°C).

TOYOTA

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