

## 0.5M Potassium Phosphate Buffer, pH 7.4

### P450/Phase II Drug Metabolism Assay Buffer

**Catalog Number:** 451201  
**Quantity:** 500mL  
**Lot Number:** 9337006

**Storage Conditions:** Room Temperature  
**Date Released:** 2020 January  
**Expiration Date:** 2021 December

**Molarity:** 0.5M  
**pH:** 7.4

**Product has been filter sterilized (0.2  $\mu$  filtration).**  
**Product has been tested and found to be free of bacteria and fungi.**

**Certified for use in P450 enzyme assays and Phase II drug metabolism enzyme assays.**

**Qualification Assay: Testosterone 6 $\beta$ -Hydroxylase with CYP3A4 Corning<sup>®</sup> Supersomes<sup>™</sup> Enzyme (456202).**

**ASSAY METHOD:** A 0.50 mL reaction mixture containing 10 pmole P450, 1.3 mM NADP<sup>+</sup>, 3.3 mM glucose-6-phosphate, 0.4 U/mL glucose-6-phosphate dehydrogenase, 3.3 mM magnesium chloride and 0.2 mM testosterone in 100 mM potassium phosphate (pH 7.4) was incubated at 37°C for 10 minutes. After incubation, the reaction was stopped by the addition of 250  $\mu$ L 5  $\mu$ M 6 $\beta$ -hydroxytestosterone-D7 in acetonitrile with 0.1% formic acid and centrifuged (10,000 x g) for 3 minutes. The product was detected by LC-MS/MS using its Q1 mass of 305.1 amu  $\pm$  0.2 and Q3 mass of 269.1 amu  $\pm$  0.2 with positive polarity and quantitated by comparing the peak area ratio to a standard curve of 6 $\beta$ -hydroxytestosterone.

#### Recommended Use:

- Use with animal and human tissue fractions (e.g. cytosol, S9 and microsomes) or recombinant enzymes (e.g. Corning Gentest<sup>™</sup> P450, UGT and MAO-A/B). See complete list of Corning Gentest products that can be assayed with this buffer.
- KPO4 buffer is highly recommended for most P450 assays (microsomal or recombinant enzymes) with the exception of CYP 2C9 and 2A6 where a Tris buffer system is more appropriate.
- KPO4 buffer is recommended for UGT reactions in microsomal systems.
- For most assays involving Phase I and Phase II drug metabolism enzymes (e.g. P450, UGT and MAO) a final KPO4 buffer concentration of 0.1 M is recommended. The optimum buffer concentration may vary depending on the specific enzyme being tested.

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- The 0.5 M KPO4 buffer can be combined with Corning® Gentest™ NADPH re-generating system (Solution A, Cat# 451220 and Solution B, Cat# 451200) to make a convenient assay mix for measuring enzymes requiring NADPH co-factor. Solution A is a 20X concentrate of NADP+, Glucose 6-phosphate (G-6P) and MgCl<sub>2</sub>. Solution B is a 100X concentrate of Glucose 6-phosphate dehydrogenase (G-6PDH). The chart below is an example showing how the 3 products can be combined to make a standard P450 assay mix.

Assay Reagent	Volumes (µl) for 400 µl incubation volume	Final Concentrations	Volumes for 10x 400 µl reactions
0.5 M KPO4 (451201)	80	100 mM	800
Solution A (451220) (20x)	20	1.3 mM NADP, 3.3 mM G-6P, 3.3 MgCl	200
Solution B (451200) (100x)	4	0.4 Units/ml G-6PDH	40
H2O	278	-----	2780
<sup>1</sup> 10 mM Substrate (dissolved in Acetonitrile)	8	0.2 mM	80
<sup>2</sup> Liver microsomes (20 mg/ml)	10 (added to 390 µl of assay mix)	0.1 mg/ml	10 (added to 390 µl of assay mix)


<sup>1</sup> The final acetonitrile concentration contributed by the substrate is 2%. Acetonitrile can inhibit P450 reactions at concentrations greater than 2% (Chauret et al. (1998) *Drug Metab Dispos.* **26**: 1-4 and Busby et al., (1999) *Drug Metab. Dispos.* **27**, 246-249). See our Web-site (<http://www.corning.com/lifesciences>).

<sup>2</sup> We recommend mixing all components and adding enzyme last to initiate the reaction.

**Safety Recommendations:**

Safety assessment indicates this product is non-hazardous; therefore no SDS [Safety Data Sheet] is provided.

Handle in accordance with good industrial hygiene and laboratory safety practices.

  
 Quality Assurance

14 Jan, 2020  
 Date

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