

# **TRIGLYCERIDES**



# ENZYMATIC COLORIMETRIC –GPO/PAP METHOD IVD

DESCRIPTION **REF NO** CS611 TRIGLYCERIDE

#### PAKAGE SIZE

CS611-1	1X1000ML	CS611-4	6X50ML	CS611-7	1X100ML
CS611-2	2X500ML	CS611-5	1X200ML	CS611-8	2X50ML
CS611-3	3X100ML	CS611-6	6X20ML	CS611-9	10X100ML

#### INTENDED USE

For the quantitative determination of Triglyceride in serum or plasma

INTENDED USER: Professional Use Only

#### **CLINICAL SIGNIFICANCE**

Triglycerides are simple lipids, formed in the liver by glycerol & fatty acids. They are transported by VLDL, LDL & constitute about 95% of fat, stored as source of energy in the tissue & plasma.

Increased levels are found in hyperlipidemias, diabetes, nephrotic syndrome & hypothyroidism. Increased levels are risk factor for arteriosclerotic coronary disease, peripheral vascular disease, acute pancreatitis & hyperlipoproteinaemia. Decreased levels are found in malnutrition & hyperthyroidism.

#### **PRINCIPLE**

Lipases catalyze hydrolysis of triglycerides to yield glycerol and free fatty acids. The glycerol concentration is determined enzymatically with the Trinder reaction using glycerol kinase (GK), glycerol-3- phosphate oxidase (GPO) and peroxidase (POD). The end product is a Quinonimine dye, the concentration of which at 546 nm is directly proportional to the concentration of triglyceride in the sample.

Triglyceride +H2O	LPL <del>&gt;</del>	Glycerol + Free fatty acids
Glycerol+ATP	GK→	Glycerol-3 phosphate+ADP
Glycerol-3 phosphate +O2	GPO→	H2O2+Dihydroxyacetone phosphate
H2O2+Aminoantipyrine+ chlorophenol	POD→	Quinonimine dye

GPO = Glycereol-3-phosphate Oxidase. LPL = Lipoprotein Lipase GK = Glycerol Kinase

POD= Peroxidase

## REAGENT COMPOSITION

- Enzyme concentrate (Reagent-1)
- Buffer (Reagent-2)

Triglyceride standard 200mg/dL or 2.26 mmol/L

#### When combined as instructed, the working reagent contains the following.

Pipes buffer (pH 7.50)	40 mmol/L
Lipases	150 KU/L
Glycerol Kinase (GK)	0.4 KU/L
Glycerol-3-phosphate oxidase(GPO)	1.5 KU/L
Peroxidase (POD)	0.5 KU/L
Magnesium	5.0 mmol/L
Adenosine Tri Phosphate (ATP)	1.0 mmol/L
Aminoantipyrine	5.0 mmol/ L
Stabilizers and preservatives	0.4 mmol/L

#### REAGENT PREPARATION

To prepare working reagent, dilute 1 part of Reagent 1 (Enzyme concentrate) with 100 parts of Reagent 2 (buffer), e.g.: 1 mL / 100mL.

### Mix gently and allow equilibrating to room temperature before use. REAGENT STORAGE AND STABILITY

Both reagent and standard are stable until the expiry date when stored at 2-8°C.

The working reagent is stable for 3 weeks at 2-8°C.

#### **SPECIMEN**

Serum, Plasma:

Fresh, clear & non haemolysed, from patients fasting at least 12 hours, Triglycerides in serum are stable for 3 days at 2-8° C, with prolonged storage at room temperature, glyceride-containing compounds hydrolyze to yield free glycerol with an apparent increase in triglyceride levels.

#### **PRECAUTION**

To avoid contamination, use clean laboratory wares.

Avoid direct exposure of reagent to light.

#### ASSAY

546nm Wavelength Cuvette 1 cm light path Temperature 25°C or 37°C Measurement Against reagent blank

#### **PROCEDURE**

	Blank	Standard	Sample
Working reagent	1000 μL	1000 μL	1000 μL
Standard		10 μL	
Sample			10 μL

Mix and incubate for 10 minutes at 25°C. Measure the absorbance of the sample (As) and the standard (Astd) against the reagent blank within an hour.

#### CALCULATION

 $\Delta A$  sample Triglyceride Conc. (mg/dL) = X 200 (Std.conc.) ΔA standard

To convert mg/dL to mmol/L, divide by 88.50

## LINEARITY

The test is linear up to triglyceride concentration of 1000 mg/dl (11.3mmol/l) Sample with higher values should be diluted 1+5 with physiological saline (0.9 % Nac1), reassayed and the values multiplied by 6.

#### **NORMAL RANGE**

36-165 mg/dl; 0.4-1.86 mmol/l: > 200 mg/dl elevated

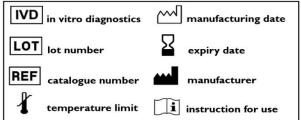
It is strongly recommend each laboratory establish its own normal range. **OUALITY CONTROL** 

All control sera with Triglyceride values estimated by this method may be used.

## **NOTES**

- The buffer contains 0.1% sodium azide so avoid contact with skin. 1-
- It is suggested that 10 mg/dl be subtracted from the triglyceride result to compensate for any free glycerol in the sample.
- Keep reagents and samples out of direct sunlight.

## SYMBOL ON LABELS



#### **BIBILOGRAPHY**

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