



**LALLEMAND BIOFUEL
& DISTILLED SPIRITS**

Spartec[®] PHY 110

Reduced fouling and equipment downtime.
Efficiency driven forward.

Spartec[®] PHY 110 is utilized during fermentation to liberate free phosphorus from naturally occurring phytic acid during production of fuel ethanol.

Phytic acid (or phytate in salt form) is an indigestible form of phosphorus. The action of phytase releases a usable form of inorganic phosphorus which is beneficial for yeast metabolic processes. Liberating the starch bound to phytic acid can increase the availability of fermentable sugars, increasing fuel ethanol yields. Finally, the removal of the phosphate groups from phytic acid reduces the formation of phytate salts that can lead to fouling of equipment, therefore minimizing equipment downtime and expense for cleaning.



Spartec[®] PHY 110 – Key advantages

- Reduces fouling and minimizes equipment downtime
- Improves yeast health by increasing free phosphorus
- Liberating starch bound to phytic acid can increase ethanol yield

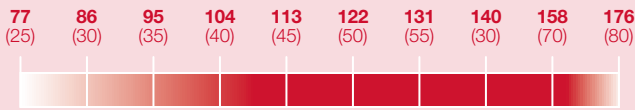
Application

Spartec® PHY 110 is used to degrade phytic acid present in the fermentation mash. Spartec® PHY 110 has a temperature optimum of 158 °F (70 °C) and exhibits a pH optimum at 4.0 – 4.5, and can be used effectively within the pH range 3.5 – 6.0 and temperatures between 80 °F – 176 °F (27 °C – 80 °C).

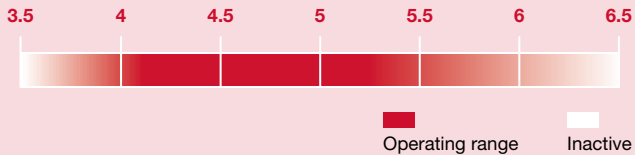
Superior Performance

Spartec® PHY 110 phytase performs across typical fermentation temperature and pH ranges.

Temperature °F (°C)



pH



Characteristics

- Appearance: Amber to brown liquid
- Specific Gravity: 1.05 – 1.2 g/mL
- pH: 5.0 – 5.2
- Enzyme name: 6-phytase or Phytate 6-phosphatase (EC 3.1.3.26)

Storage And Stability

- Spartec® PHY 110 is stable for 18 months when stored in original sealed packaging at 77 °F (25 °C).
- Spartec® PHY 110 should not be frozen.
- Keep container sealed and covered when not in use.

Package Sizes

Spartec® PHY 110 is available in 200 kg drums and 1,000 kg totes.

Handling

Provide adequate ventilation. Wear protective goggles, chemical resistant gloves, coveralls or apron, and boots as necessary to prevent contact during handling.

In case of accidental contact with skin or eyes flush with water. See the Safety Data Sheet (SDS) for further information.



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