

## Product Information

### BQP02

Catalog Number **BQP02**

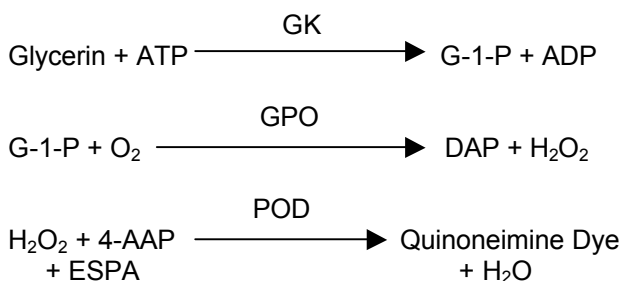
Storage Temperature 2–8 °C

#### Product Description

This kit provides a reagent and standard for the determination of free and total glycerin in biodiesel (Greenhill Method). Glycerin content is measured using an enzyme assay solution. The standard test method for the determination of free and total glycerin in biodiesel using the Greenhill Method is available from the National Biodiesel Board (NBB) website ([www.biodiesel.org](http://www.biodiesel.org)) or by calling 1-800-841-5849.

Free glycerin is measured by coupled, enzymatic reactions. First, the glycerin is phosphorylated by adenosine-5'-triphosphate (ATP) forming glycerol-1-phosphate (G-1-P) and adenosine-5'-diphosphate (ADP) in the reaction catalyzed by glycerol kinase (GK). G-1-P is then oxidized by glycerol phosphate oxidase (GPO) to dihydroxyacetone phosphate (DAP) and hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>). Peroxidase (POD) catalyzes the coupling of H<sub>2</sub>O<sub>2</sub> with 4-aminoantipyrine (4-AAP) and sodium N-ethyl-N-(3-sulfopropyl) m-anisidine (ESPA) to produce a quinoneimine dye that shows an absorbance maximum at 540 nm.<sup>2,3</sup> The increase in absorbance at 540 nm is directly proportional to the free glycerin concentration of the sample.

Glycerin Assay Enzymatic Reactions:



Total glycerin measures the amount of free glycerin and the amount of bonded glycerin present in biodiesel. After saponification, total glycerin is determined by the same enzymatic reactions as free glycerin.

#### Components

This kit is sufficient for the analysis of samples from one lot or batch of biodiesel for free and total glycerin content.

GPO-Trinder Reagent 1 × 40 ml  
(Catalog Number G7168)

The GPO-Trinder Reagent is reconstituted with 40 ml of deionized water. After addition of the water, stopper the vial and immediately mix several times by inversion. DO NOT SHAKE. Protect the reagent from light by storing in an amber bottle. Store the dry reagent at 2–8 °C.

Discard the vials if the dry reagents exhibit caking due to possible moisture penetration, do not dissolve completely upon reconstitution, or if the solution appears turbid.

Glycerin Standard 1 × 5 ml  
(Catalog Number G7418)

The standard is a 400 ppm [0.04% (w/v)] glycerin solution with preservatives. Store the Glycerin Standard at 2–8 °C.

#### Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

#### References

1. Trinder, P., Determination of glucose in blood using glucose oxidase with an alternative oxygen acceptor. *Ann. Clin. Biochem.*, **6**, 24 (1969).
2. Barham, D., and Trinder, P., An improved colour reagent for the determination of blood glucose by the oxidase system. *Analyst*, **97**, 142 (1972).

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