# Triglycerides
## GPO-POD. Liquid

IVD CE

**PRODUCT CODE**
**CS029**

**INTENDED USE**
The reagent is intended for in vitro quantitative determination of TriglycerideS in serum or plasma.

**CLINICAL SIGNIFICANCE**
Triglycerides are fats that provide energy for the cell. Like cholesterol, they are delivered to the body's cells by lipoproteins in the blood. A diet with a lot of saturated fats or carbohydrates will raise the triglyceride levels. The increases in serum triglycerides are relatively non-specific. For example liver dysfunction resulting from hepatitis, extra hepatic biliary obstruction or cirrhosis, diabetes mellitus is associated with the increase3,6,7 . Clinical diagnosis should not be made on a single test result; it should integrate clinical and other laboratory data.

**PRINCIPLE**

Sample triglycerides incubated with lipoproteinlipase (LPL), liberate glycerol and free fatty acids. Glycerol is converted to glycerol-3-phosphate (G3P) and adenosine-5-diphosphate (ADP) by glycerol kinase (GK) and ATP. Glycerol-3-phosphate (G3P) is then converted by glycerol phosphate oxidase (GPO) to dihydroxyacetone phosphate (DAP) and hydrogen peroxide (H2O2). In the last reaction, hydrogen peroxide (H2O2) reacts with 4- aminophenazone (4-AP) and p-chlorophenol in presence of peroxidase (POD) to give a red colored dye:

**Triglycerides + H2O $\xrightarrow{LPL}$ Glycerol + free fatty acids**

**Glycerol + ATP $\xrightarrow{Glycerolkinase}$ G3P+ ADP**

**G3P + O2 $\xrightarrow{GPO}$ DAP + H2O2**

**H2O2 + 4-AP + p-Chlorophenol $\xrightarrow{POD}$ Quinone + H2O**

The intensity of the color formed is proportional to the triglycerides concentration in the sample.

**REAGENT COMPOSITION**

| | | |
|---|---|---|
| R | GOOD PH 6.3<br>p-Chlorophenol<br>Lipoprotein(LPL)<br>Glcerol kinase (GK)<br>Glycerol – 3- oxidase (GPO)<br>Peroxidase (POD)<br>4-Aminophena\one (4 – AP)<br>ATP | 50 mmol/L<br>2 mmol/L<br>150000 U/L<br>500 U/L<br>3500 U/L<br>440 U/L<br>0.1 mmol/L<br>0.1 mmol/L |
| **TRIGLYCERIDE CAL** | Aqueous primary standard | 200 mg/dl |

**REAGENT PREPARATION**
Both reagents are ready to use.

**REAGENT STORAGE AND STABILITY**
All the components of the kit are stable until the expiration date on the label when stored tightly closed at 2-8ºC, protected from light and contaminations prevented during their use.
Do not use reagents over the expiration date.

**Signs of reagent deterioration**:
-Presence of particles and turbidity.
- Blank absorbance (A) at 505 nm > 0,26 .

**SPECIMEN**
Fresh hemolysis-free serum or heparinized plasma may be used. Carefully protect from light until use. Bilirubin in sample is stable for '5' days when stored at 2-8° C.

**PRECAUTION**
Reagent and standard provided are ready to use.

**PROCEDURE**
**1.ASSAY CONDITION :**
Wavelength 505 NM (490-550)
Temperature 15-25 °C/ 37°C
**2. Adjust the instrument to zero with distilled water.**
**3. Pipette into acuvette**

| | Blank | standard | Sample |
|---|---|---|---|
| R(ml) | 1 | 1 | 1 |
| Standard ($\mu L$) | -- | 10 | -- |
| Sample | -- | -- | 10 |

**4. Mix and incubate for 5 min at 37ºC or 10 min at 15-25ºC.**
**5. Read the absorbance (A) of the samples and standard, against the Blank. The colour is stable for at least 30 minutes.**

**CALCULATION**

$$\frac{(A)\ Sample - (A)Sample\ Blank}{(A)\ Calibrator - (A)Calibrator\ Blank} x\ Conc.Calibrator = mg/dl\ triglycerides$$

$$Conversion\ factor: mg/dl\ x\ 0.0113\ \mu mol/L$$

**NORMAL RANGE**

Men 40 – 160 mg/dL
Women 35 – 135 mg/dL
These values are for orientation purpose; each laboratory should establish its own reference range.

**LINEARITY**
From detection limit of 0,000 mg/dL to linearity limit of 1200 mg/dl
If the results obtained were greater than linearity limit, dilute the sample 1/2 with NaCl 9 g/L and multiply the result by 2.

**QUALITY CONTROL**
All control sera with Total Bilirubin value estimated by this method can be used.
Each laboratory should establish its own Quality Control scheme and corrective actions if controls do not meet the acceptable tolerances.

**NOTES**
1- It is important to ensure the working reagent and nitrite reagent are thoroughly mixed before adding the sample.
2- Bilirubin levels may be reduced if the sample is exposed to light. Haemolytic sample will also show low value.

**SYMBOL ON LABELS**

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| Symbols | Signify | Symbols | Signify |
|---|---|---|---|
| REF | Catalogue Number | SIZE | Pack Size |
| | Expiry Date | VOL | Volume |
| | Storage Condition | LOT | Lot Number |
| | Instruction for Use | IVD | In Vitro Diagnostics |
| | Manufacturing Date | | Manufacturer |
| | Number of Tests | 2 | For Single Use Only |
| EC REP | EC Representative | CE | European conformity |

**BIBLIOGRAPHY**

1. Buccolo G et al. Quantitative determination of serum triglycerides by use of enzimes. Clin Chem 1973; 19 (5): 476-482.
2. Fossati P et al. Clin. Chem 1982; 28(10): 2077-2080.
3. Kaplan A et al. Tryglycerides. Clin Chem The C.V. Mosby Co. St Louis. Toronto. Princeton 1984; 437 and Lipids 1194-1206.
4. Young DS. Effects of drugs on Clinical Lab. Tests, 4th ed AACC Press, 1995.
5. Young DS. Effects of disease on Clinical Lab. Tests, 4th ed AACC 2001.
6. Burtis A et al. Tietz Textbook of Clinical Chemistry, 3rd ed AACC 1999.
7. Tietz N W et al. Clinical Guide to Laboratory Tests, 3rd ed AACC 1995.

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