



**No conversion factor**

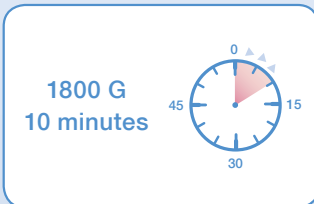
Unlike additives added in liquid form, the powder additive in the **VACUETTE®** FC Mix tube has no dilution effect. There is therefore no need to take a conversion factor into consideration.

Inverting ten times ensures that the tube additive is completely dissolved and therefore well mixed with the sample.

**Tried-and-tested vacuum technology**

Greiner Bio-One's tried-and-tested vacuum technology is used for the new **VACUETTE®** FC Mix tube. The shatter-proof tube is made of polyethylene terephthalate (PET). PET is important for the stability of the vacuum. The safety cap is particularly easy to open and allows for hygienic working. The transparent plastic label provides an optimum view of the tube contents.

Greiner Bio-One provides the following centrifugation recommendation for collecting plasma in FC Mix Tubes:



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**VACUETTE®**  
**FC Mix Tube**

Glucose stabilisation  
right from the beginning

# VACUETTE® FC Mix tube

## Glucose stabilisation right from the beginning

The breakdown of glucose (glycolysis) in venous blood samples is of great significance in pre-analytics, particularly in relation to the diagnosis of diabetes mellitus and gestational diabetes. Various guidelines (American Association of Clinical Chemistry, American Diabetes Association, German Diabetes Society [DDG] and German Society for Gynaecology and Obstetrics [DGGG]) deal with this matter in detail<sup>1,2</sup>.

Greiner Bio-One now has a solution in the form of the **VACUETTE® FC Mix tube**.

According to the guidelines from the DDG\*/DGGG\*\*, the citrate fluoride additive in the tube stabilises the *in vivo* concentration of glucose in the sample<sup>1</sup>.

### The advantages are clear:

- ✓ **Stabilisation immediately after collection for 48 hours**
- ✓ **Based on the *in vivo* value (almost 100%)**
- ✓ **Avoids false negative diagnoses of diabetes patients**
- ✓ **Long-term stabilisation allows for longer transport and storage times**

### Effective glycolysis inhibition for precise determination of the *in vivo* blood sugar content



## The unique additive mixture is what makes the difference:

### Citrate/citric acid buffer ensures quick stabilisation

Glycolysis depends on the pH value. It is catalysed by the enzymes hexokinase and phosphofruktokinase. When stored between + 4°C and room temperature, the enzymes, and consequently also glycolysis, are suppressed and the blood sugar is therefore constantly held at the *in vivo* value<sup>3,4</sup>.

### Long-term inhibition via sodium fluoride

In order to extend the inhibition to 48 hours, the tube contains a sodium fluoride additive.

### Advantages for the laboratory:

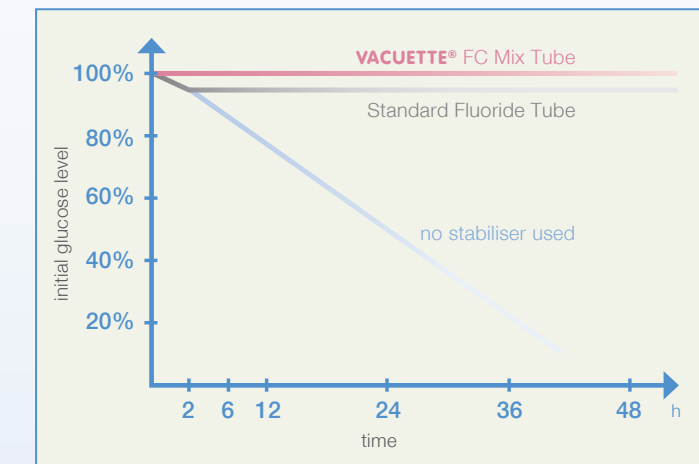
- ✓ **Stabilisation in whole blood, no immediate centrifugation required**
- ✓ **No dilution effect due to additive in powder form**
- ✓ **Therefore no need to convert the analysis result**
- ✓ **Choice of pink and grey tube caps in order to differentiate between the FC Mix tube and standard glucose tubes**



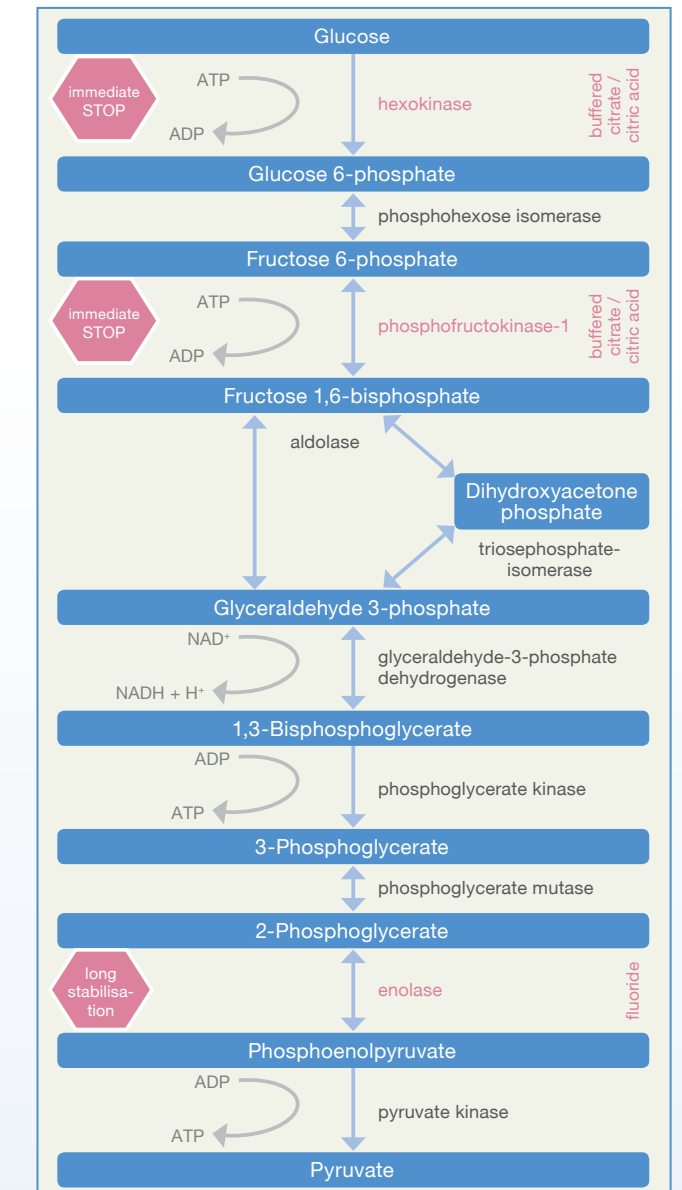
### EDTA as anticoagulant

Na<sub>2</sub>-EDTA is included in the mixture as an anticoagulant, which is effective due to complexation of Ca<sup>++</sup>.

### Initial glucose level<sup>5</sup>:



## Schematic illustration of glycolysis<sup>6</sup>:



Extensive study material on the **VACUETTE® FC Mix tube** can be found in the Download Center on our website [www.gbo.com](http://www.gbo.com).

### References:

Sirid Griebenow (2016): Suitability of **VACUETTE® FC Mix Blood Collection Tube** for gestational diabetes testing, Whitepaper Hospital Isala, Zwolle (NL)

- Kellerer et al, Gestationsdiabetes mellitus – Praxisleitlinie der DDG und der DGGG, (Gestational diabetes – practice guidelines of the DDG and DGGG) (2011)
- Sacks et al, Guidelines and Recommendations of Laboratory Analysis in the Diagnosis and Management of Diabetes Mellitus, Clinical Chemistry 57:6 (2011)
- Yagmur and Van Helden et al, Effektive Glykolyse-Inhibition im Citrat-pufferten venösen Vollblut und Plasma [Effective glycolysis inhibition in citrate-buffered venous full blood and plasma], Lab Med (2012), 36(3):169–177
- Gambino et al, Acidification of Blood Is Superior to Sodium Fluoride Alone as an Inhibitor of Glycolysis, Clinical Chemistry 55:5 (2009)
- Diagnostic Samples: From The patient to the Laboratory, 4<sup>th</sup> Edition
- Biochemie, Jeremy M. Berg, John L. Tymoczko, Lubert Stryer, 2007

\* Deutsche Diabetes Gesellschaft (German Diabetes Society)  
 \*\* Deutsche Gesellschaft für Gynäkologie und Geburtshilfe (German Society for Gynaecology and Obstetrics)

## Item Overview

Item No.	Norm. Vol.	Cap Colour	Ring Colour	Tube Size	Description	Packaging Inner	Packaging Outer
<b>FC Mix</b>							
454510	2ml	pink	white	13 x 75	transparent label, non-ridged	50 pcs.	1200 pcs.
454511	2ml	grey	white	13 x 75	transparent label, non-ridged	50 pcs.	1200 pcs.
454513	3ml	pink	black	13 x 75	transparent label, non-ridged	50 pcs.	1200 pcs.
454514	3ml	grey	black	13 x 75	transparent label, non-ridged	50 pcs.	1200 pcs.