

Small Capacity Pretreatment Kit

Micro Volume QuEChERS kit™

Instruction Manual

Read this manual thoroughly before you use the product.
Keep this manual for future reference.

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Introduction

Read this Instruction Manual thoroughly before using the product.

Thank you for purchasing this product.

This manual describes the operation and accessories for this product. Read this manual thoroughly before using the product and operate the product in accordance with the instructions in this manual.

Keep this manual for future reference.

■ Notice

- Information in this manual is subject to change without notice and does not represent a commitment on the part of the vendor.
- Any errors or omissions which may have occurred in this manual despite the utmost care taken in its production will be corrected as soon as possible, although not necessarily immediately after detection.
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- Shimadzu Corporation will replace this product with a substitute without any charge if Shimadzu Corporation is liable for any defect arising before this product is unpacked.
- This product forms lumps depending on the storage conditions but can be used without causing any problems.




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■ Disposal Precautions



- Dispose of any waste in accordance with the national and local regulations.

■ Indications Used in This Manual


Precaution symbols are indicated using the following conventions:


| Indication | Meaning |
|--|--|
|  WARNING | Indicates a potentially hazardous situation which, if not avoided, could result in serious injury or possibly death. |
|  CAUTION | Indicates a potentially hazardous situation which, if not avoided, may result in minor to moderate injury or equipment damage. |
|  NOTE | Emphasizes additional information that is provided to ensure the proper use of this product. |

Introduction

| Indication | Meaning |
|---|---|
|  Prohibitions | Indicates an action that must not be performed. |
|  Instructions | Indicates an action that must be performed. |

■ Product Applications


 **WARNING**



Prohibitions

Do NOT use the product for purposes other than those specified.

This reagent product is intended for the use in research. This product cannot be used as pharmaceuticals or in vitro diagnostics or for any other purposes. Use this product correctly in accordance with this instruction manual and SDS. You can download SDS from the URL below:
<https://www.an.shimadzu.co.jp/lcms/quechers/forensic/index.htm>

■ Operation

 **WARNING**


Instructions

Wear protective eyewear and gloves.


When performing experiment operations, wear protective eyewear and gloves. If reagents, organic solvents, or other materials get in the eyes, it may cause blindness.


In case reagent or organic solvent gets in the eyes or they are inhaled or swallowed, promptly see a doctor and follow their instructions.

When handling samples with a risk of toxicity or biological infection, follow general laboratory precautions and be sure to wear protective eyewear and gloves for your safety.

Wash your hands and gargle after experiments.

■ Storage Site

 **CAUTION**


Instructions

Store the reagent in the specified conditions.

To maintain the quality, be sure to store the reagent under the specified conditions away from heat and moisture.

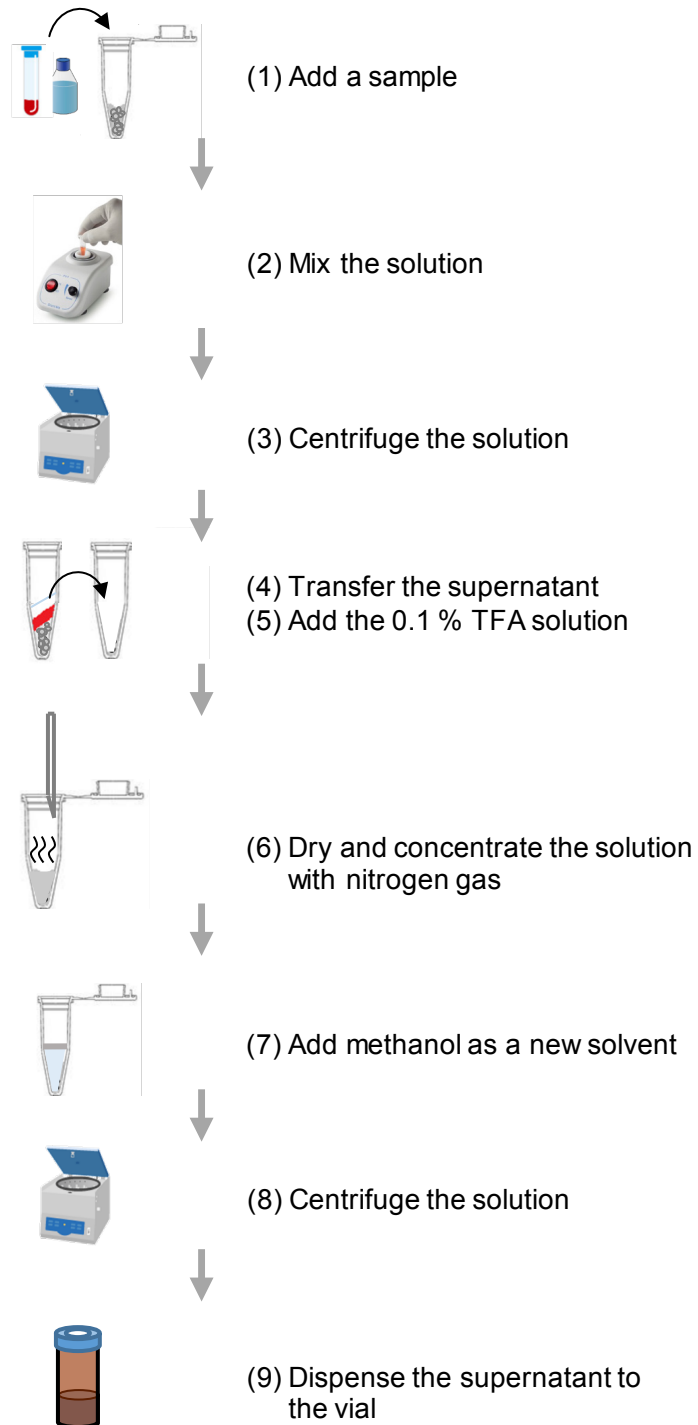
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1. Overview

The Micro Volume QuEChERS kit is intended for the use in pretreatment to extract a medicinal toxicant from a biological material. The composition of QuEChERS extraction salt complies with AOAC2007.01.

This instruction manual presents an example of pretreatment following the protocol of "LC/MS/MS Method Package Rapid Toxicology Screening Ver.2". The following shows the pretreatment flow. For the details, see "4. Pretreatment Method (Example)".



2. Configuration

2.1 Product Specifications (S225-37870-91)

| Item | Specification |
|----------------------------|--|
| Target sample | Biological materials such as whole blood and urine |
| Maximum number of uses | Once/bottle |
| Amount of sample | 100 μ L |
| Storage temperature | Room temperature |
| Number of bottles included | 100/kit |

2.2 Product Contents (per Bottle)

| Item | Amount | Amount of each reagent |
|--------------------------|--------|--|
| QuEChERS extraction salt | 100 mg | Sodium acetate : 20 mg Magnesium sulfate: 80 mg |



NOTE

- The composition of QuEChERS extraction salt complies with AOAC2007.01.
- The QuEChERS extraction salt is highly hygroscopic and therefore may form lumps. If it does, there is no problem with the quality and the product can be used as it is.

3. Items to Be Prepared

Prepare the following reagents, devices, and apparatuses.

3.1 Specified Items

When using "LC/MS/MS Method Package Rapid Toxicology Screening Ver.2", be sure to prepare the following items as specified.

| Reagent | Manufacturer | Product Number | Specification |
|---|---------------|----------------|------------------------|
| DIAZEPAM-D5 | SIGMA-Aldrich | D-902-1ML | 100 µg/mL in methanol |
| PHENOBARBITAL-D5 (DEUTERIUM LABEL ON RING) | SIGMA-Aldrich | P-019-1ML | 1000 µg/mL in methanol |

3.2 Recommended Items

The items shown below are examples and can be replaced with equivalent substitutes.

| Reagent |
|----------------------|
| Acetonitrile |
| Methanol |
| Distilled water |
| Trifluoroacetic acid |

| Device and Apparatus | Specification |
|--|--|
| Centrifugal separator | Capable of centrifuging 1.5 mL tube or 2.0 mL tube at 15000 g |
| Vortex mixer | N/A |
| Drying and concentrating unit capable of spraying nitrogen gas | Capable of spraying nitrogen gas as well as drying a sample to concentrate it Example: Nitrogen gas spray unit for aluminum block bath (TAITEC) |
| Pipeter, tip | Capable of dispensing 1 µL to 1000 µL |
| Vial for HPLC | A 1.5 mL vial with a small capacity insert |
| Microtube | 1.5 mL or 2.0 mL |
| Protective eyewear | N/A |
| Protective mask | N/A |
| Protective gloves | N/A |

4. Pretreatment Method (Example)

1. Add acetonitrile of 300 μL and distilled water of 200 μL to the QuEChERS extraction salt.
2. Mix them homogeneously with the vortex mixer.



NOTE The QuEChERS extraction salt may absorb moisture to form lumps. Mix it sufficiently to homogeneity in the lumps.

3. Dilute the 100 ng/ μL Diazepam-D5 solution, which is a specified item, with acetonitrile to 10 ng/ μL .
4. Add the 10 ng/ μL Diazepam-D5 solution of 2 μL and the 1000 ng/ μL Phenobarbital-D5 solution of 1 μL .
5. Add a sample of 100 μL such as whole blood, blood serum, or urine.
6. With the vortex mixer, mix the resultant solution sufficiently so that the QuEChERS extraction salt dissolves completely.
7. As soon as finishing mixing the solution, centrifuge the solution at room temperature (15000 g, 10 minutes).
8. Transfer the supernatant to a new 1.5 mL tube or 2.0 mL tube.



NOTE Using the LCMS-8060 for analysis allows you to analyze the supernatant as it is.

9. Add the 0.1 % TFA acetonitrile solution of 20 μL and mix the resultant solution with the vortex mixer before drying it with the drying and concentrating unit capable of spraying nitrogen gas.
10. Add methanol of 40 μL to the dried sample and then dissolve it with the vortex mixer.
11. Centrifuge the resultant solution at room temperature (15000 g, 5 minutes).
12. Dispense the supernatant to the vial for HPLC.
13. Set the vial in the autosampler to analyze it. For analysis conditions, refer to the instruction manual of "LC/MS/MS Method Package Rapid Toxicology Screening Ver.2".