PowerWater® DNA Isolation Kit

(For isolation of genomic DNA from membrane filtered water samples)

Catalog No.	Quantity	Filters
14900-50-NF	50 Preps	No filters
14900-100-NF	100 Preps	No filters

Instruction Manual

Please recycle

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Introduction

The PowerWater® DNA Isolation Kit can isolate genomic DNA from a variety of filtered water samples. Utilizing our patented Inhibitor Removal Technology® (IRT), even water containing heavy amounts of contaminants can be processed to provide DNA of high quality and yield. The kit can isolate DNA equally as well from any commonly used filter membrane type. This kit differs from our UltraClean® Water DNA Isolation Kit by the addition of a novel bead tube with an optimized bead mix, a reformulated lysis buffer, IRT technology, and the reduction in sample volume so that nearly all processing occurs in a microcentrifuge. Purified DNA is ready to use in a final 100 µl elution volume.

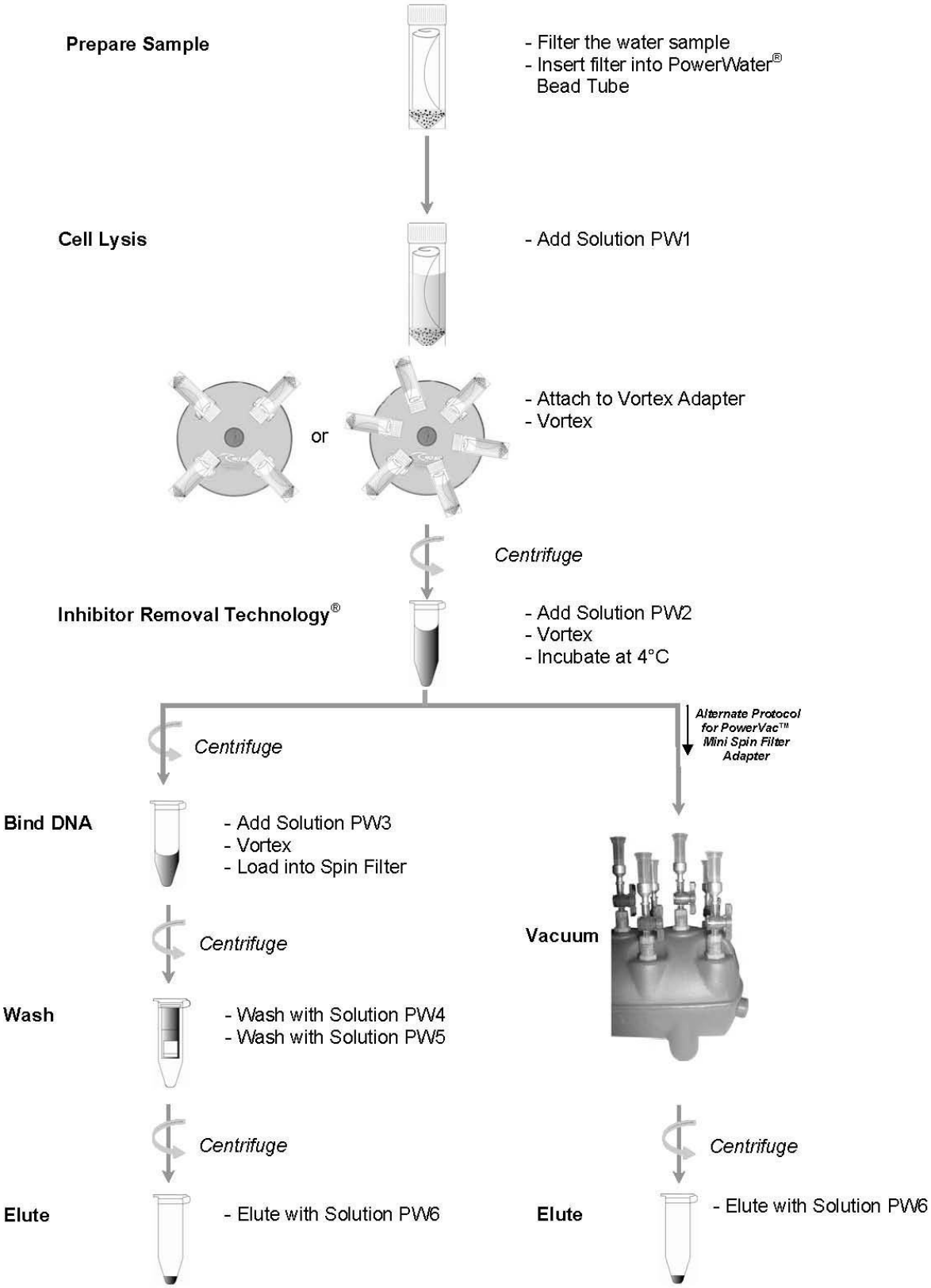
Protocol Overview

The PowerWater® DNA Isolation Kit starts with the filtration of a water sample onto a filter membrane. Filter membranes can be purchased separately from MO BIO or can be user supplied. MO BIO filter membranes are sterile, disposable, and easy to use. The membrane is then added to our special 5 ml bead beating tube containing a unique bead mix. Rapid and thorough lysis occurs through vortex mixing in a reformulated lysis buffer that enhances the isolation of microorganisms from filter membranes. After the protein and inhibitor removal steps, total genomic DNA is captured on the MO BIO Laboratories silica spin column. High quality DNA is then washed and eluted from the spin column membrane for use in downstream applications including PCR and qPCR.

This kit is for research purposes only. Not for diagnostic use.

Other Related Products	Catalog No.	Quantity
Vortex Adapter for Vortex Genie® 2	13000-V1-15 13000-V1-5	Holds 4 (5 ml or 15 ml) Tubes Holds 6 (5 ml) Tubes
Water Filter Adapter	14800-10-WFA	1
Water Filter (0.45 µm)	14800-10-WF 14800-25-WF 14800-50-WF 14800-100-WF	10 units 25 units 50 units 100 units
Water Filter (0.22 µm)	14880-10-WF 14880-25-WF 14880-50-WF 14880-100-WF	10 units 25 units 50 units 100 units
Vortex Genie® 2 Vortex	13111-V-220 13111-V	1 unit (220V) 1 unit (120V)
PCR Water (Certified DNA-free)	17000-1 17000-5 17000-10 17000-11	1 ml 5 x 1 ml 10 x 1 ml 10 ml bottle
RapidWater® DNA Isolation Kit	14810-50-NF	50 preps (No filters)
PowerVac™ Manifold	11991	1 manifold
PowerVac™ Mini System	11992	1 unit + 20 adapters
PowerVac™ Mini Spin Filter Adapters	11992-10 11992-20	10 adapters 20 adapters

PowerWater® DNA Isolation Kit



Equipment Required

Centrifuge for 15 ml tubes (≤4000 x *g*)
Disposable/reusable filter funnels
Filter membranes (if using a reusable filter funnel)
Microcentrifuge (13,000 x *g*)
Pipettors
Vortex
Vortex Adapter
Vacuum Filtration System

Vacuum Filtration System

Kit Contents

	Kit Catalog# 14900-50-NF	**Kit Catalog# 14900-100-NF**
Component	**Amount**	**Amount**
PowerWater® Bead Tubes	50 tubes	100 tubes
Solution PW1	55 ml	110 ml
Solution PW2	11 ml	22 ml
Solution PW3	2 x 18 ml	3 x 24 ml
Solution PW4	2 x 18 ml	3 x 24 ml
Solution PW5	2 x 18 ml	3 x 24 ml
Solution PW6	5.5 ml	11 ml
Spin Filters	50	100
2 ml Collection Tubes	250	500

Kit Storage

Store all reagents and kit components at room temperature (15-30°C).

Precautions

Please wear gloves when using this product. Avoid all skin contact with kit reagents. In case of contact, wash thoroughly with water. Do not ingest. See Material Safety Data Sheets for emergency procedures in case of accidental ingestion or contact. All MSDS information is available upon request (760-929-9911) or at www.mobio.com. Reagents labeled flammable should be kept away from open flames and sparks.

WARNING: Solutions PW3, PW4 and PW5 contain alcohol. They are flammable.

Important Notes Before Starting:

Solution PW1 must be warmed at 55°C for 5-10 minutes to dissolve precipitates prior to use. Solution PW1 should be used while still warm.

Solution PW3 may precipitate over time. If precipitation occurs, warm at 55°C for 5-10 minutes. Solution PW3 can be used while still warm.

Shake to mix Solution PW4 before use.

Experienced User Protocol

Please wear gloves at all times

Warm Solution PW1 prior to use at 55°C for 5-10 minutes. Use Solution PW1 while still warm. Check Solution PW3 and warm at 55°C for 5-10 minutes if necessary. Solution PW3 can be used while still warm.

1. Filter water samples using a reusable or disposable filter funnel attached to a vacuum source. Disposable filter funnels, containing 0.22 µm or 0.45 µm filter membranes, can be ordered from MO BIO Laboratories (see page 3). The volume of water filtered will depend on the microbial load and turbidity of the water sample. **(Please see Types of Water Samples in the Hints and Troubleshooting Guide section of the Instruction Manual).**
2. If using a reusable filter funnel, remove the upper portion of the apparatus. If using a MO BIO Laboratories filter funnel, remove the 100 ml upper portion of the filter cup from the catch reservoir by snapping it off.
3. Using two sets of sterile forceps, pick up the white filter membrane at opposite edges and roll the filter into a cylinder with the top side facing inward.
   Note: Do not tightly roll or fold the filter membrane. To see a video of this technique, please visit the PowerWater® DNA Isolation Kit product page on www.mobio.com.
4. Insert the filter into the 5 ml PowerWater® Bead Tube.
5. Add **1 ml of Solution PW1** to the PowerWater® Bead Tube.
   Note: Solution PW1 must be warmed to dissolve precipitates prior to use. Solution PW1 should be used while still warm. For samples containing organisms that are difficult to lyse (fungi, algae) an additional heating step can be included. See **Alternate Lysis Method in the Hints and Troubleshooting Guide.**
6. Secure the PowerWater® Bead Tube horizontally to a MO BIO Vortex Adapter, catalog number 13000-V1-15 or 13000-V1-5.
7. Vortex at maximum speed for 5 minutes.
8. Centrifuge the tubes ≤ 4000 x *g* for 1 minute at room temperature. The speed will depend on the capability of your centrifuge. **(This step is optional if a centrifuge with a 15 ml tube rotor is not available, but will result in minor loss of supernatant).**
9. Transfer all the supernatant to a clean 2 ml Collection Tube (provided). Draw up the supernatant using a 1 ml pipette tip by placing it down into the beads.
   Note: Placing the pipette tip down into the beads is required. Pipette more than once to ensure removal of all supernatant. Any carryover of beads will not affect subsequent steps. Expect to recover between 600-650 µl of supernatant depending on the type of filter membrane used.
10. Centrifuge at 13,000 x *g* for 1 minute.
11. Avoiding the pellet, transfer the supernatant to a clean 2 ml Collection Tube (provided).
12. Add **200 µl of Solution PW2** and vortex briefly to mix. Incubate at 4°C for 5 minutes.
13. Centrifuge the tubes at 13,000 x *g* for 1 minute.
14. Avoiding the pellet, transfer the supernatant to a clean 2 ml Collection Tube (provided).
15. Add **650 µl of Solution PW3** and vortex briefly to mix.
    Note: Check Solution PW3 for precipitation prior to use. Warm if necessary. Solution PW3 can be used while still warm.
16. Load 650 µl of supernatant onto a Spin Filter and centrifuge at 13,000 x *g* for 1 minute. Discard the flow through and repeat until all the supernatant has been loaded onto the Spin Filter.
    Note: A total of two loads for each sample processed are required.
17. Place the Spin Filter basket into a clean 2 ml Collection Tube (provided).

18. Shake to mix Solution PW4 before use. Add **650 µl of Solution PW4** and centrifuge at 13,000 x *g* for 1 minute.
19. Discard the flow through and add **650 µl of Solution PW5** and centrifuge at 13,000 x *g* for 1 minute.
20. Discard the flow through and centrifuge again at 13,000 x *g* for 2 minutes to remove residual wash.
21. Place the Spin Filter basket into a clean 2 ml Collection Tube (provided).
22. Add **100 µl of Solution PW6** to the center of the white filter membrane.
23. Centrifuge at 13,000 x *g* for 1 minute.
24. Discard the Spin Filter basket. The DNA is now ready for any downstream application. No further steps are required.

    We recommend storing the DNA frozen (-20°C to -80°C). Solution PW6 contains no EDTA. To concentrate the DNA, see the Hints and Troubleshooting Guide.

Thank you for choosing the PowerWater® DNA Isolation Kit!

Detailed Protocol (Describes what is happening at each step)

Please wear gloves at all times

Warm Solution PW1 prior to use at 55°C for 5-10 minutes. Use Solution PW1 while still warm. Check Solution PW3 and warm at 55°C for 5-10 minutes if necessary. Solution PW3 can be used while still warm.

1. Filter water samples using a reusable or disposable filter funnel attached to a vacuum source. Disposable filter funnels, containing 0.22 µm or 0.45 µm filter membranes, can be ordered from MO BIO Laboratories (see page 3). The volume of water filtered will depend on the microbial load and turbidity of the water sample. **(Please see Types of Water Samples in the "Hints and Troubleshooting Guide" section of Instruction Manual).**

   What's happening: A reusable or disposable filter funnel is attached to a vacuum filtration system. Microorganisms are trapped on top of and within the filter membrane.

2. If using a reusable filter funnel, remove the upper portion of the apparatus. If using a MO BIO Laboratories filter funnel, remove the 100 ml upper portion of the filter cup from the catch reservoir by snapping it off.

3. Using two sets of sterile forceps, pick up the white filter membrane at opposite edges and roll the filter into a cylinder with the top side facing inward.

   Note: Do not tightly roll or fold the filter membrane. To see a video of this technique, please visit the PowerWater® DNA Isolation Kit product page on www.mobio.com.

4. Insert the filter into the 5 ml PowerWater® Bead Tube.

   What's happening: Loosely rolling and inserting the filter membrane into the PowerWater® Bead Tube allows for efficient bead beating and homogenization in proceeding steps.

5. Add **1 ml of Solution PW1** to the PowerWater® Bead Tube.

   Note: Solution PW1 must be warmed to dissolve precipitates prior to use. Solution PW1 should be used while still warm. For samples containing organisms that are difficult to lyse (fungi, algae) an additional heating step can be included. See **Alternate Lysis Method in the "Hints and Troubleshooting Guide".**

   What's happening: Solution PW1 is a strong lysing reagent that includes a detergent to help break cell walls and will remove non-DNA organic and inorganic material. It is also part of the patented Inhibitor Removal Technology® (IRT). When cold, this solution will form a white precipitate in the bottle. Heating to 55°C will dissolve the components without harm. Solution PW1 should be used while it is still warm.

6. Secure the PowerWater® Bead Tube horizontally to a MO BIO Vortex Adapter, catalog number 13000-V1-15 or 13000-V1-5.

7. Vortex at maximum speed for 5 minutes

   What's happening: The mechanical action of bead beating will break apart the surface of the filter membrane that contains trapped cells and aids in cell lysis. Use of the vortex adapter will maximize

homogenization by holding the tubes equal distance and angle from the center of rotation. Avoid using tape, which can become loose and result in reduced homogenization efficiency.

8. Centrifuge the tubes ≤ 4000 x *g* for 1 minute at room temperature. The speed will depend on the capability of your centrifuge. **(This step is optional if a centrifuge with a 15 ml tube rotor is not available, but will result in minor loss of supernatant).**

9. Transfer the supernatant to a clean 2 ml Collection Tube (provided). Draw up the supernatant using a 1 ml pipette tip by placing it down into the beads.

   Note: Placing the pipette tip down into the beads is required. Pipette more than once to ensure removal of all supernatant. Any carryover of beads will not affect subsequent steps. Expect to recover between 600-650 µl of supernatant depending on the type of filter membrane used.

   What's happening: The supernatant is separated and removed from the filter membrane and beads at this step.

10. Centrifuge at 13,000 x *g* for 1 minute.

    What's happening: Any remaining beads, proteins, and cell debris are removed at this step. This step is important for removal of any remaining contaminating non-DNA organic and inorganic matter that may reduce the DNA purity and inhibit downstream DNA applications.

11. Avoiding the pellet, transfer the supernatant to a clean 2 ml Collection Tube (provided).

12. Add **200 µl of Solution PW2** and vortex briefly to mix. Incubate at 4°C for 5 minutes.

    What's happening: Solution PW2 is another part of the patented Inhibitor Removal Technology® (IRT) and is a second reagent to remove additional non-DNA organic and inorganic material including humic acid, cell debris, and proteins. It is important to remove contaminating organic and inorganic matter that may reduce DNA purity and inhibit downstream DNA applications.

13. Centrifuge the tubes at 13,000 x *g* for 1 minute.

14. Avoiding the pellet, transfer the supernatant to a clean 2 ml Collection Tube (provided).

    What's happening: The pellet at this point contains additional non-DNA organic and inorganic material. For best DNA yields and quality, avoid transferring any of the pellet.

15. Add **650 µl of Solution PW3** and vortex briefly to mix.

    Note: Check Solution PW3 for precipitation prior to use. Warm if necessary. Solution PW3 can be used while still warm.

    What's happening: Solution PW3 is a high concentration salt solution. Since DNA binds tightly to silica at high salt concentrations this will adjust the DNA solution salt concentration to allow binding of the DNA, but not non-DNA organic and inorganic material that may still be present at low levels, to the spin filter.

16. Load 650 µl of supernatant onto a Spin Filter and centrifuge at 13,000 x *g* for 1 minute. Discard the flow through and repeat until all the supernatant has been loaded onto the Spin Filter.

    Note: A total of two loads for each sample processed are required.

What's happening: The DNA is selectively bound to the silica membrane in the Spin Filter basket and the flow through containing non-DNA components is discarded.

17. Place the Spin Filter basket into a clean 2 ml Collection Tube (provided).

    What's happening: Due to the high concentration of salt in solution PW3, it is important to place the Spin Filter basket into a clean 2 ml Collection Tube to aid in the subsequent wash steps and improve the DNA purity and yield.

18. Shake to mix Solution PW4 before use. Add **650 µl of Solution PW4** and centrifuge at 13,000 x *g* for 1 minute.

    What's happening: Solution PW4 is an alcohol based wash solution used to further clean the DNA that is bound to the silica filter membrane in the Spin Filter. This wash solution removes residual salt and other contaminants while allowing the DNA to stay bound to the silica membrane.

19. Discard the flow through and add **650 µl of Solution PW5** and centrifuge at 13,000 x *g* for 1 minute.

    What's happening: Solution PW5 ensures complete removal of Solution PW4 which will result in higher DNA purity and yield.

20. Discard the flow through and centrifuge again at 13,000 x *g* for 2 minutes to remove residual wash.

    What's happening: The second spin removes residual Solution PW5. It is critical to remove all traces of wash solution because the ethanol in Solution PW5 can interfere with many downstream DNA applications such as PCR, restriction digests, and gel electrophoresis.

21. Place the Spin Filter basket into a clean 2 ml Collection Tube (provided).

22. Add **100 µl of Solution PW6** to the center of the white filter membrane.

    What's happening: Placing Solution PW6 (sterile elution buffer) in the center of the small white membrane will make sure the entire membrane is wetted. This will result in a more efficient and complete release of the DNA from the silica Spin Filter membrane. As Solution PW6 passes through the silica membrane, the DNA that was bound in the presence of high salt is selectively released by Solution PW6 (10 mM Tris) which lacks salt.

    Alternatively, sterile DNA-Free PCR Grade Water may be used for DNA elution from the silica Spin Filter membrane at this step. Solution PW6 contains no EDTA. If DNA degradation is a concern, sterile TE may also be used instead of PW6 for elution of DNA from the Spin Filter.

23. Centrifuge at 13,000 x *g* for 1 minute.

24. Discard the Spin Filter basket. The DNA is now ready for any downstream application. No further steps are required.

    We recommend storing the DNA frozen (-20°C to -80°C). Solution PW6 contains no EDTA. To concentrate the DNA, see the Hints and Troubleshooting Guide.

Thank you for choosing the PowerWater® DNA Isolation Kit!

Vacuum Protocol using the PowerVac™ Manifold

Please wear gloves at all times

For each sample lysate, use one Spin Filter column. Keep the Spin Filter in the attached 2 ml Collection Tube and continue using the Collection Tube as a Spin Filter holder until needed for the Vacuum Manifold Protocol. Label each Collection Tube top and Spin Filter column to maintain sample identity. If the Spin Filter becomes clogged during the vacuum procedure, you can switch to the procedure for purification of the DNA by centrifugation.

You will need to provide 100% ethanol for step 4 of this protocol

1. For each prep, attach one aluminum **PowerVac™ Mini Spin Filter Adapter** (MO BIO Catalog# 11992-10 or 11992-20) into the Luer-Lok® fitting of one port in the manifold. Gently press a Spin Filter column into the PowerVac™ Mini Spin Filter Adapter until snugly in place. Ensure that all unused ports of the vacuum manifold are closed.
   Note: Aluminum PowerVac™ Mini Spin Filter Adapters are reusable.

2. Transfer 650 µl of prepared sample lysate (from step 15) to the **Spin Filter column**.

3. Turn on the vacuum source and open the stopcock of the port. Hold the tube in place when opening the stopcock to keep the spin filter steady. Allow the lysate to pass through the **Spin Filter column**. After the lysate has passed through the column completely, load again with the next 650 µl of lysate. Continue until all of the lysate has been loaded onto the **Spin Filter column**. Close the one-way Luer-Lok® stopcock of that port.
   Note: If Spin Filter Columns are filtering slowly, close the ports to samples that have completed filtering to increase the pressure to the other columns.

4. Add 800 µl of 100% ethanol into the Spin Filter so that it completely fills the column. Open the stopcock while holding the column steady. Allow the ethanol to pass through the column completely. Close the stopcock.

5. Shake to mix Solution PW4. Add 650 µl of **Solution PW4** to each Spin Filter. Open the Luer-Lok® stopcock and apply a vacuum until **Solution PW4** has passed through the Spin Filter completely. Continue to pull a vacuum for another minute to dry the membrane. Close each port.

6. Add 650 µl of **Solution PW5** to each Spin Filter. Open the Luer-Lok® stopcock and apply a vacuum until **Solution PW5** has passed through the Spin Filter completely. Continue to pull a vacuum for another minute to dry the membrane. Close each port.

7. Turn off the vacuum source and open an unused port to vent the manifold. If all 20 ports are in use, break the vacuum at the source. Make certain that all vacuum pressure is released before performing the next step. It is important to turn off the vacuum at the source to prevent backflow into the columns.

8. Remove the **Spin Filter column** and place in the original labeled **2 ml Collection Tube**. Place into the centrifuge and spin at 13,000 × *g* for 2 minutes to completely dry the membrane.

9. Transfer the **Spin Filter column** to a new **2 ml Collection Tube** and add 100 µl of **Solution PW6** to the center of the white filter membrane. Alternatively, sterile DNA-Free PCR Grade Water may be used for elution from the silica **Spin Filter** membrane at this step (MO BIO Catalog# 17000-10).

10. Centrifuge at room temperature for 1 minute at 13,000 x *g*.

11. Discard the **Spin Filter column**. The DNA in the tube is now ready for any downstream application. No further steps are required.

Thank you for choosing the PowerWater® DNA Isolation Kit.

Hints and Troubleshooting Guide

Types of Water Samples

A. **Clear Water Samples:** Water samples may vary from clear to highly turbid. Larger volumes of clear water can be processed because there is less chance of filter clogging. Potable drinking water will generally allow for very high volumes depending on the quality and particulate count. In most cases, 100 ml to 10 liters can be processed. Some users report processing even higher volumes.

B. **Turbid Water Samples:** Turbid samples with high levels of suspended solids or sediments will tend to clog filters with a smaller pore size (0.22 micron). Use of 0.45 micron filters is recommended for theses types of samples. MO BIO Laboratories offers disposable filter funnels containing membranes of either 0.22 micron or 0.45 micron pore sizes (See page 3 for ordering information). Prior to filtering, samples can be stored in a container to allow suspended solids to settle out. For samples where settling does not occur or is not desired, a method involving stacking filters with larger pore sizes on top of the filter membrane of the desired pore size is recommended. A common set-up is to stack a sterile 1 micron filter. This layering will filter out large debris and allow the smaller micron filter to trap microorganisms. The layered filter system can be washed with sterile water or sterile phosphate buffer to knock down some of the trapped microorganisms on the larger pore size filters. Although this is not 100% efficient, it will increase the overall yield of microbial DNA

Filter Membrane Selection

MO BIO Laboratories offers disposable filter funnels containing filter membranes commonly used for water research and testing. The 0.22 micron filter membrane consists of polyethersulfone (Pall Supor®), while the 0.45 micron filter membrane consists of cellulose acetate. Some filter membranes may bind and concentrate inhibitors. To reduce the likelihood of this occurring, filter membrane types may need to be evaluated prior to use.

Forgetting to Warm Solution PW1

If PW1 is not warmed prior to use, continue with the protocol. You will still obtain DNA, but the yields may not be optimal.

Alternate Lysis Method

Heating can aid in lysis of some organisms (fungi and algae) and lead to increased yields. At Step 5, heat the PowerWater® Bead Tube at 65°C for 10 minutes then continue with the protocol at Step 6.

If a Centrifuge for 15 ml Tubes is not Available for use with the 5 ml Tubes in Step 8

Centrifugation at this step helps to separate the supernatant from the filter membrane so that as much of the solution as possible is recovered. If a centrifuge is not available, this step can be skipped with some minor loss of supernatant.

Expected DNA Yields

DNA yields will vary depending on the type of water, sample location, and time of year. Examples of expected yields are provided as a reference. Due to diversity of water sample types, yields may fall outside of the examples provided.

Hints and Troubleshooting Guide cont.

Type of Water Sample	Sample Volume	DNA Yield (ng/µl)
Saltwater Bay	100 ml	40 - 72
Freshwater Lake	100 ml	15 - 25
Lagoon	20-100 ml	3 - 38
Ocean (coastal)	100 ml	3 - 11
Sewage influent	50 ml	95
Treated effluent	50 ml	18

Low $A_{260/230}$ Ratios are Obtained

$A_{260/230}$ readings are one measure of DNA purity. For samples with low biomass, which would lead to low DNA yields (<20 ng/µl), this ratio may fall below 1.5. This ratio is not an indicator of amplification ability or DNA integrity. Ethanol precipitation with resuspension into a smaller volume to concentrate the DNA may help to improve the $A_{260/230}$ ratio.

DNA Floats Out of Well When Loaded on a Gel

Residual PW5 Wash Buffer may be in the final sample. To ensure complete drying of the membrane after PW5, centrifuge the spin filter in a clean 2 ml Collection Tube for an additional minute.

- Ethanol precipitation is the best way to remove residual Solution PW5. (See "Concentrating the DNA" below.)
- If you live in a humid climate, you may experience increased difficulty with drying of the membrane in the centrifuge. Increase the centrifugation time at step 20 by another minute or until no visible moisture remains on the membrane.

Concentrating the DNA (no new tubes are required for this process)

Your final volume will be 100 µl. If this is too dilute for your purposes, add 5 µl of 3M Sodium Acetate and mix. Then add 2 volumes of 100% cold ethanol. Mix, and incubate at -70°C for 15 minutes or -20°C for 2 hours to overnight. Centrifuge at 10,000 x *g* for 10-15 minutes at 4°C. Decant all liquid. Briefly dry residual ethanol in a speed vac or ambient air. Avoid over-drying the pellet or resuspension may be difficult. Resuspend precipitated DNA in desired volume of 10 mM Tris (Solution PW6).

Storing DNA

DNA is eluted in 10 mM Tris (Solution PW6) and should be used immediately or stored at -20°C or -80°C to avoid degradation. DNA can be eluted in TE but the EDTA may inhibit reactions such as PCR and automated sequencing.

Cleaning of the PowerVac™ Mini Spin Filter Adapters

It is recommended to rinse the PowerVac™ Mini Spin Filter Adapters promptly after use to avoid salt build up. To clean the PowerVac™ Mini Spin Filter Adapters, rinse each adapter with DI water followed by 70% ethanol and flush into the manifold base. Alternatively, remove the adapters and wash in laboratory detergent and DI water. PowerVac™ Mini Spin Filter Adapters may be autoclaved.

Do not use bleach to clean the PowerVac™ Mini Spin Filter Adapters while attached to the PowerVac™ Manifold. Bleach should never be mixed with solutions containing guanidine and should not be used to clean the PowerVac™ Manifold. For more information on cleaning the PowerVac™ Manifold, please refer to the PowerVac™ Manifold manual.

Contact Information

Technical Support:
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For the distributor nearest you, visit our web site at www.mobio.com/distributors

Products recommended for you

For a complete list of products available from MO BIO Laboratories, Inc., visit www.mobio.com

Description	Catalog No.	Quantity
PowerWater® RNA Isolation Kit	14700-50-NF	50 preps
PowerWater® Sterivex™ DNA Isolation Kit	14600-50-NF	50 preps
Vortex-Genie® 2 Vortex	13111-V 13111-V-220	1 unit (120V) 1 unit (220V)
Vortex Adapter for Vortex Genie® 2	13000-V1-15 13000-V1-5	Holds 4 (15 or 5 ml) Tubes Holds 6 (5 ml) Tubes
PowerVac™ Manifold	11991	1 manifold
PowerVac™ Mini	11992	1 unit + 20 adapters
PowerVac™ Mini Spin Filter Adapters	11992-10 11992-20	10 adapters 20 adapters
PowerClean® DNA Clean-Up Kit	12877-50	50 preps