

DNA Isolation from Soil



PowerMax™ Soil DNA Isolation Kit

For efficiently isolating microbial DNA of high quality and purity from large quantities of soil – great for samples with low microbial load

DESCRIPTION

The PowerMax™ Soil DNA Isolation Kit* is our next-generation kit designed for processing large quantities of soil with high or low microbial load. Based on reagents from the PowerSoil™ DNA Isolation Kit, the PowerMax™ Soil DNA Isolation Kit uses a novel and proprietary method for removing PCR inhibiting compounds, including humic substances, and the brown color often associated with soil DNA. The kit is ideal for environmental samples that contain high humic substance content, including compost, sediment and manure. PCR analysis has been used to amplify DNA purified from microorganisms including Gram-positive and Gram-negative bacteria (e.g. *Bacillus subtilis*, *Bacillus anthracis*), fungi (e.g. yeasts, molds), algae, and actinomycetes (e.g. *Streptomyces*).

The PowerMax™ Soil DNA Isolation Kit increases your ability to study microbial diversity in even the most difficult sample types, such as those which contain high humic levels or low microbial load. Our 50 ml Vortex Adapter for cell lysis and a centrifuge capable of spinning 50 ml tubes are required for maximum performance.

*Patent pending

Soil Samples Tested			
Aquifer Sediment	✓	Manure	✓
Clay	✓	Marine Sediment	✓
Fecal/Intestinal Tract	✓	Oil-saturated Soil	✓
Forest	✓	Potting Soil	✓
Fungal Mat	✓	Sand	✓
Loam	✓	Sewer Sludge	✓

See our website for a complete listing

Specifications	
Format	Silica Spin Filter Tubes
Method	Bead Beating
Sample Size	Up to 10 grams
Binding Capacity	Up to 1 mg per filter
Throughput	1 - 24 samples
Time	30 minutes

RELATED PRODUCTS YOU MAY NEED

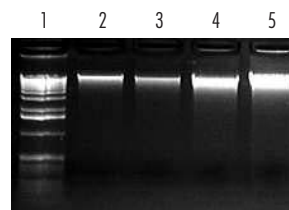
Vortex Adapter
PowerSoil™ DNA Isolation Kit
PCR Water (Certified DNA-free)

PowerMax™ Soil DNA Isolation Kit	
Catalog No.	Quantity
12988-10	10 preps



Features and Benefits

- Purifies DNA from 10 g of soil in 30 minutes - means NO time spent on multiple small sample processing
- Increases detection sensitivity on samples with a low microbial load
- Provides high quality DNA that is free of PCR inhibitors including humic substances
- Purified samples are suitable for PCR and QPCR



High Quality DNA From Samples of Varied Microbial Load

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DNA ISOLATION FROM SOIL

DNA Isolation from Soil

PowerSoil™ DNA Isolation Kit



For isolating genomic microbial DNA of the highest quality and purity from most environmental samples



Features and Benefits

- Next generation method improves PCR inhibitor removal efficiency
- Processes the largest variety of soil types, including difficult environmental samples
- Patent pending technology removes 100% of humic substances and PCR inhibitors
- Rapid protocol enables purification of DNA from 250 mg soil in 30 minutes
- Applications include biodefense, soil-borne pathogen detection, agriculture and zoology research

DESCRIPTION

The PowerSoil™ DNA Isolation Kit* is our next generation soil DNA kit, comprised of a novel and proprietary method for extracting microbial DNA from environmental samples. The isolated DNA has the highest level of purity allowing for more successful PCR and QPCR amplification of organisms from the sample. The kit is ideal for processing environmental samples containing a high humic acid content including difficult soil types such as compost, sediment, and manure. PCR analysis has been performed to detect a variety of organisms including both Gram-positive and Gram-negative bacteria (e.g. *Bacillus subtilis*, *Bacillus anthracis*), fungi (e.g. yeasts, molds), algae, actinomycetes (e.g. *Streptomyces*), and nematodes.

The PowerSoil™ DNA Isolation Kit distinguishes itself from other kits with a patent pending humic substance/brown color removal procedure that removes PCR inhibitors from even the most difficult soil types, promoting successful downstream PCR analysis. When choosing between the The PowerSoil™ DNA Isolation Kit and the UltraClean™ Soil DNA Isolation Kit, use this kit for samples that are very high in humic content.

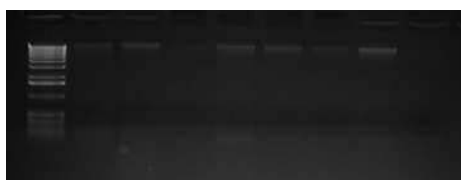
Do not let the name fool you. Our customers use this kit successfully on diverse sample types such as food (cheese, milk, meat, fruit), water, insects and fecal samples in a variety of applications including biodefense, agriculture and zoology. These soil kits are used by the USEPA, USDA, FBI, and CDC for soil analysis.

*Patent pending

M 1 2 3 4 5 6 7 8



MO BIO
PowerSoil™
DNA Isolation Kit



Company E



Company Q

Soil Sample	MO BIO	Company E	Company Q
1. Sierra Foothill	✓	-	-
2. Cultivated Coastal	✓	-	-
3. Sandy	✓	✓	-
4. Forest	✓	-	-
5. Degraded Mulch	✓	-	-
6. Amended	✓	-	✓
7. Lawn Soil	✓	-	-
8. Organically Fertilized	✓	-	-

Reliable, High Quality DNA Isolation from a Variety of Soil Types

Eight soil samples were processed using our PowerSoil™ DNA Isolation Kit, and two competitor kits. A portion of each sample was run on an agarose gel (shown in figure) and subsequently evaluated in PCR amplification (gel not shown). The chart summarizes successful (✓) and unsuccessful (–) PCR amplification results for each sample. All PowerSoil™ DNA Isolation Kit samples were successfully amplified, whereas most DNA samples purified with competitor kits showed inhibition. Agarose Gels: Lane M: DNA Marker. Lane 1-8 shows DNA isolated from various soil samples collected in California.

DNA Isolation from Soil

Specifications	PowerSoil™ DNA Isolation Kit	PowerSoil-htp™ 96 Well Soil DNA Isolation Kit
Format	Silica Spin Filter Tubes	Silica Spin Filter Plate
Method	Bead Beating	Bead Beating
Binding Capacity	Up to 20 µg per filter	Up to 20 µg per well
Sample Size	250 mg	250 mg
Throughput	1 - 24 samples	96 - 384 samples
Time	30 minutes	4 x 96 samples can be processed in less than one day
Equipment Required	Vortex Adapter	Plate centrifuge, plate shaker, manifold (optional)

Soil Samples Tested			
Aquifer Sediment	✓	Manure	✓
Clay	✓	Marine Sediment	✓
Fecal/Intestinal Tract	✓	Oil-saturated Soil	✓
Forest	✓	Potting Soil	✓
Fungal Mat	✓	Sand	✓
Loam	✓	Sewer Sludge	✓

See our website for a complete list

Clear, Clean DNA Every time



MO BIO

Other Supplier

REFERENCES:

- Mumme, D.L., Rillig, M.C., Six, J. (2006) *Soil Biology & Biochemistry* 38: 1608
- Mota, C., Head, M., Ridenoure, J., Cheng, J., and de los Reyes, F.(2005) *Applied and Environmental Microbiology* 71(12) 8565



PowerSoil-htp™ 96 Well Soil DNA Isolation Kit

For isolating high quality genomic DNA from most environmental samples including challenging soil samples in a 96 well format

DESCRIPTION

The PowerSoil-htp™ 96 Well Soil DNA Isolation Kit* uses a novel and proprietary method for isolating genomic DNA from environmental samples in a 96 well format. The kit method completely removes PCR inhibitors such as humic acid, polyphenolics and polysaccharides.

*Patent pending

RELATED PRODUCTS YOU MAY NEED

PowerMax™ Soil DNA Isolation Kit
 UltraClean™ Microbial DNA Isolation Kit
 UltraClean™ PCR Clean-Up Kit
 Precellys® 24 Homogenizer

PowerSoil™ DNA Isolation Kit	
Catalog No.	Quantity
12888-50	50 preps
12888-100	100 preps
PowerSoil-htp™ 96 Well Soil DNA Isolation Kit	
Catalog No.	Quantity
12955-4	4 x 96 preps
12955-12	12 x 96 preps

Features and Benefits

- Effective purification of DNA from 250 mg of soil
- Simultaneously process 4 plates with 96 samples each

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DNA ISOLATION FROM SOIL

DNA Isolation from Soil

UltraClean™ Soil DNA Isolation Kit



For isolating genomic DNA from routine soil and fecal samples



Features and Benefits

- Established method selectively removes most PCR inhibitors
- Rapidly purify DNA from up to one gram of soil in 30 minutes
- Yields high quality PCR ready DNA up to 50 kb plus
- Includes a proprietary Inhibitor Removal Solution to eliminate humic acid inhibitors of PCR
- Efficiently lyses spores and fungi; also compatible with fecal samples

REFERENCES:

1. A. C. Moran, A. Muller, M. Manzano & B. Gonzales (2006) *Journal of Applied Microbiology* 101(1): 26
2. R. De la Iglesia, D. Castro, R. Ginocchio, D. van der Lelie & B. Gonzales (2006) *Journal of Applied Microbiology* 100(3):537

DESCRIPTION

The UltraClean™ Soil DNA Isolation Kit* rapidly and efficiently extracts DNA from up to one gram of soil. With over 100 published references, this kit is the method of choice among researchers around the world studying microbial organisms in soil. Based on a novel method using bead beating technology, this kit isolates cellular, PCR quality DNA from soil and ensures removal of humic acid inhibitors.

*Patent pending

Positive PCR results obtained with these soil types using UltraClean™ Soil DNA Isolation Kits

Clay	✓	Loam	✓
Fecal/Intestinal Tract	✓	Petroleum-saturated	✓
Forest	✓	Potting Soil	✓
Fungal Mat	✓	Sand	✓

This is our original DNA kit – for more challenging soil samples we recommend the PowerSoil™ DNA Isolation Kit.

Specifications	UltraClean™ Soil DNA Isolation Kit	UltraClean-htp™ 96 Well Soil DNA Isolation Kit
Format	Silica Spin Filter Tubes	Silica Spin Filter Plate
Method	Bead Beating	Bead Beating
Binding Capacity	Up to 20 µg per filter	Up to 20 µg per well
Throughput	1 - 24 samples	96 - 384 samples
Time	30 minutes	4 x 96 samples can be processed in less than one day

UltraClean-htp™ 96 Well Soil DNA Isolation Kit

For high throughput isolation of DNA from up to 384 soil samples in less than one day

Features and Benefits

- Flexible format - protocols available for centrifugation or vacuum formats

RELATED PRODUCTS YOU MAY NEED

UltraClean™ 96 Well PCR Clean-Up Kit
 UltraClean™ Mega Soil DNA Isolation Kit
 UltraClean™ Fecal DNA Isolation Kit
 UltraVac™ Manifold
 96 Well Plate Shaker

DESCRIPTION

The UltraClean-htp™ 96 Well Soil DNA Isolation Kit provides the UltraClean™ soil technology in a high-throughput 96 well format. This kit requires a plate centrifuge, a 96 well plate shaker and optional UltraVac™ Manifold.

UltraClean™ Soil DNA Isolation Kit	
Catalog No.	Quantity
12800-50	50 preps
12800-100	100 preps
UltraClean-htp™ 96 Well Soil DNA Isolation Kit	
Catalog No.	Quantity
12896-4	4 x 96 preps
12896-12	12 x 96 preps

DNA Isolation from Soil



UltraClean™ Mega Soil DNA Isolation Kit

For isolating DNA from up to 10 grams of soil

DESCRIPTION

The UltraClean™ Mega Soil DNA Isolation Kit* provides researchers the ability to process larger volumes of soil, critical when microbial load is low. This reliable kit is based on a bead beating technology that offers a proprietary Inhibitor Removal Solution to remove PCR inhibitors including humic acid. The UltraClean™ Mega Soil DNA Isolation Kit has become the method of choice among researchers around the world studying microbial organisms in soil. This kit will isolate cellular, PCR quality DNA from soil and ensures removal of humic acid inhibitors. Our 50 ml Vortex Adapter for cell lysis and a centrifuge capable of spinning 50 ml tubes are required for maximum performance.

*Patent pending

Positive PCR results obtained with these soil types using UltraClean™ Mega Soil DNA Isolation Kit			
Clay	✓	Loam	✓
Fecal/Intestinal Tract	✓	Petroleum-saturated	✓
Forest	✓	Potting Soil	✓
Fungal Mat	✓	Sand	✓

This is our original mega soil DNA kit – for more challenging 10 g soil samples we recommend the PowerMax™ Soil DNA Isolation Kit.

Specifications	
Format	Silica Spin Filter Tubes
Method	Bead Beating
Binding Capacity	Up to 1 mg per filter
Throughput	1 - 8 samples
Time	50 minutes

RELATED PRODUCTS YOU MAY NEED

PowerMax™ Soil DNA Isolation Kit
 UltraClean™ Soil DNA Isolation Kit
 UltraClean™ Fecal DNA Isolation Kit
 Vortex Adapter

UltraClean™ Mega Soil DNA Isolation Kit	
Catalog No.	Quantity
12900-10	10 preps



Features and Benefits

- Purifies DNA from 5 to 10 grams of soil in 50 minutes
- Yields PCR ready DNA up to 50 kb plus
- Includes a proprietary Inhibitor Removal Solution to eliminate humic acid inhibitors of PCR
- Efficiently lyses spores and fungi and fecal samples
- Ideal for samples with low microbial load
- All tubes and reagents required are included in kit and ready to use

REFERENCES:

1. Dunfield, K.E. and G.M. King (2004) *Applied and Environmental Microbiology* 70(7): 4242
2. Rhee, S.K., X. Liu, L. Wu, S.C. Chong, X. Wan, and J. Zhou (2004) *Applied and Environmental Microbiology* 70(7): 4303

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DNA Isolation from Soil

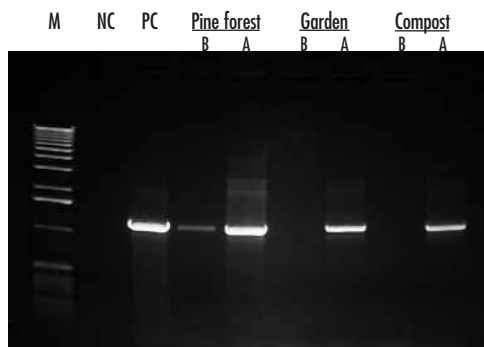
PowerClean™ DNA Clean-Up Kit

NEW Post-extraction clean up of problematic DNA



Features and Benefits

- Efficient secondary purification – cleans up your problematic archived DNA for successful PCR and QPCR amplification
- Removes challenging impurities – purifies DNA containing high amounts of humic substances, polyphenolics, polysaccharides and PCR inhibitors
- Purifies concentrated DNA and removes concentrated contaminants



Successful PCR after DNA Clean-Up

PCR was performed on DNA from various soil samples previously isolated. All samples showed successful PCR after using the PowerClean™ DNA Clean-Up Kit. M: marker, NC: negative control, PC: positive control, B lanes are before clean up, A lanes after clean up.

DESCRIPTION

The PowerClean™ DNA Clean-Up Kit provides a quick, easy and reliable secondary clean-up method to purify previously isolated genomic DNA from any source for all downstream applications. Problematic isolated DNA from soil may be amber to brown in appearance, which is an indicator of PCR inhibiting substances, like humics and polyphenols. Even colorless samples may contain PCR inhibitors which can be cleaned up with this kit. A high level of purity is achieved which allows for more successful PCR amplification from a variety of problematic samples.

DNA Sample Type	Successful Clean Up
Lagoon Sediment	✓
Pine Forest Base	✓
Compost (18 – 21")	✓
Primary sludge	✓
Activated sludge	✓
Home compost	✓

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RELATED PRODUCTS YOU MAY NEED

- PCR Water (Certified DNA-free)
- PowerSoil™ DNA Isolation Kit
- PowerMax™ Soil DNA Isolation Kit
- PowerSoil-htp™ 96 Well Soil DNA Isolation Kit

PowerClean™ DNA Clean-Up Kit	
Catalog No.	Quantity
12877-50	50 preps