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## 1. Description

<b>Components</b>	1 mL μMACS™ Sealing Solution: >99% n-paraffinic hydrocarbon.
<b>Size</b>	For approximately 950 μ Column seals.
<b>Storage</b>	Store protected from light at room temperature. Do not freeze. The expiration date is indicated on the vial label.

### 1.1 Principle of the μMACS™ Technology

The μMACS™ Technology allows the combined isolation and enzymatic treatment of biomolecules. For the magnetic purification, the biomolecules have to be labeled with target specific μMACS MicroBeads, that are optimized for the isolation of biomolecules, such as DNA, RNA, or proteins. Afterwards the labeled molecules are separated in a μ Column placed in the strong magnetic field of a μMACS or thermoMACS™ Separator. The thermoMACS Separator is a heatable magnetic separator, allowing molecular biological reactions to be carried out at temperatures of 37 °C or 42 °C covering most enzymatic reaction conditions in molecular biology applications. While the molecule is immobilized on the column it can be incubated with an enzymatic solution. After the reaction, buffer and reaction components can be easily and efficiently washed out, thereby allowing serial reactions to be carried out in a single μ Column. Expensive and time-consuming purification in between single enzyme reactions is not necessary. Consequently, there is no loss of biomolecules due to the transfer from one tube to the next. Furthermore, enzymes may be immobilized on the column. This allows the enzymatic modification of substrates and subsequent elution of these while the enzyme remains on the column.

### 1.2 Background information

The μMACS Sealing Solution is a unique solution that creates a closed reaction chamber in the μ Column, thereby preventing evaporation of the reaction mixture at reaction temperatures above room temperature. For reactions at 37 °C or 42 °C in a μ Column in the thermoMACS Separator the μMACS Sealing Solution should be applied.

### 1.3 Reagent and instrument requirements

- Reagents required depend on the application. Please refer to product specific data sheet.
- μMACS Columns (# 130-042-701) and thermoMACS Separator (# 130-091-136):  
The μMACS Sealing Solution should be applied on μ Columns when working at elevated temperatures as provided in the thermoMACS Separator.

## 2. Application of μMACS™ Sealing Solution

▲ Generally, the μMACS™ Sealing Solution only needs to be applied once. It stays on top of the column matrix and does not enter the matrix, because it has a density lower than that of the buffers used. When buffer is applied on top of a sealed column, the μMACS Sealing Solution lets the buffer pass into the matrix and seals the surface again. However, the function of the μMACS Sealing Solution can be impaired when working with detergents or other amphipathic substances.

▲ The μMACS Sealing Solution does not interfere with the immobilized biomolecules in the column reaction chamber nor does it contaminate the elution fraction as long as working with detergents or other amphipathic substances is avoided.

▲ If amphipathic substances including fatty acids, phospholipids, and detergents, especially ionic detergents like SDS, are used after sealing the column with the μMACS Sealing Solution, the effectiveness of the sealing may be compromised. For additional incubation steps we recommend applying a further 1 μL of the μMACS Sealing Solution.

1. Apply the reaction solution to the heated μ Column in the pre-heated thermoMACS.

▲ **Note:** Use of pre-heated solution is recommended.

2. Apply 1 μL of the μMACS Sealing Solution on top of the column matrix.

▲ **Note:** Make sure to pipette the μMACS Sealing Solution directly onto the iron sphere matrix in the μ Column so that it can spread and completely cover the surface of the matrix. If the μMACS Sealing Solution is applied only on the side wall of the column reservoir it will not run down to the matrix due to its small volume. The volume of the applied μMACS Sealing Solution should not exceed 2 μL.

Refer to [www.miltenyibiotec.com](http://www.miltenyibiotec.com) for all data sheets and protocols. Miltenyi Biotec provides technical support worldwide. Visit [www.miltenyibiotec.com/local](http://www.miltenyibiotec.com/local) to find your nearest Miltenyi Biotec contact.

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