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1. Important safety information

The guidelines in this section explain the potential risks associated with the operation of the equipment and provide important safety information in order to minimize these risks.

To reduce potential risks associated with operating the MACS[®] Separator and to create a safe work environment observe the following general precautions. Failure to observe these precautions could result in fire, bodily harm, and/or damage to the equipment.

Retain this data sheet and any other safety and operating instructions provided with the equipment in a place accessible to all users for future reference.

At all times, local working area safety instructions, laboratory policies, and standards regarding laboratory health and safety and prevention of accidents must be adhered to. Contact your local authority governing electrical power supply, building constructions, maintenance, or safety for more information regarding the installation of the equipment.

If you have a serious concern regarding the safe use of your equipment, please contact your authorized Miltenyi Biotec service provider or call Miltenyi Biotec Customer Service.



Electricity and fire hazards

Potential risks arising from electrical devices include electric shock, short, and overheating. Electric shock may lead to severe personal injury or even death. An electric short or overheating may cause a fire. Electronic equipment might emit sparks, which could ignite combustible vapors or material resulting in explosion or fire. Do not use the equipment in areas classified as hazardous locations; for example, in oxygen-loaded environments.

The housing of the equipment is designed to reduce the risk of electric shock, electric short, and spread of fire. Do not remove or penetrate any cover. Only authorized personnel must remove the other covers of the equipment. Never push a foreign object through an opening into the equipment. Do not use the equipment if

- it is opened or disassembled,
- it has been dropped or damaged,
- it has damaged or broken parts,
- it has a damaged power cable.

If flames or smoke appear while charging the battery, immediately switch off the power supply, unplug the equipment from the electrical outlet, and contact an authorized Miltenyi Biotec service provider or Miltenyi Biotec Technical Support.

The equipment is intended for indoor use only. If fluids enter the equipment, it may lead to electric shorts, electric shock or fire. Take special care while handling fluids. Do not allow fluids to enter the interior of the equipment. Protect the equipment against accidental spillages and splashes. Clean up spillages immediately. Do not operate the equipment if liquids have spilled into the equipment. Do not use the equipment in a wet or damp location. Avoid areas with high humidity or condensation. If it is necessary to disconnect the power supply, unplug the cable from the power outlet.

The equipment should only be operated from a power source that meets the specifications mentioned on the product's electrical ratings label. If you have questions about the type of power source to use, contact your authorized Miltenyi Biotec service provider or local power company. Do not use extension cords or power strips. Do not overload an electrical outlet.



The MACS[®] Separator is equipped with an extremely powerful permanent magnet. There is a risk of severe personal injury for persons carrying pacemakers, brain shunts, or electronic medical implants. Keep any magnetic information carriers (such as credit cards, magnetic tapes, and floppy disks), any electronic equipment (such as hearing aids, pacemakers, measuring and control instruments, computers, and watches), and magnetizable tools and objects at a distance of at least 30 cm from the magnet cover. These items may be affected or damaged by the magnetic field.

2. Description

The MACS[®] Separator employs state-of-the-art technology. It is an equipment for manual separation of magnetically labeled cells using MACS[®] Technology.

Components: 1×MACS[®] Separator, 1×USB cable, 1×USB power supply.

▲ The power supply is only for charging the battery for the light, not for the magnet itself.

Storage: Store dry and at 15–35 °C. Do not store the separator under a corrosive atmosphere, for example, in a chemical hood.

Operating conditions: 15–30 °C with 0–85% humidity (non-condensing) at a maximum altitude of 2000 m.

Maintenance: The MACS[®] Separator is sensitive to aggressive media, for example, acetone and heat. Do not autoclave the separator. The separator can be cleaned with a soft cleansing tissue and a mild detergent, and disinfected using 70% ethanol.

Disposals: The MACSxpress Separator must be disposed of in accordance with the biosafety level of its use. Potentially contaminated parts must be sterilized before disposal, in accordance with local laboratory regulations. **WARNING!** Decontamination is the responsibility of the operator of the equipment. Contaminated equipments or contaminated parts of the equipment must not be sent or given to any person.



Waste of electrical and electronic equipment (WEEE) customer information

Please dispose of your end-of-life Miltenyi Biotec products in accordance with the applicable WEEE and hazardous waste disposal legislation, which may differ by country or region.

Electrical and electronic equipment may contain hazardous substances which may have a serious detrimental effect on the environment and/or human health. That is why all equipment must be specifically collected and treated by designated waste facility centres and by qualified WEEE compliance schemes. By ensuring that you dispose of your unwanted electrical and electronic equipment according to the applicable WEEE and hazardous waste disposal legislation, you are helping to preserve our natural resources and protect human health.

Miltenyi Biotec is committed to protecting the environment. Miltenyi Biotec offers product end-of-life return programs in many countries, and partners with licensed WEEE compliance schemes throughout the world. Miltenyi Biotec lets you recycle your end-of-life Miltenyi Biotec equipment free of charge. The terms and availability of this offer vary by geography because of differences in regulatory requirements. Please note that, depending on the type and use of your equipment, additional requirements may apply.

For more information, or if you wish to dispose of your end-of-life Miltenyi Biotec equipment, please contact your local Miltenyi Biotec representative or Miltenyi Biotec Technical Support.

2.1 Technical specifications

Technical specifications	
Footprint	84x75 mm
Height	110 mm
Weight	1100 g
Input voltage power supply	100–240 VAC, 50/60 Hz
Output voltage power supply	5 VDC, max. 2.1 A
Input voltage MACSxpress Separator	5 VDC, 28 mA
Battery type	NiMH, 2.4 Vdc, 150 mA
Total power consumption	< 1 W
USB port	Pin 1: + 5 V Pin 2: – Pin 3: + Pin 4: GND
Tubes	5 mL round bottom 15 mL conical tubes 50 mL conical tubes

The MACSxpress Separator is labeled as a protection class III equipment. The power supply is rated as a protection class II. The MACSxpress Separator is not specified for use in the cold room. Supply voltage fluctuations up to $\pm 10\%$ of the nominal voltage. Transient overvoltages present on the mains supply: Category II. The equipment is suitable for rated pollution degree 2.

This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.


Changes or modifications of the equipment unless expressly approved by Miltenyi Biotec may void your authority to operate the equipment pursuant to FCC 47 CFR.

The MACSxpress Separator in combination with the power supply complies with all essential requirements of the following directives:

2004/108/EC (electromagnetic compatibility)

2006/95/EC (low voltage).

It is in conformity with the following harmonized standards:

 EN 61010-1
EN 61326-1

2.2 Background information

The MACSxpress Separator is developed for the fast and untouched isolation of leukocytes from up to 30 mL anticoagulated whole blood without density gradient centrifugation. Erythrocytes are aggregated and sedimented, while non-target cells are removed by immunomagnetic depletion with MACSxpress Beads. The tube containing the labeled sample is placed in the magnetic field of the MACSxpress Separator. The magnetically labeled cells will adhere to the wall of the tube while the aggregated erythrocytes sediment to the bottom. While the tube is still inside the MACSxpress Separator, the supernatant containing the non-labeled target cells can be carefully pipetted into a fresh tube.

2.3 Applications

- The MACSxpress Separator allows the performance of up to 30 mL whole blood in one isolation step.

For details about the magnetic separation procedure refer to the respective MACSxpress Isolation Kit data sheets.

3. Instructions for use

Charging batteries

Before using the MACSxpress® Separator please fully charge the integrated NiMH battery. To charge the battery, connect the MACSxpress Separator to the power supply using the provided cable. Plug the power supply into an appropriate electrical outlet. The LED on the MACSxpress Separator indicates the battery charge status. Use the MACSxpress Separator only with the enclosed power supply. For further details refer to chapter 1.

Green LED is blinking: battery is being charged.

Green LED is permanently on: battery is fully charged.

▲ **Note:** The MACSxpress Separator can be operated permanently with the power supply.

Switching the light on and off

Switch the light on and off by pressing the touch button labeled IO for a few seconds. The light will be turned off automatically after 4 minutes.

Battery status during operation

When the battery power is low, the LED will flash red while the light is switched on. If the LED does not show a signal while the light is switched on, the battery power is fine.

▲ The magnetic force is not influenced by the battery. Battery is only for light function.

For other safety considerations, refer to the product label or visit www.miltenyibiotec.com.

Design and specifications are subject to change without notice.

Magnetic isolation

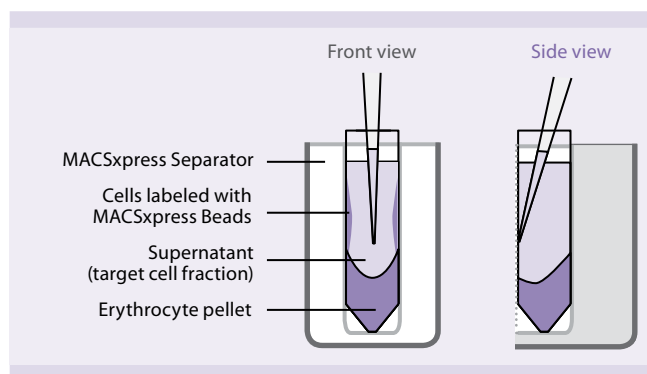


Figure 1: Front and side view of the MACSxpress Separator containing a separated blood sample in a 50 mL tube.

1. Position the MACSxpress Separator stable on a laboratory bench.
2. Open tube containing the labeled sample and if necessary remove air bubbles on top of the sample.
3. Place open tube in the magnetic field of the MACSxpress Separator for 15 minutes. The magnetically labeled cells will adhere to the wall of the tube while the aggregated erythrocytes sediment to the bottom.
4. While the tube is still inside the MACSxpress Separator, carefully pipette supernatant containing the non-labeled target cells into a new tube. For further details please refer to the respective MACSxpress Isolation Kit data sheet.

All protocols and data sheets are available at www.miltenyibiotec.com.

Warranty

The products sold hereunder are warranted only to be free from defects in workmanship and material at the time of delivery to the customer. Miltenyi Biotec GmbH makes no warranty or representation, either expressed or implied, with respect to the fitness of a product for a particular purpose. There are no warranties, expressed or implied, which extend beyond the technical specifications of the products. Miltenyi Biotec GmbH's liability is limited to either replacement of the products or refund of the purchase price. Miltenyi Biotec GmbH is not liable for any property damage, personal injury or economic loss caused by the product.

For support and technical questions, please contact your local Miltenyi Biotec representative or Miltenyi Biotec Technical Support.

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