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Instruction for Use
TPP Centrifuge Tube

The centrifuge tubes made of Polypropylene (PP) or Polystyrene (PS) are designed for centrifugation as well as preparation, mixing, and storing of suspension - including cells, bacteria, precipitate – as well as solid and liquid reagents and samples.

The centrifuge tube is for single use only. Re-use disclaims all warranties.

Safety instructions

- Handling and Safety
  Handling of biological materials shall be performed in full compliance with all applicable national and international regulations. Activities must conform to the laboratory's assigned biological safety level, the relevant Safety Data Sheets (SDS), and the manufacturer's Instructions for Use (IFU).
  Appropriate personal protective equipment (PPE) shall be always worn during handling.
- Risk of Contamination
  All operations shall be conducted in accordance with aseptic techniques and established Good Laboratory Practices (GLP). Packaging shall be opened immediately prior to use. Only products that are visually intact and free from defects shall be utilized. Products exhibiting visible damage, contamination, or any other irregularities shall be disposed of in accordance with applicable regulations.
- Storage
  TPP products shall be stored under the following conditions:
  - Temperature: 10 °C to 30 °C (50 °F to 86 °F).
  - Light exposure: Products shall be protected from direct ultraviolet (UV) radiation.
  - Relative humidity: ≤ 60 %, with a recommended control range of 50 – 60 %.

  Storage conditions shall be monitored and recorded to ensure compliance with these requirements. Any deviations shall be documented, evaluated, and managed in accordance with the applicable quality.

Instruction

- Check the expiration date (EXP) on the label and packaging. Use only products that are within their valid shelf life.
- Before use, verify that the packaging is intact. The consumable is only guaranteed sterile if the packaging is undamaged.
- Open the packaging and remove the product within a sterile environment.
- Unscrew the cap and fill the tube with the medium and inoculum according to standard laboratory protocols.
- Close the screw cap carefully to avoid damaging the sealing lip. Ensure the cap is correctly seated and tightly closed. By this it is both gas- and liquid-tight minimizing the risk of contamination.

Centrifugation Safety and Performance

To ensure operational safety and optimal performance, strictly adhere to the centrifuge manufacturer's instructions and use appropriate rotors and adapters.

- Ensure the centrifuge load is correctly balanced. Tubes must be positioned symmetrically relative to the rotational center and axis to maintain a horizontal orientation. Improper loading may result in uneven separation, vibration, or tube damage.
- Several factors influence the structural integrity of the tubes during operation:
    - Tube shape and material composition.
    - Proper fit within the designated adapter.
    - Centrifugation parameters: Temperature, duration, Relative Centrifugal Force (RCF).
    - Sample properties (density and viscosity).
    - Rotor type (fixed-angle vs. swing-out).
- RCF (g-force) ratings are determined at room temperature using water-filled tubes in a horizontal rotor for 5 minutes. Using fixed-angle rotors or with unsupported tubes may significantly reduce mechanical performance.
- Perform a test run with the specific sample and settings before routine use to verify suitability for the intended application.

Sub-Zero Storage

- Polypropylene (PP) tubes exhibit reduced mechanical strength at temperatures below 0 °C (32 °F).
- For samples that need to be frozen or stored at low temperatures for long periods of time, transfer the contents to TPP cryotubes. These are specially validated to ensure integrity and safety under extreme thermal conditions.
- Do not expose these consumables to liquid nitrogen (LN_2). Contact with LN_2 can cause embrittlement, structural damage, or bursting during thawing.
- TPP does not guarantee the integrity or performance of tubes under sub-zero conditions. The following information reflects general knowledge regarding the use of PP tubes at low temperatures down to –80 °C that has been brought to our attention It is provided for informational purposes only and serves as general guidance for the storage of samples in plastic containers below 0 °C. This information should not be considered a specification or a guarantee of performance.
    - The freezing process must be controlled and occur evenly from bottom to top.
    - Ensure sufficient space for the expansion of freezing liquids (e.g., using appropriate racks or boxes).
    - Do not use highly insulating containers (e.g., Styrofoam®) during freezing, as they can lead to uneven freezing and significantly increase the risk of material failure or breakage.
    - Verify the suitability of the PP tubes for temperatures down to –80 °C, as material properties such as impact strength and elasticity decrease significantly at very low temperatures.
    - Rapid, uncontrolled temperature drops (e.g., direct placement into a –80 °C freezer) can cause stress cracks or deformation and should be avoided unless verified by preliminary tests.
- Before routine use, perform a validation test with the specific sample, fill volume, and equipment settings to verify mechanical stability, leak-proofness, and suitability under real conditions.

Storage Limitation

- The centrifuge tube #91115 is not suitable for sub-zero storage. Polystyrene (PS) exhibits significantly increased brittleness at temperatures below 0 °C (32 °F). Storage of PS products below this temperature shall not be performed, as the material is prone to spontaneous cracking and shattering, which may result in product failure and potential safety hazards.

General Handling and Limitations

- Graduations are for reference only and serve as approximate guidelines for fill volume. For precise measurements, use calibrated pipettes or volumetric instruments.
- Avoid exposing the white labeling area to 90 % alcohol in combination with mechanical stress (e.g., rubbing or wiping), as this may cause the ink to dissolve or smear.
- The centrifuge tube #91051 features a rim and is not suitable for centrifugation unless a dedicated, purpose-designed adapter is used.

Technical Data

Component	Material
Screw Cap	Polyethylene (PE)
Tube	Polypropylene (PP)
Tube 91115	Polystyrene (PS)

Measurement	91015	91016	91017	91019	91050	91051	91056	91115
Length mm	120	105	120	100	115	115	115	120
Diameter mm	17.1	17.1	17.1	17.1	30	30	30	17.1
Volume grad. mL	15	13	15	12	50	50	50	14
Volume max. mL	15	14	15	13	50	50	50	15
Max. RCF x *g*	15‘500	15‘500	15‘500	15‘500	15‘500	N/A	15‘500	1‘700
Tube Material	PP	PP	PP	PP	PP	PP	PP	PS
Form	conical	round, short	round, long	flat	conical	conical with rim	round	conical

Additional Information

Instructions for use, chemical resistance lists, and quality certificates for individual products can be downloaded from the TPP website at www.tpp.ch.

Disclaimer

TPP products are intended for Research Use Only (RUO) and are not approved for clinical, diagnostic, or in vitro fertilization (IVF) applications. The full Terms & Conditions, including limitations of warranty and liability, intended use, and reseller obligations, are available at: https://www.tpp.ch/page/qualitaets_sicherung/index.php

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