MagMAX™ Pure Bind Beads

Catalog Numbers A58521, A58522, A58523

Pub. No. MAN0029780 Rev. A.0

WARNING! Read the Safety Data Sheets (SDSs) and follow the handling instructions. Wear appropriate protective eyewear, clothing, and gloves. Safety Data Sheets (SDSs) are available from **thermofisher.com/support**.

Product description

The MagMAX™ Pure Bind Beads are designed to optimize PCR cleanup by removing small fragments such as dNTP, salts, primers, and primer-dimers. It is a magnetic bead-based formulation that comes ready to use.

The technology behind the magnetic beads allows for consistent binding capacity and highly reproducible results. The PCR cleanup protocol is optimized for a higher yield of DNA fragments > 90bp. MagMAX™ Pure Bind Beads also allows for flexibility of starting sample volumes with the ability to scale. This product can seamlessly integrate into established workflows using magnetic beads for size selection and PCR cleanup. This protocol can be completed manually or on automated systems such as KingFisher™ instruments.

In addition, MagMAX™ Pure Bind Beads are also sustainable and eco-friendly. It can be shipped and stored at room temperature reducing the need for refrigeration and cutting down on lab time.

Contents and storage

Product	Cat. no.	Amount	Storage
MagMAX™ Pure Bind Beads	A58521	5 mL	Store at room temperature (15–25°C).
	A58522	50 mL	
	A58523	250 mL	

Required materials not supplied

Unless otherwise indicated, all materials are available through **thermofisher.com**. "MLS" indicates that the material is available from **fisherscientific.com** or another major laboratory supplier.

Catalog numbers that appear as links open the web pages for those products.

Item	Source
Manual and automated cleanup protocols	
Consumables	
Adhesive plate seals or foils	MLS
Adjustable micropipettors	MLS
Multichannel micropipettors	MLS
Reagent reservoirs	MLS
Reagents	
1X TE buffer (Low EDTA)	MLS
Ethanol, 200 proof	MLS
Nuclease-free water	AM9937

Item	Source
Manual cleanup protocol	
DynaMag™–96 Side Skirted Magnet	12027
MicroAmp™ Optical 96-Well Reaction Plate	N8010560[1,2]
Magnetic Stand-96	AM10027[3]
KingFisher™ 96 Deep-Well Plate	95040450B[1,3]
Automated cleanup protocol using a KingFisher™ instrument	
Equipment	
KingFisher™ Flex Purification System, KingFisher™ with 96 Deep-well Head	5400630
KingFisher™ Apex with 96 Deep Well Head	5400930
Consumables	
96 Deep-Well Tip Combs for KingFisher™ Flex Magnetic Particle Processor	97002534
KingFisher™ 96 Deep-Well Plate, Barcoded	95040450B
KingFisher™ 96 tip comb for deep-well magnets	97002534

[1] Equivalent product may be used.
[2] *For up to 60 µL of sample input.*
[3] *For > 60 µL and up to 100 µL of sample input.*

Before you begin

- Shake the MagMAX™ Pure Bind Beads bottle or vortex mix on a mini-vortex to have a well-mixed bead slurry.

  Note: Ensure there are no beads settling at the bottom of the container.
- Preparing fresh 70% ethanol before beginning the cleanup protocol is critical for optimal results.

  Note: For example, add 7 mL of 100% ethanol to 3 mL of nuclease-free water to prepare approximately 9.5 mL of 70% ethanol.
- Mix the beads well before aliquoting. Because the bead slurry is viscous, use pipette tip priming with slow aspiration and dispensing of beads.
- For PCR cleanup, beads are added at X1.8 volume of PCR sample input volume, used in purification.

Manual protocol

Manual protocol (60 µL PCR mix input)

Preparing fresh 70% ethanol before starting the cleanup protocol is crucial for optimal results.

1. In standard 96-well PCR plate (MicroAmp™ Optical 96-Well Reaction Plate or equivalent), add 108 µL of bead slurry to each well.
2. Add 60 µL of PCR mix to each well.

   Note: The recommended PCR input volume is 60 µL. However, the user can scale down the PCR sample input volume to minimum of 10 µL with bead volume scaled down accordingly. The beads are added at X1.8 volume of PCR sample input. For example, if purifying 10 µL of PCR sample then add 18 µL of bead slurry.
3. To thoroughly mix the bead slurry with the PCR mix, adjust a pipette to 150 µL then pipet up and down 10 times.

   IMPORTANT! Avoid generating excessive bubbles.

   Note: Visually inspect each well to ensure that the mixture is homogeneous.
4. Incubate the mixture for 5 minutes at room temperature.
5. After incubation, place the plate in a DynaMag™–96 Side Skirted Magnet, then wait 2 minutes or until complete separation of beads.

6. With the plate in the DynaMag™–96 Side Skirted Magnet, use a pipette adjusted to 200 µL to carefully remove the supernatant without disturbing the bead pellet.

   Note: Leaving a few µL of supernatant in each well is permissible.

7. With the plate in the DynaMag™–96 Side Skirted Magnet, add 150 µL of 70% ethanol to each well. Do not mix.

8. Carefully remove the supernatant without disturbing the pellet. Discard the supernatant.

9. Repeat step 7 and step 8 once.

10. Use a pipette adjusted to 20 µL to remove any droplets of 70% ethanol.

11. With the plate in the DynaMag™–96 Side Skirted Magnet, air dry the beads for 2 minutes.

    Note: Approximately 2 minutes of drying time is recommended. Do not allow beads to over dry.

12. Remove plate from DynaMag™–96 Side Skirted Magnet.

13. Add 40 µL of 1X TE buffer (Low EDTA) to each well then mix by pipetting up and down 10 times.

    Note: Ensure bead pellet is completely resuspended in 1X TE buffer.

14. Incubate for 2 minutes at room temperature.

15. After incubation, place the plate in the DynaMag™–96 Side Skirted Magnet then wait 2 minutes or until beads are separated.

16. Remove 20 µL of supernatant twice (total of 40 µL) without disturbing the beads then place the supernatant into a standard 96-well PCR plate (MicroAmp™ Optical 96-Well Reaction Plate or equivalent).

    IMPORTANT! Avoid any bead carry over. If any bead carry over observed, reclarify by placing plate on the DynaMag™–96 Side Skirted Magnet for 1 minute. Transfer the clear eluate to a new 96-well PCR plate.

17. Seal the 96-well PCR plate with the adhesive plate seal or foil for storage.

    Note: Samples can be stored at -20°C until downstream analysis.

Manual protocol (100 µL PCR mix input)

Preparing fresh 70% ethanol before starting the cleanup protocol is crucial for optimal results.

1. In a 96 deep-well plate (KingFisher™ 96 Deep-Well Plate or equivalent), add 180 µL of bead slurry to each well.

2. Add 100 µL of PCR mix to each well.

   Note: The user can purify PCR sample input volume ranging from 60–100 µL with following protocol, with bead volume adjusted accordingly. The beads are added at X1.8 volume of PCR sample input. For example, if purifying 80 µL of PCR sample then add 144 µL of bead slurry.

3. To thoroughly mix the bead slurry with the PCR mix, adjust a pipette to 200 µL and then pipette up and down 10 times.

   IMPORTANT! Avoid generating excessive bubbles.

   Note: Visually inspect each well to ensure that the mixture is homogeneous.

4. Incubate the mixture for 5 minutes at room temperature.

5. After incubation, place the plate in a DynaMag™–96 Side Skirted Magnet, then wait 2 minutes or until complete separation of beads.

   Note: Complete separation of beads may require an additional 2 minutes.

6. With the plate in the DynaMag–96 Side Skirted Magnet, use a pipette adjusted to 200 µL to carefully remove the supernatant without disturbing the bead pellet.

   Note: Leaving a few µL of supernatant in each well is permissible.

7. With the plate in the DynaMag™–96 Side Skirted Magnet, add 150 µL of 70% ethanol to each well. Do not mix.

8. Carefully remove the supernatant without disturbing the pellet. Discard the supernatant.

9. Repeat step 7 and step 8 once.

10. Use a pipette adjusted to 20 µL to remove any droplets of 70% ethanol.

11. With the plate in the DynaMag™–96 Side Skirted Magnet, air dry the beads for 2 minutes.

    Note: Approximately 2 minutes of drying time is recommended. Do not allow beads to over dry.

12. Remove plate from DynaMag™–96 Side Skirted Magnet.

13. Add 40 µL of 1X TE buffer (Low EDTA) to each well then mix by pipetting up and down 10 times.

    Note: Ensure bead pellet is completely resuspended in 1X TE buffer.

14. Incubate for 2 minutes at room temperature.

15. After incubation, place the plate in the DynaMag™–96 Side Skirted Magnet then wait 2 minutes or until beads are separated.

16. Remove 20 µL of supernatant twice (total of 40 µL) without disturbing the beads then place the supernatant into a standard 96-well PCR plate (MicroAmp™ Optical 96-Well Reaction Plate or equivalent).

IMPORTANT! Avoid any bead carry over. If any bead carry over observed, reclarify by placing plate on the DynaMag™–96 Side Skirted Magnet for 1 minute. Transfer the clear eluate to a new 96-well PCR plate.

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17. Seal the 96-well PCR plate with the adhesive plate seal or foil for storage.

    Note: Samples can be stored at -20°C until downstream analysis.

Automated protocol for KingFisher™ Apex instrument

Before you begin

- Download the KingFisher™ Apex **MagMaxPureBind_Apex.kfx** script from the MagMAX™ Pure Bind Beads product page at www.thermofisher.com (search by catalog number), then install on the instrument.
- Install the 96 deep well magnetic head on KingFisher™ Apex instrument.

Prepare the processing plates

Prepare bead slurry, wash, and elution plates using table below.

Table 1 Processing plate configurations

Plate name	Plate type	Reagent	Volume per well
Sample	Deep well plate	Beads	108 µL
Wash Plate 1	Standard plate	70% ethanol	150 µL
Wash Plate 2	Standard plate	70% ethanol	150 µL
Elution Plate	Standard plate	1X TE buffer (Low EDTA)	40 µL
Tip Comb	Standard plate	Place a tip comb in the plate.	

Process samples on the KingFisher™ Apex instrument

Preparing fresh 70% ethanol before starting the cleanup protocol is crucial for optimal results.

1. Add 60 µl PCR Mix to appropriate well(s) of sample plate.
2. Select then run **MagMaxPureBind_Apex.kfx** script on the instrument.
3. Start the run, then load the prepared plates in the appropriate positions when prompted by the instrument.

   Note: The instrument will scan plate and prompt the loading of the next plate.
4. Once last plate is loaded, close door on the instrument.

   Note: The run proceeds for approximately 20 minutes.
5. At the end of the run, the instrument will prompt the user to remove the plates one by one.
6. Remove the Elution plate. Discard the other plates.
7. *(Optional)* Eluate can be transferred to a MicroAmp™ Optical 96-Well Reaction Plate.
8. Seal the plate with foil for storage.

STOPPING POINT Samples can be stored at -20°C until downstream analysis.

Automated protocol for KingFisher™ Flex instrument

Before you begin

- Download the KingFisher™ Flex **MagMaxPureBind_Flex.bdz** script from the MagMAX™ Pure Bind Beads product page at **www.thermofisher.com** (search by catalog number), then install on the instrument.
- Install the 96 deep well magnetic head on KingFisher™ Flex instrument.

Prepare the processing plates

Prepare bead slurry, wash, and elution plates using table below.

Table 2 Processing plate configurations

Plate name	Plate type	Reagent	Volume per well
Sample	Deep well plate	Beads	108 µL
Wash Plate 1	Standard plate	70% ethanol	150 µL
Wash Plate 2	Standard plate	70% ethanol	150 µL
Elution Plate	Standard plate	1X TE buffer (Low EDTA)	40 µL
Tip Comb	Standard plate	Place a tip comb in the plate.	

Process samples on the KingFisher™ Flex instrument

Preparing fresh 70% ethanol before starting the cleanup protocol is crucial for optimal results.

1. Add 60 µl PCR Mix to appropriate well(s) of sample plate.
2. Select then run **MagMaxPureBind_Flex.bdz** script on the instrument.
3. Start the run, then load the prepared plates in the appropriate positions when prompted by the instrument.

   Note: The instrument will scan plate and prompt the loading of the next plate.
4. Once last plate is loaded, close door on the instrument.

   Note: The run proceeds for approximately 20 minutes.
5. At the end of the run, the instrument will prompt the user to remove the plates one by one.
6. Remove the Elution plate. Discard the other plates.
7. *(Optional)* Eluate can be transferred to a MicroAmp™ Optical 96-Well Reaction Plate.
8. Seal the plate with foil for storage.

STOPPING POINT Samples can be stored at -20°C until downstream analysis.

Limited product warranty

Life Technologies Corporation and/or its affiliate(s) warrant their products as set forth in the Life Technologies' General Terms and Conditions of Sale at **www.thermofisher.com/us/en/home/global/terms-and-conditions.html**. If you have any questions, please contact Life Technologies at **www.thermofisher.com/support**.

Thermo Fisher Scientific Baltics UAB | V.A. Graiciuno 8, LT-02241 | Vilnius, Lithuania
For descriptions of symbols on product labels or product documents, go to thermofisher.com/symbols-definition.

Revision history: Pub. No. MAN0029780

Revision	Date	Description
A.0	5 September 2023	New document for MagMAX™ Pure Bind Beads.