NPS REAGENT KIT

SPECIFICATIONS AND PREPARATIONS GUIDE

IZON

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TABLE OF CONTENTS

1 / NPS REAGENT KIT OVERVIEW

1.1 Overview

The NPS Reagent Kit provides the components and instructions for the preparation of solutions used for NPS measurements. NPS reagents are contaminant-free with matched pH and conductivity to ensure reliable and repeatable measurements.

Advantages of using the NPS Reagent Kit include:

- Reliable and consistent results - measurements on different chips are comparable and accurate.
- Contaminant-free solutions if made and stored correctly.
- Compatible with all sample types.

1.2 Intended Use

The NPS Reagent Kit is intended for use by professional personnel only.

1.3 NPS Workflow

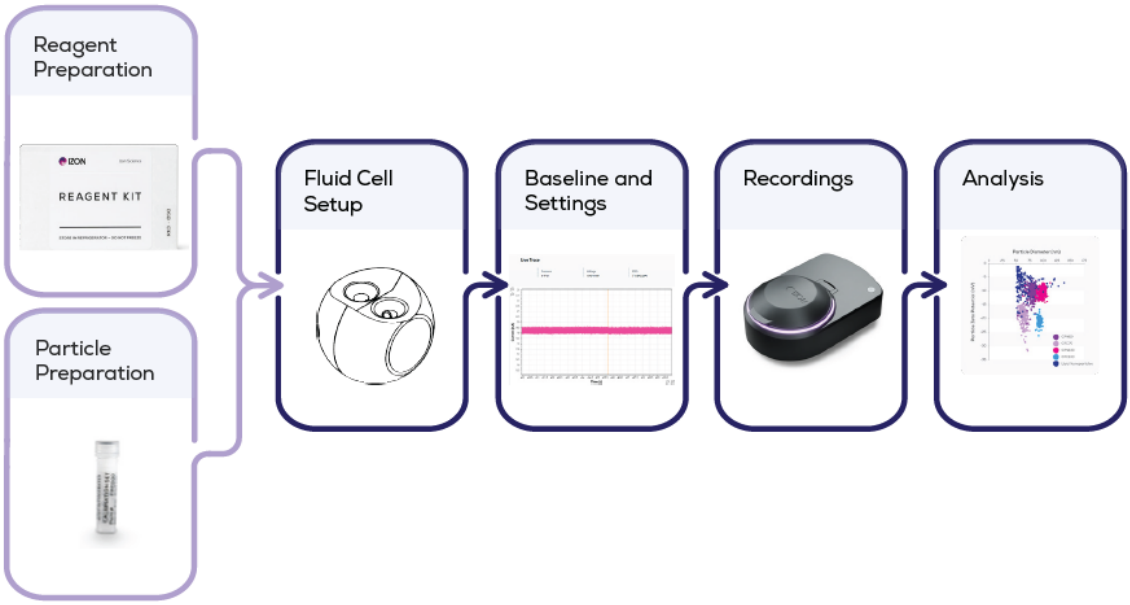

Figure 1: Overview of the NPS workflow.

2 / SAFETY AND BEST PRACTICE

Safety Data Sheets for NPS Reagent Kit components, and other relevant components can be found at support.izon.com/safety-data-sheets

2.1 Safety Precautions

Always use appropriate personal protective equipment when handling reagents, such as gloves, lab coats, and safety glasses.

- The Wetting Solution concentrate contains trace amounts of sodium azide (0.05% w/v), used as an anti-bacterial agent. Sodium azide is toxic in higher concentrations; avoid direct contact with skin or eyes.
- Waste reagents should be disposed of in a safe manner. All stock solutions not used within one week should be discarded according to local guidelines.
- Biological samples can be hazardous; consult your laboratory safety officer for information on safe handling of your sample when using an NPS instrument.

2.2 Best Measurement Practices

Careful preparation of reagents and samples for NPS is essential for achieving accurate and reproducible results. The following recommendations should be adhered to:

- Use clean, contaminant-free glassware.
- Wear gloves to avoid contaminating the NPS Reagent Kit components.
- Use calibrated pipettes for dilution steps and check dilution calculations, as these are a common source of inaccuracy.
- Use a new unfiltered pipette tip each time a reagent is used to avoid contamination and optimise reagent life.
- Filter reagents daily using the 0.22 µm filters provided to remove large contaminants.
- Mix samples gently to avoid introduction of bubbles that can interfere with NPS measurements.

3 / COMPONENTS AND STORAGE

The NPS Reagent Kit includes key components for operating Izon's NPS instruments.

PBS Tablets

The supplied PBS tablets are used to prepare stock PBS solutions for NPS measurement. Do not use general purpose lab PBS as it may contain particulates and microbial contaminants that block chips and affect your measurements.

Stock PBS is used in the Measurement Electrolyte (ME), which is also used as the diluent for samples and calibration particles. If using a buffer other than PBS, replace ME with the alternative buffer in the steps outlined in this document and NPS user manuals.

- 4 tablets: store at room temperature.
- Once made into a solution, store at 4-8 °C and use within one week.
- Glassware for mixing PBS must be clean, devoid of particulates, and washed with deionised (DI) water. Use high quality plasticware for reagent mixing and sample preparation e.g. 1.5 mL, 15 mL, 50 mL plastic tubes. Izon recommends the use of Axygen Scientific tubes.

Wetting Solution (WS) Concentrate

Wetting Solution concentrate is a surfactant solution that is used to make ME. Adding a surfactant to particle suspensions via the ME helps wet the pore, keep it clean, maintain system stability, and reduce particle aggregation.

- 4 mL solution to be stored at 4-8 °C and used within 6 months of opening.

Syringe Filter Unit

Using pure and uncontaminated reagents is critical for accurate nanoparticle measurement and preventing nanopore blockages. To enable filtration, the following component is included:

- **Single-use 0.22 µm filter (x 20 units):** Used to filter DI water for flushing and ME, sequentially before use each day.

Store filter units well sealed at room temperature.

Table 1: Kit Component Quantity and Storage Instructions

Kit Component	Quantity	Storage Instructions	
PBS tablets	4	Store at room temperature (15 – 25 °C)	
Syringe filter (13 mm x 0.22 µm)	20		
Wetting Solution concentrate	1	Once opened, store at 4-8 °C	
	Once the Measurement Electrolyte solution has been prepared, store at 4-8 °C.		

4 / SOLUTION PREPARATION

The following information provides instructions on preparation protocols and their recommended frequency of use.

Measurement Electrolyte (ME)

1. Rinse and clean glass bottle with DI water.
2. Completely dissolve 1 x PBS tablet in 200 mL of DI water.
3. Add 600 µL of WS concentrate to the PBS solution and swirl gently to mix.
4. Seal and label the container (include the date).
5. Always allow solutions to warm up to room temperature before use.

DI water should be high quality with resistivity of approximately 18 $M\Omega cm^{-1}$. Water should be filtered with a 0.22 µm syringe filter.

- Weekly: Make up a fresh batch of stock ME.
- Daily: Before use, filter 15 mL working volume with a 0.22 µm syringe filter.

Once complete, your ME is ready to be used according to your NPS instrument user manual.

5 / RESOURCES

For access to the Pulsoid User Manual, other guides, and additional support material, visit support.izon.com

If you have any questions that are not answered on the support portal, or your instrument requires repairs/maintenance, please contact our support staff via the online support portal by raising a support ticket.


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