



# Thermo Scientific Small Benchtop Rotors

for Thermo Scientific Megafuge 8 / 8R,

Sorvall ST 8 / 8R and SL 8 / 8R Centrifuges

## Instruction Manual

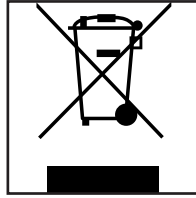
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## WEEE Compliance

This product is required to comply with the European Union's Waste Electrical & Electronic Equipment (WEEE) Directive 2012/19/EU. It is marked with the following symbol:



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## Preface

Before starting to use a rotor, read through this instruction manual carefully and follow the instructions.

Failure to follow the instructions and safety information in this instruction manual will result in the expiration of the sellers warranty.

## Intended Use

This centrifuge is a laboratory product used to separate substance mixtures of different densities.

This centrifuge has to be operated by trained specialists only.

## Precautions

In order to ensure safe operation of these Thermo Scientific small benchtop rotors, the following general safety regulations must be followed:

- Do not remove any components of the rotor.
- Do not use rotors which show any signs of corrosion and/or cracks. Do not touch the electronic components of the centrifuge and do not make any changes to the electronic or mechanical components.
- Use only with rotors which have been loaded properly.
- Never overload these rotors.
- Use only accessories which have been approved by Thermo Fisher Scientific. Exceptions to this rule are commercially available glass or plastic centrifuge tubes, provided they have been approved for the speed or the RCF value of the rotor.
- Observe the safety instructions.

Pay particular attention to the following aspects:

- Rotor installation: Check that the rotor is locked properly into place before operating the centrifuge.
- Always balance the samples.

Maximum sample density at maximum speed:  $1.2 \frac{g}{cm^3}$

## Symbols Used in the manual



This symbol refers to general hazards.

CAUTION means that material damage could occur.

WARNING means that injuries or material damage or contamination could occur.



This symbol refers to biological hazards.

Observe the information contained in the instruction manual to keep yourself and your environment safe.

# 1

## Thermo Scientific Rotor Specifications

There are several Thermo Scientific™ small benchtop rotors available for the Thermo Scientific Megafuge™ 8 / 8R centrifuge, the Thermo Scientific Sorvall™ ST 8 / 8R centrifuge and the Thermo Scientific SL 8 / 8R centrifuge.

| Thermo Scientific Rotors                                           | Article No. |
|--------------------------------------------------------------------|-------------|
| <b>TX-150</b> swinging bucket rotor                                | 75005701    |
| TX-150 round buckets                                               | 75005702    |
| TX-150 50mL conical buckets                                        | 75005703    |
| <b>TX-100S</b> clinical swinging bucket rotor with sealed carriers | 75005704    |
| <b>TX-100</b> clinical swinging bucket rotor with carriers         | 75005705    |
| <b>M10</b> microplate swinging bucket rotor                        | 75005706    |
| M10 buckets                                                        | 75005723    |
| M10 sealed buckets                                                 | 75005721    |
| <b>MT-12</b> microtube swinging bucket rotor                       | 75005600    |
| <b>HIGHConic III</b> fixed angle rotor                             | 75005709    |
| <b>CLINIConic</b> fixed angle rotor                                | 75003623    |
| <b>MicroClick 18 x 5</b> microtube rotor                           | 75005765    |
| <b>MicroClick 24 x 2</b> microtube rotor                           | 75005715    |
| <b>MicroClick 30 x 2</b> microtube rotor                           | 75005719    |
| <b>Microliter 48 x 2</b> microtube rotor                           | 75003602    |
| <b>8 x 8 PCR Strip</b> rotor                                       | 75005720    |
| <b>8 x 50 mL Individually Sealed</b> rotor                         | 75003694    |
| <b>Hematocrit</b> rotor*                                           | 75005733    |

\* Look at the separate Thermo Scientific Hematocrit Rotor Instruction Manual for specific data and instructions.

# TX-150

## Items Supplied

| Article No. | Item                | Quantity |
|-------------|---------------------|----------|
| 75005701    | <b>TX-150 Rotor</b> | 1        |
| 75003786    | Bolt Grease         | 1        |
| 50139640    | Instruction Manual  | 1        |

If any parts are missing, please contact the nearest Thermo Fisher Scientific representative.

## Technical Data

### TX-150 with round buckets



| Megafuge 8R, Sorvall ST 8R and SL 8R Centrifuges                                        |                                    |                 |                                    |
|-----------------------------------------------------------------------------------------|------------------------------------|-----------------|------------------------------------|
| Centrifuge Frequency                                                                    | 230 V                              | 120 V           | 100 V                              |
| Weight (empty)                                                                          | 2.9 kg                             | 2.9 kg          | 2.9 kg                             |
| Maximum Permissible Load                                                                | 4 x 190 g                          | 4 x 190 g       | 4 x 190 g                          |
| Maximum Speed $n_{max}$                                                                 | 4500 rpm                           | 4500 rpm        | 4500 rpm                           |
| Maximum RCF-Value at $n_{max}$                                                          | 3260 x g                           | 3260 x g        | 3260 x g                           |
| K-Factor at $n_{max}$                                                                   | 12968                              | 12968           | 12968                              |
| Max. Cycle Number                                                                       | 50000                              | 50000           | 50000                              |
| Radius max. / min.                                                                      | 144 mm / 51 mm                     | 144 mm / 51 mm  | 144 mm / 51 mm                     |
| Angle                                                                                   | 90°                                | 90°             | 90°                                |
| Acceleration / Braking Time                                                             | 20 s / 30 s                        | 20 s / 30 s     | 20 s / 30 s                        |
| Maximum Speed at 4 °C                                                                   | 50 Hz: 4500 rpm<br>60 Hz: 4500 rpm | 60 Hz: 4500 rpm | 50 Hz: 4500 rpm<br>60 Hz: 4500 rpm |
| Sample Temperature at Max. Speed<br>(Ambient temperature of 23 °C, run time 90 minutes) | 50 Hz: < 4 °C<br>60 Hz: < 4 °C     | 60 Hz: < 4 °C   | 50 Hz: < 4 °C<br>60 Hz: < 4 °C     |
| Aerosol-tight                                                                           | Optional                           | Optional        | Optional                           |
| Permissible Temperature Range Autoclavable                                              | 121 °C                             | 121 °C          | 121 °C                             |

| Megafuge 8, Sorvall ST 8 and SL 8 Centrifuges                                           |                |                |                |
|-----------------------------------------------------------------------------------------|----------------|----------------|----------------|
| Centrifuge Frequency                                                                    | 230 V          | 120 V          | 100 V          |
| Weight (empty)                                                                          | 2.9 kg         | 2.9 kg         | 2.9 kg         |
| Maximum Permissible Load                                                                | 4 x 190 g      | 4 x 190 g      | 4 x 190 g      |
| Maximum Speed $n_{\max}$                                                                | 4500 rpm       | 4500 rpm       | 4500 rpm       |
| Maximum RCF-Value at $n_{\max}$                                                         | 3260 x g       | 3260 x g       | 3260 x g       |
| K-Factor at $n_{\max}$                                                                  | 12968          | 12968          | 12968          |
| Max. Cycle Number                                                                       | 50000          | 50000          | 50000          |
| Radius max. / min.                                                                      | 144 mm / 51 mm | 144 mm / 51 mm | 144 mm / 51 mm |
| Angle                                                                                   | 90°            | 90°            | 90°            |
| Acceleration / Braking Time                                                             | 12 s / 18 s    | 13 s / 19 s    | 13 s / 19 s    |
| Sample Temperature at $n_{\max}$<br>(Ambient temperature of 23 °C, run time 60 minutes) | 5 °C           | 5 °C           | 5 °C           |
| Aerosol-tight                                                                           | Yes            | Yes            | Yes            |
| Permissible Temperature Range Autoclavable                                              | 121 °C         | 121 °C         | 121 °C         |

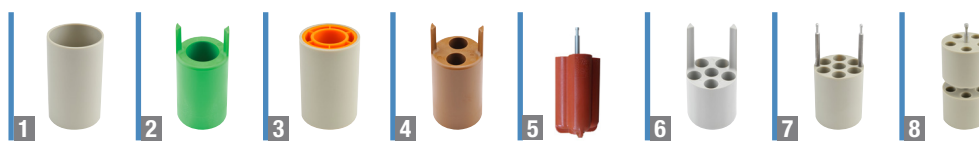
TX-150 with conical buckets



| Megafuge 8R, Sorvall ST 8R and SL 8R Centrifuges                                       |                                    |                 |                                    |
|----------------------------------------------------------------------------------------|------------------------------------|-----------------|------------------------------------|
| Centrifuge Frequency                                                                   | 230 V                              | 120 V           | 100 V                              |
| Weight (empty)                                                                         | 2.9 kg                             | 2.9 kg          | 2.9 kg                             |
| Maximum Permissible Load                                                               | 4 x 150 g                          | 4 x 150 g       | 4 x 150 g                          |
| Maximum Speed $n_{max}$                                                                | 4500 rpm                           | 4500 rpm        | 4500 rpm                           |
| Maximum RCF-Value at $n_{max}$                                                         | 3260 x g                           | 3260 x g        | 3260 x g                           |
| K-Factor at $n_{max}$                                                                  | 14532                              | 14532           | 14532                              |
| Max. Cycle Number                                                                      | 50000                              | 50000           | 50000                              |
| Radius max. / min.                                                                     | 144 mm / 45 mm                     | 144 mm / 45 mm  | 144 mm / 45 mm                     |
| Angle                                                                                  | 90°                                | 90°             | 90°                                |
| Acceleration / Braking Time                                                            | 20 s / 30 s                        | 20 s / 30 s     | 20 s / 30 s                        |
| Maximum Speed at 4 °C                                                                  | 50 Hz: 4500 rpm<br>60 Hz: 4500 rpm | 60 Hz: 4500 rpm | 50 Hz: 4500 rpm<br>60 Hz: 4500 rpm |
| Sample Temperature at $n_{max}$<br>(Ambient temperature of 23 °C, run time 60 minutes) | 50 Hz: < 4 °C<br>60 Hz: < 4 °C     | 60 Hz: < 4 °C   | 50 Hz: < 4 °C<br>60 Hz: < 4 °C     |
| Aerosol-tight                                                                          | Optional                           | Optional        | Optional                           |
| Permissible Temperature Range Autoclavable                                             | 121 °C                             | 121 °C          | 121 °C                             |

| Megafuge 8, Sorvall ST 8 and SL 8 Centrifuges                                           |                |                |                |
|-----------------------------------------------------------------------------------------|----------------|----------------|----------------|
| Centrifuge Frequency                                                                    | 230 V          | 120 V          | 100 V          |
| Weight (empty)                                                                          | 2.9 kg         | 2.9 kg         | 2.9 kg         |
| Maximum Permissible Load                                                                | 4 x 150 g      | 4 x 150 g      | 4 x 150 g      |
| Maximum Speed $n_{\max}$                                                                | 4500 rpm       | 4500 rpm       | 4500 rpm       |
| Maximum RCF-Value at $n_{\max}$                                                         | 3260 x g       | 3260 x g       | 3260 x g       |
| K-Factor at $n_{\max}$                                                                  | 14532          | 14532          | 14532          |
| Max. Cycle Number                                                                       | 50000          | 50000          | 50000          |
| Radius max. / min.                                                                      | 144 mm / 45 mm | 144 mm / 45 mm | 144 mm / 45 mm |
| Angle                                                                                   | 90°            | 90°            | 90°            |
| Acceleration / Braking Time                                                             | 12 s / 18 s    | 13 s / 19 s    | 13 s / 19 s    |
| Sample Temperature at $n_{\max}$<br>(Ambient temperature of 23 °C, run time 60 minutes) | 7 °C           | 7 °C           | 7 °C           |
| Aerosol-tight                                                                           | No             | No             | No             |
| Permissible Temperature Range Autoclavable                                              | 121 °C         | 121 °C         | 121 °C         |

## Accessories



| Article No.                                    | Description                                                                                                                                                                                                         | Rotor Capacity<br>(places x<br>volume, mL)          | Max Tube<br>Dimensions<br>(Ø x L, mm) |            |
|------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|---------------------------------------|------------|
| 75005703                                       | 50 mL Conical Buckets (unsealed, no adapter needed) (set of 4)                                                                                                                                                      | 8 x 50                                              | 29.5 x 120                            |            |
| 75005702                                       | Round Buckets (set of 4)                                                                                                                                                                                            | 4 x 145                                             | 50 x 100                              |            |
| 75005707                                       | Click Seal Biocontainment Lids for Round Buckets (set of 4)                                                                                                                                                         |                                                     |                                       |            |
| 75005724                                       | Replacement O-rings for Lids (set of 4)                                                                                                                                                                             |                                                     |                                       |            |
| Adapters for 50 mL Conical Buckets (sets of 2) |                                                                                                                                                                                                                     |                                                     |                                       |            |
| 75005808                                       | 15 mL Conical Tube                                                                                                                                                                                                  | 8 x 15                                              | 17 x 123                              |            |
| Adapters for Round Buckets (sets of 4)         |                                                                                                                                                                                                                     |                                                     |                                       |            |
| Direct fit                                     | 145 mL Bottle (75005734)                                                                                                                                                                                            | 4 x 145                                             | 50 x 100                              |            |
| 1                                              | 75005735                                                                                                                                                                                                            | 100 mL Round Bottom Open-Top Tube                   | 4 x 100                               | 45 x 117   |
| 2                                              | 75005736                                                                                                                                                                                                            | 50 mL Conical or Skirted Tube                       | 4 x 50                                | 29.5 x 120 |
| 3                                              | 75005744                                                                                                                                                                                                            | 30 mL Sterilin™ Universal Container                 | 4 x 30                                | 25 x 120   |
| 4                                              | 75005737                                                                                                                                                                                                            | 15 mL Conical Tube                                  | 8 x 15                                | 17 x 122   |
| 4                                              | 75005737                                                                                                                                                                                                            | 11 mL IVF Tube                                      | 8 x 11                                | 17 x 122   |
| 5                                              | 75003504                                                                                                                                                                                                            | 13 mL Urine Tube                                    | 16 x 13                               | 17 x 110   |
| 5                                              | 75003504                                                                                                                                                                                                            | 12 mL Blood Collection Tube (Greiner™)              | 16 x 12                               | 17 x 110   |
| 5                                              | 75003504                                                                                                                                                                                                            | 10 mL Blood Collection or 15 mL Corex™/Kimble™ Tube | 16 x 15                               | 17 x 110   |
| 6                                              | 75005739                                                                                                                                                                                                            | 5/7 mL Blood Collection Tube                        | 24 x 5/7                              | 13 x 110   |
| 7                                              | 75005740                                                                                                                                                                                                            | 3/5 mL Blood Collection Tube or Cryotube            | 28 x 3/5                              | 13 x 110   |
| 8                                              | 75005743                                                                                                                                                                                                            | 1.5/2 mL Microtube (or Microtainer™ tube)           | 40 x 2                                | 11 x 65    |
| Rotor Packages                                 |                                                                                                                                                                                                                     |                                                     |                                       |            |
| 75005760                                       | Cell Culture Package,<br>INCLUDES: TX-150 Rotor (75005701), Round Buckets (75005702),<br>Adapters for 50 mL Conical Tubes (75005736)                                                                                | 4 x 50                                              | 29.5 x 120                            |            |
| 75005761                                       | High Capacity Cell Culture Package,<br>INCLUDES: TX-150 Rotor (75005701), Conical Buckets (75005703),<br>Adapters for 15 mL Conical Tubes (75005808)                                                                | 8 x 50                                              | 18 x 124                              |            |
| 75005762                                       | Clinical Rotor Package,<br>INCLUDES: TX-150 Rotor (75005701), Round Buckets (75005702),<br>ClickSeal Biocontainment Lids (75005707), Adapters for Blood<br>Collection Tubes: 5/7 mL (75005739) and 10 mL (75005738) | 24 x 5/7                                            | 18 x 124                              |            |

## Biocontainment Certificate

Health Protection Agency  
Microbiology Services  
Porton Down  
Salisbury  
Wiltshire  
SP4 0JG



### Certificate of Containment Testing

#### Containment Testing of 75005702 Bucket and 75005707 Cap in a Swing-out Rotor in a Thermo Scientific Centrifuge

**Report No. 194-12 E**

**Report Prepared For:** Thermo Fisher Scientific

**Issue Date:** 31<sup>st</sup> October 2012

#### Test Summary

A 75005702 bucket and 75005707 cap in a swing-out rotor was containment tested in a Thermo Scientific centrifuge at 4,500 rpm, using Annex AA of IEC 61010-2-020:2006 (2<sup>nd</sup> Ed.). The sealed rotor was shown to contain all contents.

|                                                                                                                                                                                  |                                                                                                                                                                                                  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Report Written By</b><br><br><b>Name:</b> Ms Anna Moy<br><b>Title:</b> Biosafety Scientist | <b>Report Authorised By</b><br><br><b>Name:</b> Mrs Sara Speight<br><b>Title:</b> Senior Biosafety Scientist |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Thermo Scientific is a trademark of Thermo Fisher Scientific and is registered with the USPTO.

# TX-100S

## Items Supplied



| Article No. | Item                 | Quantity |
|-------------|----------------------|----------|
| 75005704    | <b>TX-100S Rotor</b> | 1        |
| 75003786    | Bolt Grease          | 1        |
| 50139640    | Instruction Manual   | 1        |
| 20059135    | Carriers             | 4        |
| 50110911    | Metal Sleeves        | 8        |
| 50110924    | Biocontainment Lids  | 8        |
| 20059364    | O-Rings              | 8        |
| 76001803    | Rubber Pads          | 8        |

If any parts are missing, please contact the nearest Thermo Fisher Scientific representative.

## Technical Data

| Megafuge 8R, Sorvall ST 8R and SL 8R Centrifuges                                       |                                    |                 |                                    |
|----------------------------------------------------------------------------------------|------------------------------------|-----------------|------------------------------------|
| Centrifuge Frequency                                                                   | 230 V                              | 120 V           | 100 V                              |
| Weight (empty)                                                                         | 3.1 kg                             | 3.1 kg          | 3.1 kg                             |
| Maximum Permissible Load                                                               | 8 x 25 g                           | 8 x 25 g        | 8 x 25 g                           |
| Maximum Speed $n_{max}$                                                                | 4500 rpm                           | 4500 rpm        | 4500 rpm                           |
| Maximum RCF-Value at $n_{max}$                                                         | 3260 x g                           | 3260 x g        | 3260 x g                           |
| K-Factor at $n_{max}$                                                                  | 14813                              | 14813           | 14813                              |
| Max. Cycle Number                                                                      | 50000                              | 50000           | 50000                              |
| Radius max. / min.                                                                     | 144 mm / 45 mm                     | 144 mm / 45 mm  | 144 mm / 45 mm                     |
| Angle                                                                                  | 90°                                | 90°             | 90°                                |
| Acceleration / Braking Time                                                            | 20 s / 30 s                        | 20 s / 30 s     | 20 s / 30 s                        |
| Maximum Speed at 4 °C                                                                  | 50 Hz: 4500 rpm<br>60 Hz: 4500 rpm | 60 Hz: 4500 rpm | 50 Hz: 4500 rpm<br>60 Hz: 4500 rpm |
| Sample Temperature at $n_{max}$<br>(Ambient temperature of 23 °C, run time 60 minutes) | 50 Hz: < 4 °C<br>60 Hz: < 4 °C     | 60 Hz: < 4 °C   | 50 Hz: < 4 °C<br>60 Hz: < 4 °C     |
| Aerosol-tight                                                                          | Optional                           | Optional        | Optional                           |
| Permissible Temperature Range Autoclavable                                             | 121 °C                             | 121 °C          | 121 °C                             |

| Megafuge 8, Sorvall ST 8 and SL 8 Centrifuges                                           |                |                |                |
|-----------------------------------------------------------------------------------------|----------------|----------------|----------------|
| Centrifuge Frequency                                                                    | 230 V          | 120 V          | 100 V          |
| Weight (empty)                                                                          | 3.1 kg         | 3.1 kg         | 3.1 kg         |
| Maximum Permissible Load                                                                | 8 x 25 g       | 8 x 25 g       | 8 x 25 g       |
| Maximum Speed $n_{\max}$                                                                | 4500 rpm       | 4500 rpm       | 4500 rpm       |
| Maximum RCF-Value at $n_{\max}$                                                         | 3260 x g       | 3260 x g       | 3260 x g       |
| K-Factor at $n_{\max}$                                                                  | 14258          | 14258          | 14258          |
| Max. Cycle Number                                                                       | 50000          | 50000          | 50000          |
| Radius max. / min.                                                                      | 144 mm / 44 mm | 144 mm / 44 mm | 144 mm / 44 mm |
| Angle                                                                                   | 90°            | 90°            | 90°            |
| Acceleration / Braking Time                                                             | 12 s / 18 s    | 13 s / 19 s    | 13 s / 19 s    |
| Sample Temperature at $n_{\max}$<br>(Ambient temperature of 23 °C, run time 60 minutes) | 7 °C           | 7 °C           | 7 °C           |
| Aerosol-tight                                                                           | Yes            | Yes            | Yes            |
| Permissible Temperature Range Autoclavable                                              | 121 °C         | 121 °C         | 121 °C         |

## Accessories

| Article No.                                | Description                               | Rotor Capacity<br>(places x volume, mL) | Max Tube Dimensions<br>(Ø x L, mm) |
|--------------------------------------------|-------------------------------------------|-----------------------------------------|------------------------------------|
| Adapters for TX-100S Clinical Rotor (each) |                                           |                                         |                                    |
| 11172596                                   | 5/7 mL BD Hemogard™/BD Vacutainer™ Tube   | 16/8 x 5/7                              | 13 x 110                           |
| 11172595                                   | 5 mL BD Hemogard Tube                     | 16/8 x 5                                | 13 x 75                            |
| 11172287                                   | 3 mL Blood Collection Tube                | 16/8 x 3                                | 11 x 70                            |
| 11172288                                   | 1.5/2 mL Microtube (or Microtainer™ tube) | 16/8 x 1.5/2                            | 10 x 41                            |

## Biocontainment Certificate

Health Protection Agency  
Microbiology Services  
Porton Down  
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SP4 0JG



### Certificate of Containment Testing

#### Containment Testing of 50110911 Tube and 50110924 Cap in a Swing-out Rotor in a Thermo Scientific Centrifuge

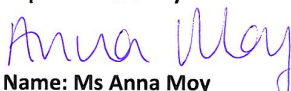
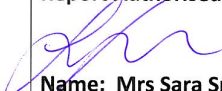
**Report No. 194-12 F**

**Report Prepared For:** Thermo Fisher Scientific

**Issue Date:** 31<sup>st</sup> October 2012

#### Test Summary

A 50110911 tube and 50110924 cap in a swing-out rotor was containment tested in a Thermo Scientific centrifuge at 4,500 rpm, using Annex AA of IEC 61010-2-020:2006 (2<sup>nd</sup> Ed.). The sealed rotor was shown to contain all contents.

|                                                                                                                                                                                  |                                                                                                                                                                                                  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Report Written By</b><br><br><b>Name:</b> Ms Anna Moy<br><b>Title:</b> Biosafety Scientist | <b>Report Authorised By</b><br><br><b>Name:</b> Mrs Sara Speight<br><b>Title:</b> Senior Biosafety Scientist |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

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# TX-100

## Items Supplied



| Article No. | Item                | Quantity |
|-------------|---------------------|----------|
| 75005705    | <b>TX-100 Rotor</b> | 1        |
| 75003786    | Bolt Grease         | 1        |
| 50139640    | Instruction Manual  | 1        |
| 20059134    | Carriers            | 4        |
| 50110904    | Metal Sleeves       | 16       |
| 76001803    | Rubber Pads         | 16       |

If any parts are missing, please contact the nearest Thermo Fisher Scientific representative.

## Technical Data

| Megafuge 8R, Sorvall ST 8R and SL 8R Centrifuges                                       |                                    |                 |                                    |
|----------------------------------------------------------------------------------------|------------------------------------|-----------------|------------------------------------|
| Centrifuge Frequency                                                                   | 230 V                              | 120 V           | 100 V                              |
| Weight (empty)                                                                         | 3.3 kg                             | 3.3 kg          | 3.3 kg                             |
| Maximum Permissible Load                                                               | 16 x 25 g                          | 16 x 25 g       | 16 x 25 g                          |
| Maximum Speed $n_{max}$                                                                | 4500 rpm                           | 4500 rpm        | 4500 rpm                           |
| Maximum RCF-Value at $n_{max}$                                                         | 3260 x g                           | 3260 x g        | 3260 x g                           |
| K-Factor at $n_{max}$                                                                  | 14258                              | 14258           | 14258                              |
| Max. Cycle Number                                                                      | 50000                              | 50000           | 50000                              |
| Radius max. / min.                                                                     | 144 mm / 46 mm                     | 144 mm / 46 mm  | 144 mm / 46 mm                     |
| Angle                                                                                  | 90°                                | 90°             | 90°                                |
| Acceleration / Braking Time                                                            | 20 s / 30 s                        | 20 s / 30 s     | 20 s / 30 s                        |
| Maximum Speed at 4 °C                                                                  | 50 Hz: 4500 rpm<br>60 Hz: 4500 rpm | 60 Hz: 4500 rpm | 50 Hz: 4500 rpm<br>60 Hz: 4500 rpm |
| Sample Temperature at $n_{max}$<br>(Ambient temperature of 23 °C, run time 60 minutes) | 50 Hz: < 4 °C<br>60 Hz: < 4 °C     | 60 Hz: < 4 °C   | 50 Hz: < 4 °C<br>60 Hz: < 4 °C     |
| Aerosol-tight                                                                          | No                                 | No              | No                                 |
| Permissible Temperature Range Autoclavable                                             | 121 °C                             | 121 °C          | 121 °C                             |

| Megafuge 8, Sorvall ST 8 and SL 8 Centrifuges                                           |                |                |                |
|-----------------------------------------------------------------------------------------|----------------|----------------|----------------|
| Centrifuge Frequency                                                                    | 230 V          | 120 V          | 100 V          |
| Weight (empty)                                                                          | 3.3 kg         | 3.3 kg         | 3.3 kg         |
| Maximum Permissible Load                                                                | 16 x 25 g      | 16 x 25 g      | 16 x 25 g      |
| Maximum Speed $n_{\max}$                                                                | 4500 rpm       | 4500 rpm       | 4500 rpm       |
| Maximum RCF-Value at $n_{\max}$                                                         | 3260 x g       | 3260 x g       | 3260 x g       |
| K-Factor at $n_{\max}$                                                                  | 14258          | 14258          | 14258          |
| Max. Cycle Number                                                                       | 50000          | 50000          | 50000          |
| Radius max. / min.                                                                      | 144 mm / 46 mm | 144 mm / 46 mm | 144 mm / 46 mm |
| Angle                                                                                   | 90°            | 90°            | 90°            |
| Acceleration / Braking Time                                                             | 12 s / 18 s    | 13 s / 19 s    | 13 s / 19 s    |
| Sample Temperature at $n_{\max}$<br>(Ambient temperature of 23 °C, run time 60 minutes) | 7 °C           | 7 °C           | 7 °C           |
| Aerosol-tight                                                                           | No             | No             | No             |
| Permissible Temperature Range Autoclavable                                              | 121 °C         | 121 °C         | 121 °C         |

## Accessories

| Article No.                      | Description                               | Rotor Capacity<br>(places x volume, mL) | Max Tube Dimensions<br>(Ø x L, mm) |
|----------------------------------|-------------------------------------------|-----------------------------------------|------------------------------------|
| Adapters for TX-100 Rotor (each) |                                           |                                         |                                    |
| Direct fit                       | 13 mL Urine Tube                          | 16/8 x 13                               | 17 x 110                           |
| 11172596                         | 5/7 mL BD Hemogard™/BD Vacutainer™ Tube   | 16/8 x 5/7                              | 13 x 110                           |
| 11172595                         | 5 mL BD Hemogard Tube                     | 16/8 x 5                                | 13 x 75                            |
| 11172287                         | 3 mL Blood Collection Tube                | 16/8 x 3                                | 11 x 70                            |
| 11172288                         | 1.5/2 mL Microtube (or Microtainer™ tube) | 16/8 x 1.5/2                            | 10 x 41                            |

# M10

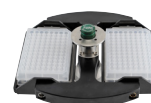
## Items Supplied

| Article No. | Item               | Quantity |
|-------------|--------------------|----------|
| 75005706    | <b>M10 Rotor</b>   | 1        |
| 75003786    | Bolt Grease        | 1        |
| 76003500    | O-Ring Grease      | 1        |
| 50136940    | Instruction Manual | 1        |

If any parts are missing, please contact the nearest Thermo Fisher Scientific representative.

## Technical Data

### M10 with Standard Carriers



| Megafuge 8R, Sorvall ST 8R and SL 8R Centrifuges                                       |                                    |                 |                                    |
|----------------------------------------------------------------------------------------|------------------------------------|-----------------|------------------------------------|
| Centrifuge Frequency                                                                   | 230 V                              | 120 V           | 100 V                              |
| Weight (empty)                                                                         | 2.9 kg                             | 2.9 kg          | 2.9 kg                             |
| Maximum Permissible Load                                                               | 2 x 125 g                          | 2 x 125 g       | 2 x 125 g                          |
| Maximum Speed $n_{max}$                                                                | 4400 rpm                           | 4400 rpm        | 4400 rpm                           |
| Maximum RCF-Value at $n_{max}$                                                         | 2576 x g                           | 2576 x g        | 2576 x g                           |
| K-Factor at $n_{max}$                                                                  | 5189                               | 5189            | 5189                               |
| Max. Cycle Number                                                                      | 30000                              | 30000           | 30000                              |
| Radius max. / min.                                                                     | 119 mm / 80 mm                     | 119 mm / 80 mm  | 119 mm / 80 mm                     |
| Angle                                                                                  | 90°                                | 90°             | 90°                                |
| Acceleration / Braking Time                                                            | 25 s / 25 s                        | 20 s / 25 s     | 30 s / 25 s                        |
| Maximum Speed at 4 °C                                                                  | 50 Hz: 4400 rpm<br>60 Hz: 4400 rpm | 60 Hz: 4400 rpm | 50 Hz: 4400 rpm<br>60 Hz: 4400 rpm |
| Sample Temperature at $n_{max}$<br>(Ambient temperature of 23 °C, run time 60 minutes) | 50 Hz: < 4 °C<br>60 Hz: < 4 °C     | 60 Hz: < 4 °C   | 50 Hz: < 4 °C<br>60 Hz: < 4 °C     |
| Aerosol-tight                                                                          | Optional                           | Optional        | Optional                           |
| Permissible Temperature Range Autoclavable                                             | 121 °C                             | 121 °C          | 121 °C                             |

| Megafuge 8, Sorvall ST 8 and SL 8 Centrifuges                                           |                |                |                |
|-----------------------------------------------------------------------------------------|----------------|----------------|----------------|
| Centrifuge Frequency                                                                    | 230 V          | 120 V          | 100 V          |
| Weight (empty)                                                                          | 2.9 kg         | 2.9 kg         | 2.9 kg         |
| Maximum Permissible Load                                                                | 2 x 125 g      | 2 x 125 g      | 2 x 125 g      |
| Maximum Speed $n_{\max}$                                                                | 4400 rpm       | 4400 rpm       | 4400 rpm       |
| Maximum RCF-Value at $n_{\max}$                                                         | 2576 x g       | 2576 x g       | 2576 x g       |
| K-Factor at $n_{\max}$                                                                  | 5189           | 5189           | 5189           |
| Max. Cycle Number                                                                       | 30000          | 30000          | 30000          |
| Radius max. / min.                                                                      | 119 mm / 80 mm | 119 mm / 80 mm | 119 mm / 80 mm |
| Angle                                                                                   | 90°            | 90°            | 90°            |
| Acceleration / Braking Time                                                             | 15 s / 23 s    | 14 s / 23 s    | 14 s / 23 s    |
| Sample Temperature at $n_{\max}$<br>(Ambient temperature of 23 °C, run time 60 minutes) | 5 °C           | 5 °C           | 5 °C           |
| Aerosol-tight                                                                           | No             | No             | No             |
| Permissible Temperature Range Autoclavable                                              | 121 °C         | 121 °C         | 121 °C         |

## M10 with Biocontainment Carriers



| Megafuge 8R, Sorvall ST 8R and SL 8R Centrifuges                                       |                                    |                 |                                    |
|----------------------------------------------------------------------------------------|------------------------------------|-----------------|------------------------------------|
| Centrifuge Frequency                                                                   | 230 V                              | 120 V           | 100 V                              |
| Weight (empty)                                                                         | 2.9 kg                             | 2.9 kg          | 2.9 kg                             |
| Maximum Permissible Load                                                               | 2 x 300 g                          | 2 x 300 g       | 2 x 300 g                          |
| Maximum Speed $n_{max}$                                                                | 4400 rpm                           | 4400 rpm        | 4400 rpm                           |
| Maximum RCF-Value at $n_{max}$                                                         | 2576 x g                           | 2576 x g        | 2576 x g                           |
| K-Factor at $n_{max}$                                                                  | 5189                               | 5189            | 5189                               |
| Max. Cycle Number                                                                      | 30000                              | 30000           | 30000                              |
| Radius max. / min.                                                                     | 119 mm / 63 mm                     | 119 mm / 63 mm  | 119 mm / 63 mm                     |
| Angle                                                                                  | 90°                                | 90°             | 90°                                |
| Acceleration / Braking Time                                                            | 25 s / 25 s                        | 20 s / 25 s     | 30 s / 25 s                        |
| Maximum Speed at 4 °C                                                                  | 50 Hz: 4400 rpm<br>60 Hz: 4400 rpm | 60 Hz: 4400 rpm | 50 Hz: 4400 rpm<br>60 Hz: 4400 rpm |
| Sample Temperature at $n_{max}$<br>(Ambient temperature of 23 °C, run time 60 minutes) | 50 Hz: < 4 °C<br>60 Hz: < 4 °C     | 60 Hz: < 4 °C   | 50 Hz: < 4 °C<br>60 Hz: < 4 °C     |
| Aerosol-tight                                                                          | Optional                           | Optional        | Optional                           |
| Permissible Temperature Range Autoclavable                                             | 121 °C                             | 121 °C          | 121 °C                             |

## Accessories

| Article No. | Description                                | Rotor Capacity<br>(places x volume,<br>mL) | Max Tube<br>Dimensions<br>(Ø x L, mm) |
|-------------|--------------------------------------------|--------------------------------------------|---------------------------------------|
| 75005723    | Unsealed Buckets (set of 2)                | 4 Standard or 2<br>Midi-Deepwell           | Height < 33 mm                        |
| 75005721    | Sealed Buckets (set of 2) $R_{max}$ 109 mm | 4 Standard or 2<br>Midi-Deepwell           | Height < 33 mm                        |

## Biocontainment Certificate



Public Health England  
Microbiology Services  
Porton Down  
Salisbury  
Wiltshire  
SP4 0JG

### Certificate of Containment Testing

#### Containment Testing of Thermo Scientific M10 Swinging Bucket (75005721) and Sealing Caps (75005722) in a M10 rotor (75005706) in a Thermo Scientific Centrifuge

Report No. 76/13

**Report Prepared For:** Thermo Fisher Scientific

**Issue Date:** 13<sup>th</sup> February 2014

#### Test Summary

A Thermo Scientific M10 Swinging Bucket (75005721), Sealing Caps (75005722) and M10 rotor (75005706) were containment tested in a Thermo Scientific centrifuge at 4,400 rpm, using Annex AA of IEC 61010-2-020:2006 (2<sup>nd</sup> Ed.). The sealed buckets were shown to contain all contents.

#### Report Written By

**Name:** Miss Anna Moy  
**Title:** Biosafety Scientist

#### Report Authorised By

**Name:** Mrs Sara Speight  
**Title:** Senior Biosafety Scientist

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# MT-12



## Items Supplied

| Article No. | Item                         | Quantity |
|-------------|------------------------------|----------|
| 75005600    | <b>MT-12 Rotor</b>           | 1        |
| 50136940    | Instruction Manual           | 1        |
| 70056346    | ClickSeal Biocontainment Lid | 1        |
| 20056966    | Metal Sleeves                | 12       |

If any parts are missing, please contact the nearest Thermo Fisher Scientific representative.

## Technical Data

| Megafuge 8R, Sorvall ST 8R and SL 8R Centrifuges                                       |                                      |                  |                                      |
|----------------------------------------------------------------------------------------|--------------------------------------|------------------|--------------------------------------|
| Centrifuge Frequency                                                                   | 230 V                                | 120 V            | 100 V                                |
| Weight (empty)                                                                         | 1.8 kg                               | 1.8 kg           | 1.8 kg                               |
| Maximum Permissible Load                                                               | 12 x 4 g                             | 12 x 4 g         | 12 x 4 g                             |
| Maximum Speed $n_{max}$                                                                | 13000 rpm                            | 13000 rpm        | 13000 rpm                            |
| Maximum RCF-Value at $n_{max}$                                                         | 16438 x g                            | 16438 x g        | 16438 x g                            |
| K-Factor at $n_{max}$                                                                  | 954                                  | 954              | 954                                  |
| Max. Cycle Number                                                                      | 50000                                | 50000            | 50000                                |
| Radius max. / min.                                                                     | 87 mm / 46 mm                        | 87 mm / 46 mm    | 87 mm / 46 mm                        |
| Angle                                                                                  | 90°                                  | 90°              | 90°                                  |
| Acceleration / Braking Time                                                            | 40 s / 50 s                          | 40 s / 50 s      | 45 s / 50 s                          |
| Maximum Speed at 4 °C                                                                  | 50 Hz: 13000 rpm<br>60 Hz: 13000 rpm | 60 Hz: 13000 rpm | 50 Hz: 13000 rpm<br>60 Hz: 13000 rpm |
| Sample Temperature at $n_{max}$<br>(Ambient temperature of 23 °C, run time 60 minutes) | 50 Hz: 4 °C<br>60 Hz: < 4 °C         | 60 Hz: < 4 °C    | 50 Hz: < 4 °C<br>60 Hz: < 4 °C       |
| Aerosol-tight                                                                          | Yes                                  | Yes              | Yes                                  |
| Permissible Temperature Range Autoclavable                                             | 121 °C                               | 121 °C           | 121 °C                               |

| Megafuge 8, Sorvall ST 8 and SL 8 Centrifuges                                           |               |               |               |
|-----------------------------------------------------------------------------------------|---------------|---------------|---------------|
| Centrifuge Frequency                                                                    | 230 V         | 120 V         | 100 V         |
| Weight (empty)                                                                          | 1.8 kg        | 1.8 kg        | 1.8 kg        |
| Maximum Permissible Load                                                                | 12 x 4 g      | 12 x 4 g      | 12 x 4 g      |
| Maximum Speed $n_{\max}$                                                                | 13000 rpm     | 13000 rpm     | 13000 rpm     |
| Maximum RCF-Value at $n_{\max}$                                                         | 16438 x g     | 16438 x g     | 16438 x g     |
| K-Factor at $n_{\max}$                                                                  | 954           | 954           | 954           |
| Max. Cycle Number                                                                       | 50000         | 50000         | 50000         |
| Radius max. / min.                                                                      | 87 mm / 46 mm | 87 mm / 46 mm | 87 mm / 46 mm |
| Angle                                                                                   | 90°           | 90°           | 90°           |
| Acceleration / Braking Time                                                             | 27 s / 35 s   | 24 s / 33 s   | 24 s / 33 s   |
| Sample Temperature at $n_{\max}$<br>(Ambient temperature of 23 °C, run time 60 minutes) | 22 °C         | 22 °C         | 22 °C         |
| Aerosol-tight                                                                           | No            | No            | No            |
| Permissible Temperature Range Autoclavable                                              | 121 °C        | 121 °C        | 121 °C        |

# HIGHConic III



## Items Supplied

| Article No. | Item                       | Quantity |
|-------------|----------------------------|----------|
| 75005709    | <b>HIGHConic III Rotor</b> | 1        |
| 50139640    | Instruction Manual         | 1        |
| 20059176    | Biocontainment Lid         | 1        |
| 75003058    | O-Ring Set                 | 1        |
| 76003500    | O-Ring Grease              | 1        |

If any parts are missing, please contact the nearest Thermo Fisher Scientific representative.

## Technical Data

| Megafuge 8R, Sorvall ST 8R and SL 8R Centrifuges                                       |                                    |                 |                                    |
|----------------------------------------------------------------------------------------|------------------------------------|-----------------|------------------------------------|
| Centrifuge Frequency                                                                   | 230 V                              | 120 V           | 100 V                              |
| Weight (empty)                                                                         | 2.7 kg                             | 2.7 kg          | 2.7 kg                             |
| Maximum Permissible Load                                                               | 6 x 75 g                           | 6 x 75 g        | 6 x 75 g                           |
| Maximum Speed $n_{max}$                                                                | 9500 rpm                           | 9500 rpm        | 9500 rpm                           |
| Maximum RCF-Value at $n_{max}$                                                         | 12108 x g                          | 12108 x g       | 12108 x g                          |
| K-Factor at $n_{max}$                                                                  | 2087                               | 2087            | 2087                               |
| Max. Cycle Number                                                                      | 50000                              | 50000           | 50000                              |
| Radius max. / min.                                                                     | 120 mm / 57 mm                     | 120 mm / 57 mm  | 120 mm / 57 mm                     |
| Angle                                                                                  | 45°                                | 45°             | 45°                                |
| Acceleration / Braking Time                                                            | 40 s / 45 s                        | 45 s / 45 s     | 55 s / 45 s                        |
| Maximum Speed at 4 °C                                                                  | 50 Hz: 8700 rpm<br>60 Hz: 8700 rpm | 60 Hz: 8700 rpm | 50 Hz: 8700 rpm<br>60 Hz: 8700 rpm |
| Sample Temperature at $n_{max}$<br>(Ambient temperature of 23 °C, run time 60 minutes) | 50 Hz: < 4 °C<br>60 Hz: < 4 °C     | 60 Hz: < 4 °C   | 50 Hz: < 4 °C<br>60 Hz: < 4 °C     |
| Aerosol-tight                                                                          | Yes                                | Yes             | Yes                                |
| Permissible Temperature Range Autoclavable                                             | 121 °C                             | 121 °C          | 121 °C                             |

| Megafuge 8, Sorvall ST 8 and SL 8 Centrifuges                                           |                |                |                |
|-----------------------------------------------------------------------------------------|----------------|----------------|----------------|
| Centrifuge Frequency                                                                    | 230 V          | 120 V          | 100 V          |
| Weight (empty)                                                                          | 2.7 kg         | 2.7 kg         | 2.7 kg         |
| Maximum Permissible Load                                                                | 6 x 75 g       | 6 x 75g        | 6 x 75g        |
| Maximum Speed $n_{\max}$                                                                | 8700 rpm       | 8700 rpm       | 8700 rpm       |
| Maximum RCF-Value at $n_{\max}$                                                         | 10155 x g      | 10155 x g      | 10155 x g      |
| K-Factor at $n_{\max}$                                                                  | 2488           | 2488           | 2488           |
| Max. Cycle Number                                                                       | 50000          | 50000          | 50000          |
| Radius max. / min.                                                                      | 120 mm / 57 mm | 120 mm / 57 mm | 120 mm / 57 mm |
| Angle                                                                                   | 45°            | 45°            | 45°            |
| Acceleration / Braking Time                                                             | 28 s / 40 s    | 27 s / 40 s    | 27 s / 40 s    |
| Sample Temperature at $n_{\max}$<br>(Ambient temperature of 23 °C, run time 60 minutes) | 14 °C          | 14 °C          | 14 °C          |
| Aerosol-tight                                                                           | Yes            | Yes            | Yes            |
| Permissible Temperature Range Autoclavable                                              | 121 °C         | 121 °C         | 121 °C         |

## Accessories

| Article No.                                 | Description                                        | Rotor Capacity<br>(places x volume, mL) | Max Tube Dimensions<br>(Ø x L, mm) |
|---------------------------------------------|----------------------------------------------------|-----------------------------------------|------------------------------------|
| 75005731                                    | Replacement Lid (each)                             |                                         |                                    |
| 75003058                                    | Replacement Sealing O-rings (set of 2 with grease) |                                         |                                    |
| Adapters for HIGHConic III Rotor (set of 2) |                                                    |                                         |                                    |
| Direct fit                                  | 50 mL Round Bottom Tube                            | 6 x 50                                  | 30 x 115                           |
| 75005802                                    | 38 mL Round Bottom Tube                            | 6 x 38                                  | 25.5 x 110                         |
| 75005803                                    | 16 mL Round Bottom Tube                            | 6 x 16                                  | 18 x 123                           |
| 75005808                                    | 15 mL Conical Tube                                 | 6 x 15                                  | 17 x 123                           |
| 75005804                                    | 12 mL Round Bottom Tube                            | 6 x 12                                  | 16 x 95                            |
| 75005805                                    | 6.5 mL Round Bottom Tube                           | 6 x 6.5                                 | 13.5 x 114                         |
| 75005770                                    | 5 mL Conical Microtube                             | 6 x 5                                   | 17 x 100                           |
| 75005806                                    | 3.5 mL Round Bottom Tube                           | 12 x 3.5                                | 11 x 100                           |
| 75005807                                    | 1.5/2 mL Microtube                                 | 12 x 2                                  | 11 x 40                            |

## Biocontainment Certificate

Health Protection Agency  
Microbiology Services  
Porton Down  
Salisbury  
Wiltshire  
SP4 0JG



### Certificate of Containment Testing

#### Containment Testing of Rotor 75005709 HIGHConic III 6x50 in a Thermo Scientific Centrifuge

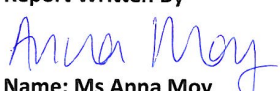
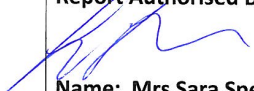
**Report No. 194-12 D**

**Report Prepared For:** Thermo Fisher Scientific

**Issue Date:** 30<sup>th</sup> October 2012

#### Test Summary

A 75005709 HIGHConic III 6x50 rotor was containment tested in a Thermo Scientific centrifuge at 10,000 rpm, using Annex AA of IEC 61010-2-20:2006 (2<sup>nd</sup> Ed.). The sealed rotor was shown to contain all contents.

|                                                                                                                                                                                  |                                                                                                                                                                                                  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Report Written By</b><br><br><b>Name:</b> Ms Anna Moy<br><b>Title:</b> Biosafety Scientist | <b>Report Authorised By</b><br><br><b>Name:</b> Mrs Sara Speight<br><b>Title:</b> Senior Biosafety Scientist |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

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# CLINiConic

## Items Supplied



| Article No. | Item                    | Quantity |
|-------------|-------------------------|----------|
| 75003623    | <b>CLINiConic Rotor</b> | 1        |
| 50139640    | Instruction Manual      | 1        |
| 50110904    | Metal Sleeves           | 30       |
| 76001803    | Rubber Pads             | 30       |

If any parts are missing, please contact the nearest Thermo Fisher Scientific representative.

## Technical Data

| Megafuge 8R, Sorvall ST 8R and SL 8R Centrifuges                                       |                                    |                 |                                    |
|----------------------------------------------------------------------------------------|------------------------------------|-----------------|------------------------------------|
| Centrifuge Frequency                                                                   | 230 V                              | 120 V           | 100 V                              |
| Weight (empty)                                                                         | 4.7 kg                             | 4.7 kg          | 4.7 kg                             |
| Maximum Permissible Load                                                               | 30 x 30 g                          | 30 x 30 g       | 30 x 30 g                          |
| Maximum Speed $n_{max}$                                                                | 4400 rpm                           | 4400 rpm        | 4400 rpm                           |
| Maximum RCF-Value at $n_{max}$                                                         | 3030 x g                           | 3030 x g        | 3030 x g                           |
| K-Factor at $n_{max}$                                                                  | 6521                               | 6521            | 6521                               |
| Max. Cycle Number                                                                      | 50000                              | 50000           | 50000                              |
| Radius max. / min.                                                                     | 140 mm / 85 mm                     | 140 mm / 85 mm  | 140 mm / 85 mm                     |
| Angle                                                                                  | 37°                                | 37°             | 37°                                |
| Acceleration / Braking Time                                                            | 25 s / 30 s                        | 25 s / 30 s     | 30 s / 30 s                        |
| Maximum Speed at 4 °C                                                                  | 50 Hz: 4400 rpm<br>60 Hz: 4400 rpm | 60 Hz: 4400 rpm | 50 Hz: 4400 rpm<br>60 Hz: 4400 rpm |
| Sample Temperature at $n_{max}$<br>(Ambient temperature of 23 °C, run time 60 minutes) | 50 Hz: < 4 °C<br>60 Hz: < 4 °C     | 60 Hz: < 4 °C   | 50 Hz: < 4 °C<br>60 Hz: < 4 °C     |
| Aerosol-tight                                                                          | No                                 | No              | No                                 |
| Permissible Temperature Range Autoclavable                                             | 121 °C                             | 121 °C          | 121 °C                             |

| Megafuge 8, Sorvall ST 8 and SL 8 Centrifuges                                           |                |                |                |
|-----------------------------------------------------------------------------------------|----------------|----------------|----------------|
| Centrifuge Frequency                                                                    | 230 V          | 120 V          | 100 V          |
| Weight (empty)                                                                          | 4.7 kg         | 4.7 kg         | 4.7 kg         |
| Maximum Permissible Load                                                                | 30 x 30 g      | 30 x 30g       | 30 x 30g       |
| Maximum Speed $n_{\max}$                                                                | 4400 rpm       | 4400 rpm       | 4400 rpm       |
| Maximum RCF-Value at $n_{\max}$                                                         | 3030 x g       | 3030 x g       | 3030 x g       |
| K-Factor at $n_{\max}$                                                                  | 6521           | 6521           | 6521           |
| Max. Cycle Number                                                                       | 50000          | 50000          | 50000          |
| Radius max. / min.                                                                      | 140 mm / 85 mm | 140 mm / 85 mm | 140 mm / 85 mm |
| Angle                                                                                   | 37°            | 37°            | 37°            |
| Acceleration / Braking Time                                                             | 16 s / 27 s    | 18 s / 26 s    | 18 s / 26 s    |
| Sample Temperature at $n_{\max}$<br>(Ambient temperature of 23 °C, run time 60 minutes) | 14 °C          | 14 °C          | 14 °C          |
| Aerosol-tight                                                                           | No             | No             | No             |
| Permissible Temperature Range Autoclavable                                              | 121 °C         | 121 °C         | 121 °C         |

## Accessories

| Article No.                          | Description                             | Rotor Capacity<br>(places x volume, mL) | Max Tube Dimensions<br>(Ø x L, mm) |
|--------------------------------------|-----------------------------------------|-----------------------------------------|------------------------------------|
| Adapters for CLINIConic Rotor (each) |                                         |                                         |                                    |
| Direct fit                           | 15 mL Round/Conical Bottom Tube         | 30 x 15                                 | 16.5 x 131                         |
| 75008817                             | 10 mL Round Bottom Tube                 | 30 x 10                                 | 16.5 x 95                          |
| 11172596                             | 5/7 mL BD Hemogard / BD Vacutainer Tube | 30 x 5/7                                | 13 x 106                           |
| 11172595                             | 5 mL BD Hemogard Tube                   | 30 x 5                                  | 13 x 75                            |

## MicroClick 18 x 5

### Items Supplied



| Article No. | Item                           | Quantity |
|-------------|--------------------------------|----------|
| 75005765    | <b>MicroClick 18 x 5 Rotor</b> | 1        |
| 50139640    | Instruction Manual             | 1        |
| 20059119    | ClickSeal Lid                  | 1        |
| 75005726    | O-Ring Set                     | 1        |
| 76003500    | O-Ring Grease                  | 1        |

If any parts are missing, please contact the nearest Thermo Fisher Scientific representative.

### Technical Data

| Megafuge 8R, Sorvall ST 8R and SL 8R Centrifuges                                       |                                      |                  |                                      |
|----------------------------------------------------------------------------------------|--------------------------------------|------------------|--------------------------------------|
| Centrifuge Frequency                                                                   | 230 V                                | 120 V            | 100 V                                |
| Weight (empty)                                                                         | 1.7 kg                               | 1.7 kg           | 1.7 kg                               |
| Maximum Permissible Load                                                               | 18 x 9 g                             | 18 x 9 g         | 18 x 9 g                             |
| Maximum Speed $n_{max}$                                                                | 14000 rpm                            | 14000 rpm        | 14000 rpm                            |
| Maximum RCF-Value at $n_{max}$                                                         | 22351 x g                            | 22351 x g        | 22351 x g                            |
| K-Factor at $n_{max}$                                                                  | 486                                  | 486              | 486                                  |
| Max. Cycle Number                                                                      | 50000                                | 50000            | 50000                                |
| Radius max. / min.                                                                     | 102 mm / 70 mm                       | 102 mm / 70 mm   | 102 mm / 70 mm                       |
| Angle                                                                                  | 45°                                  | 45°              | 45°                                  |
| Acceleration / Braking Time                                                            | 55 s / 55 s                          | 50 s / 55 s      | 60 s / 55 s                          |
| Maximum Speed at 4 °C                                                                  | 50 Hz: 12400 rpm<br>60 Hz: 13000 rpm | 60 Hz: 13500 rpm | 50 Hz: 13700 rpm<br>60 Hz: 14000 rpm |
| Sample Temperature at $n_{max}$<br>(Ambient temperature of 23 °C, run time 60 minutes) | 50 Hz: < 4 °C<br>60 Hz: < 4 °C       | 60 Hz: < 4 °C    | 50 Hz: < 4 °C<br>60 Hz: < 4 °C       |
| Aerosol-tight                                                                          | Yes                                  | Yes              | Yes                                  |
| Permissible Temperature Range Autoclavable                                             | 121 °C                               | 121 °C           | 121 °C                               |

## Accessories

| Article No.                                     | Description        | Rotor Capacity<br>(places x volume, mL) | Max Tube Dimensions<br>(Ø x L, mm) |
|-------------------------------------------------|--------------------|-----------------------------------------|------------------------------------|
| Adapters for MicroClick 18 x 5 Rotor (set of 2) |                    |                                         |                                    |
| 75005756                                        | 1.5/2 mL Microtube | 18 x 1.5/2                              | 11 x 45                            |

## Biocontainment Certificate



Public Health England  
Microbiology Services  
Porton Down  
Salisbury  
Wiltshire  
SP4 0JG

### Certificate of Containment Testing

#### Containment Testing of Thermo Scientific Rotor MicroClick 18x5 (75005765) in a Thermo Scientific Centrifuge

Report No. 102/13

**Report Prepared For:** Thermo Fisher Scientific  
**Issue Date:** 13<sup>th</sup> February 2014

#### Test Summary

A Thermo Scientific MicroClick 18x5 rotor (75005765) was containment tested in a Thermo Scientific centrifuge at 15,000 rpm, using Annex AA of IEC 61010-2-020:2006 (2<sup>nd</sup> Ed.). The sealed rotor was shown to contain all contents.

Report Written By

**Name:** Miss Anna Moy  
**Title:** Biosafety Scientist

Report Authorised By

**Name:** Mrs Sara Speight  
**Title:** Senior Biosafety Scientist

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# MicroClick 24 x 2



## Items Supplied

| Article No. | Item                    | Quantity |
|-------------|-------------------------|----------|
| 75005715    | MicroClick 24 x 2 Rotor | 1        |
| 50139640    | Instruction Manual      | 1        |
| 20058086    | ClickSeal Lid           | 1        |
| 75003405    | O-Ring Set              | 1        |
| 76003500    | O-Ring Grease           | 1        |

If any parts are missing, please contact the nearest Thermo Fisher Scientific representative.

## Technical Data

| Megafuge 8R, Sorvall ST 8R and SL 8R Centrifuges                                       |                                      |                  |                                      |
|----------------------------------------------------------------------------------------|--------------------------------------|------------------|--------------------------------------|
| Centrifuge Frequency                                                                   | 230 V                                | 120 V            | 100 V                                |
| Weight (empty)                                                                         | 1.2 kg                               | 1.2 kg           | 1.2 kg                               |
| Maximum Permissible Load                                                               | 24 x 4 g                             | 24 x 4 g         | 24 x 4 g                             |
| Maximum Speed $n_{max}$                                                                | 17850 rpm                            | 17850 rpm        | 17850 rpm                            |
| Maximum RCF-Value at $n_{max}$                                                         | 30279 x g                            | 30279 x g        | 30279 x g                            |
| K-Factor at $n_{max}$                                                                  | 406                                  | 406              | 406                                  |
| Max. Cycle Number                                                                      | 50000                                | 50000            | 50000                                |
| Radius max. / min.                                                                     | 85 mm / 51 mm                        | 85 mm / 51 mm    | 85 mm / 51 mm                        |
| Angle                                                                                  | 45°                                  | 45°              | 45°                                  |
| Acceleration / Braking Time                                                            | 35 s / 45 s                          | 30 s / 50 s      | 40 s / 50 s                          |
| Maximum Speed at 4 °C                                                                  | 50 Hz: 15200 rpm<br>60 Hz: 16800 rpm | 60 Hz: 17400 rpm | 50 Hz: 17500 rpm<br>60 Hz: 17500 rpm |
| Sample Temperature at $n_{max}$<br>(Ambient temperature of 23 °C, run time 60 minutes) | 50 Hz: < 4 °C<br>60 Hz: < 4 °C       | 60 Hz: < 4 °C    | 50 Hz: < 4 °C<br>60 Hz: < 4 °C       |
| Aerosol-tight                                                                          | Yes                                  | Yes              | Yes                                  |
| Permissible Temperature Range Autoclavable                                             | 121 °C                               | 121 °C           | 121 °C                               |

| Megafuge 8, Sorvall ST 8 and SL 8 Centrifuges                                           |               |               |               |
|-----------------------------------------------------------------------------------------|---------------|---------------|---------------|
| Centrifuge Frequency                                                                    | 230 V         | 120 V         | 100 V         |
| Weight (empty)                                                                          | 1.2 kg        | 1.2 kg        | 1.2 kg        |
| Maximum Permissible Load                                                                | 24 x 4 g      | 24 x 4 g      | 24 x 4 g      |
| Maximum Speed $n_{\max}$                                                                | 16000 rpm     | 16000 rpm     | 16000 rpm     |
| Maximum RCF-Value at $n_{\max}$                                                         | 24328 x g     | 24328 x g     | 24328 x g     |
| K-Factor at $n_{\max}$                                                                  | 505           | 505           | 505           |
| Max. Cycle Number                                                                       | 50000         | 50000         | 50000         |
| Radius max. / min.                                                                      | 85 mm / 51 mm | 85 mm / 51 mm | 85 mm / 51 mm |
| Angle                                                                                   | 45°           | 45°           | 45°           |
| Acceleration / Braking Time                                                             | 23 s / 35 s   | 23 s / 35 s   | 23 s / 35 s   |
| Sample Temperature at $n_{\max}$<br>(Ambient temperature of 23 °C, run time 60 minutes) | 18 °C         | 18 °C         | 18 °C         |
| Aerosol-tight                                                                           | Yes           | Yes           | Yes           |
| Permissible Temperature Range Autoclavable                                              | 121 °C        | 121 °C        | 121 °C        |

## Accessories

| Article No.                                       | Description                                     | Rotor Capacity<br>(places x volume, mL) | Max Tube Dimensions<br>(Ø x L, mm) |
|---------------------------------------------------|-------------------------------------------------|-----------------------------------------|------------------------------------|
| 75005725                                          | Replacement ClickSeal Biocontainment Lid (each) |                                         |                                    |
| 75003405                                          | Replacement O-ring for Lid (each)               |                                         |                                    |
| Adapters for MicroClick 24 x 2 Rotor (sets of 30) |                                                 |                                         |                                    |
| 75005752                                          | 0.2 mL PCR Tube                                 | 24 x 0.2                                | 6.5 x 20                           |
| 75005753                                          | 0.5 mL Microtube                                | 24 x 0.5                                | 8 x 44                             |
| 75005754                                          | 0.25 mL Microtube                               | 24 x 0.25                               | 6 x 46                             |

## Biocontainment Certificate

Health Protection Agency  
Microbiology Services  
Porton Down  
Salisbury  
Wiltshire  
SP4 0JG



### Certificate of Containment Testing

#### Containment Testing of Rotor 75005715 MicroClick 24x2 in a Thermo Scientific Centrifuge

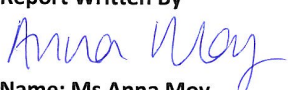
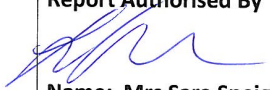
**Report No. 194-12 A**

**Report Prepared For:** Thermo Fisher Scientific

**Issue Date:** 30<sup>th</sup> October 2012

#### Test Summary

A 75005715 MicroClick 24x2 rotor was containment tested in a Thermo Scientific centrifuge at 18,000 rpm, using Annex AA of IEC 61010-2-20:2006 (2<sup>nd</sup> Ed.). The sealed rotor was shown to contain all contents.

|                                                                                                                                                                                  |                                                                                                                                                                                                  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Report Written By</b><br><br><b>Name: Ms Anna Moy</b><br><b>Title: Biosafety Scientist</b> | <b>Report Authorised By</b><br><br><b>Name: Mrs Sara Speight</b><br><b>Title: Senior Biosafety Scientist</b> |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

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# MicroClick 30 x 2



## Items Supplied

| Article No. | Item                           | Quantity |
|-------------|--------------------------------|----------|
| 75005719    | <b>MicroClick 30 x 2 Rotor</b> | 1        |
| 50139640    | Instruction Manual             | 1        |
| 20059119    | ClickSeal Lid                  | 1        |
| 75005726    | O-Ring Set                     | 1        |
| 76003500    | O-Ring Grease                  | 1        |

If any parts are missing, please contact the nearest Thermo Fisher Scientific representative.

## Technical Data

| Megafuge 8R, Sorvall ST 8R and SL 8R Centrifuges                                       |                                      |                  |                                      |
|----------------------------------------------------------------------------------------|--------------------------------------|------------------|--------------------------------------|
| Centrifuge Frequency                                                                   | 230 V                                | 120 V            | 100 V                                |
| Weight (empty)                                                                         | 2.7 kg                               | 2.7 kg           | 2.7 kg                               |
| Maximum Permissible Load                                                               | 30 x 4 g                             | 30 x 4 g         | 30 x 4 g                             |
| Maximum Speed $n_{max}$                                                                | 14000 rpm                            | 14000 rpm        | 14000 rpm                            |
| Maximum RCF-Value at $n_{max}$                                                         | 21694 x g                            | 21694 x g        | 21694 x g                            |
| K-Factor at $n_{max}$                                                                  | 563                                  | 563              | 563                                  |
| Max. Cycle Number                                                                      | 50000                                | 50000            | 50000                                |
| Radius max. / min.                                                                     | 99 mm / 64 mm                        | 99 mm / 64 mm    | 99 mm / 64 mm                        |
| Angle                                                                                  | 45°                                  | 45°              | 45°                                  |
| Acceleration / Braking Time                                                            | 40 s / 50 s                          | 40 s / 50 s      | 50 s / 50 s                          |
| Maximum Speed at 4 °C                                                                  | 50 Hz: 13000 rpm<br>60 Hz: 13500 rpm | 60 Hz: 14000 rpm | 50 Hz: 14000 rpm<br>60 Hz: 14000 rpm |
| Sample Temperature at $n_{max}$<br>(Ambient temperature of 23 °C, run time 60 minutes) | 50 Hz: < 4 °C<br>60 Hz: < 4 °C       | 60 Hz: < 4 °C    | 50 Hz: < 4 °C<br>60 Hz: < 4 °C       |
| Aerosol-tight                                                                          | Yes                                  | Yes              | Yes                                  |
| Permissible Temperature Range Autoclavable                                             | 121 °C                               | 121 °C           | 121 °C                               |

| Megafuge 8, Sorvall ST 8 and SL 8 Centrifuges                                           |               |               |               |
|-----------------------------------------------------------------------------------------|---------------|---------------|---------------|
| Centrifuge Frequency                                                                    | 230 V         | 120 V         | 100 V         |
| Weight (empty)                                                                          | 1.5 kg        | 1.5 kg        | 1.5 kg        |
| Maximum Permissible Load                                                                | 30 x 4 g      | 30 x 4 g      | 30 x 4 g      |
| Maximum Speed $n_{\max}$                                                                | 14000 rpm     | 14000 rpm     | 14000 rpm     |
| Maximum RCF-Value at $n_{\max}$                                                         | 21694 x g     | 21694 x g     | 21694 x g     |
| K-Factor at $n_{\max}$                                                                  | 563           | 563           | 563           |
| Max. Cycle Number                                                                       | 50000         | 50000         | 50000         |
| Radius max. / min.                                                                      | 99 mm / 64 mm | 99 mm / 64 mm | 99 mm / 64 mm |
| Angle                                                                                   | 45°           | 45°           | 45°           |
| Acceleration / Braking Time                                                             | 28 s / 35 s   | 26 s / 35 s   | 26 s / 35 s   |
| Sample Temperature at $n_{\max}$<br>(Ambient temperature of 23 °C, run time 60 minutes) | 24 °C         | 24 °C         | 24 °C         |
| Aerosol-tight                                                                           | Yes           | Yes           | Yes           |
| Permissible Temperature Range Autoclavable                                              | 121 °C        | 121 °C        | 121 °C        |

## Accessories

| Article No.                                              | Description                                     | Rotor Capacity<br>(places x volume, mL) | Max Tube Dimensions<br>(Ø x L, mm) |
|----------------------------------------------------------|-------------------------------------------------|-----------------------------------------|------------------------------------|
| 75005725                                                 | Replacement ClickSeal Biocontainment Lid (each) |                                         |                                    |
| 75003405                                                 | Replacement O-ring for Lid (each)               |                                         |                                    |
| <b>Adapters for MicroClick 30 x 2 Rotor (sets of 30)</b> |                                                 |                                         |                                    |
| 75005752                                                 | 0.2 mL PCR Tube                                 | 30 x 0.2                                | 6.5 x 20                           |
| 75005753                                                 | 0.5 mL Microtube                                | 30 x 0.5                                | 8 x 44                             |
| 75005754                                                 | 0.25 mL Microtube                               | 30 x 0.25                               | 6 x 46                             |

## Biocontainment Certificate

Health Protection Agency  
Microbiology Services  
Porton Down  
Salisbury  
Wiltshire  
SP4 0JG



### Certificate of Containment Testing

#### Containment Testing of Rotor 75005719 MicroClick 30x2 in a Thermo Scientific Centrifuge

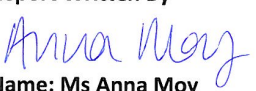
**Report No. 194-12 B**

**Report Prepared For:** Thermo Fisher Scientific

**Issue Date:** 30<sup>th</sup> October 2012

#### Test Summary

A 75005719 MicroClick 30x2 rotor was containment tested in a Thermo Scientific centrifuge at 15,000 rpm, using Annex AA of IEC 61010-2-20:2006 (2<sup>nd</sup> Ed.). The sealed rotor was shown to contain all contents.

|                                                                                                                                                                                  |                                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Report Written By</b><br><br><b>Name:</b> Ms Anna Moy<br><b>Title:</b> Biosafety Scientist | <b>Report Authorised By</b><br><br><b>Name:</b> Mrs Sara Speight<br><b>Title:</b> Senior Biosafety Scientist |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

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# Microliter 48 x 2

## Items Supplied



| Article No. | Item                    | Quantity |
|-------------|-------------------------|----------|
| 75003602    | Microliter 48 x 2 Rotor | 1        |
| 50143707    | Instruction Manual      | 1        |
| 76003500    | O-Ring Grease           | 1        |

If any parts are missing, please contact the nearest Thermo Fisher Scientific representative.

## Technical Data

| Megafuge 8R, Sorvall ST 8R and SL 8R Centrifuges |               |               |               |
|--------------------------------------------------|---------------|---------------|---------------|
| Centrifuge Frequency                             | 230 V         | 120 V         | 100 V         |
| Weight (empty)                                   | 2.4 kg        | 2.4 kg        | 2.4 kg        |
| Maximum Permissible Load                         | 48 x 4 g      | 48 x 4 g      | 48 x 4 g      |
| Maximum Speed $n_{max}$                          | 12900 rpm     | 12900 rpm     | 12900 rpm     |
| Maximum RCF-Value at $n_{max}$                   | 18233 x g     | 18233 x g     | 18233 x g     |
| K-Factor at $n_{max}$                            | 771           | 771           | 771           |
| Max. Cycle Number                                | 50000         | 50000         | 50000         |
| Radius max. / min.                               | 98 mm / 59 mm | 98 mm / 59 mm | 98 mm / 59 mm |
| Angle                                            | 45°           | 45°           | 45°           |
| Aerosol-tight                                    | Yes           | Yes           | Yes           |
| Permissible Temperature Range Autoclavable       | 121 °C        | 121 °C        | 121 °C        |

| Megafuge 8, Sorvall ST 8 and SL 8 Centrifuges |               |               |               |
|-----------------------------------------------|---------------|---------------|---------------|
| Centrifuge Frequency                          | 230 V         | 120 V         | 100 V         |
| Weight (empty)                                | 2.4 kg        | 2.4 kg        | 2.4 kg        |
| Maximum Permissible Load                      | 48 x 4 g      | 48 x 4 g      | 48 x 4 g      |
| Maximum Speed $n_{\max}$                      | 11800 rpm     | 11800 rpm     | 11800 rpm     |
| Maximum RCF-Value at $n_{\max}$               | 15256 x g     | 15256 x g     | 15256 x g     |
| K-Factor at $n_{\max}$                        | 922           | 922           | 922           |
| Max. Cycle Number                             | 50000         | 50000         | 50000         |
| Radius max. / min.                            | 98 mm / 59 mm | 98 mm / 59 mm | 98 mm / 59 mm |
| Angle                                         | 45°           | 45°           | 45°           |
| Aerosol-tight                                 | Yes           | Yes           | Yes           |
| Permissible Temperature Range Autoclavable    | 121 °C        | 121 °C        | 121 °C        |

## Accessories

| Article No.                                       | Description       | Rotor Capacity<br>(places x volume, mL) | Max Tube Dimensions<br>(Ø x L, mm) |
|---------------------------------------------------|-------------------|-----------------------------------------|------------------------------------|
| Adapters for Microliter 48 x 2 Rotor (sets of 24) |                   |                                         |                                    |
| 76003758                                          | 0.5 mL Microtube  | 48 x 0.5                                | 8 x 44                             |
| 76003759                                          | 0.25 mL Microtube | 48 x 0.25                               | 6 x 46                             |
| 76003750                                          | 0.2 mL PCR Tube   | 48 x 0.2                                | 6.5 x 20                           |

## Biocontainment Certificate

Centre of Emergency Preparedness and Response  
Health Protection Agency  
Porton Down  
Salisbury  
Wiltshire SP4 0JG  
United Kingdom



### Certificate of Containment Testing

#### Containment Testing of Thermo Scientific Rotor 75003602

**Report No. 59-08 E**

**Report prepared for:** Thermo Fisher  
**Issue Date:** 15<sup>th</sup> January 2009

#### Test Summary

A Thermo Scientific 75003602 contained rotor (Max speed 15,200 rpm) was supplied by Thermo Fisher and containment tested at 15,200 rpm using the method described in Annex AA of EN 61010-2-020. The rotor was shown to contain a spill when tested in triplicate.

**Report Written By**

A handwritten signature in blue ink, appearing to be "M. G. Smith", written over a horizontal dashed line.

**Report Authorised By**

A handwritten signature in blue ink, appearing to be "P. H.", written over a horizontal dashed line. To the right of the signature, the date "(28/1/09)" is handwritten in blue ink.

## 8 x 8 PCR Strip



### Items Supplied

| Article No. | Item                         | Quantity |
|-------------|------------------------------|----------|
| 75005720    | <b>8 x 8 PCR Strip Rotor</b> | 1        |
| 50139640    | Instruction Manual           | 1        |
| 20059119    | ClickSeal Lid                | 1        |
| 75005726    | O-Ring Set                   | 1        |
| 76003500    | O-Ring Grease                | 1        |

If any parts are missing, please contact the nearest Thermo Fisher Scientific representative.

### Technical Data

| Megafuge 8R, Sorvall ST 8R and SL 8R Centrifuges                                       |                                      |                  |                                      |
|----------------------------------------------------------------------------------------|--------------------------------------|------------------|--------------------------------------|
| Centrifuge Frequency                                                                   | 230 V                                | 120 V            | 100 V                                |
| Weight (empty)                                                                         | 1.4 kg                               | 1.4 kg           | 1.4 kg                               |
| Maximum Permissible Load                                                               | 64 x 0.5 g                           | 64 x 0.5 g       | 64 x 0.5 g                           |
| Maximum Speed $n_{max}$                                                                | 15000 rpm                            | 15000 rpm        | 15000 rpm                            |
| Maximum RCF-Value at $n_{max}$                                                         | 17860 x g                            | 17860 x g        | 17860 x g                            |
| K-Factor at $n_{max}$                                                                  | 538                                  | 538              | 538                                  |
| Max. Cycle Number                                                                      | 50000                                | 50000            | 50000                                |
| Radius max. / min.                                                                     | 71 mm / 44 mm                        | 71 mm / 44 mm    | 71 mm / 44 mm                        |
| Angle                                                                                  | 45°                                  | 45°              | 45°                                  |
| Acceleration / Braking Time                                                            | 30 s / 45 s                          | 25 s / 45 s      | 30 s / 45 s                          |
| Maximum Speed at 4 °C                                                                  | 50 Hz: 15000 rpm<br>60 Hz: 15000 rpm | 60 Hz: 15000 rpm | 50 Hz: 15000 rpm<br>60 Hz: 15000 rpm |
| Sample Temperature at $n_{max}$<br>(Ambient temperature of 23 °C, run time 60 minutes) | 50 Hz: < 4 °C<br>60 Hz: < 4 °C       | 60 Hz: < 4 °C    | 50 Hz: < 4 °C<br>60 Hz: < 4 °C       |
| Aerosol-tight                                                                          | Yes                                  | Yes              | Yes                                  |
| Permissible Temperature Range Autoclavable                                             | 121 °C                               | 121 °C           | 121 °C                               |

| Megafuge 8, Sorvall ST 8 and SL 8 Centrifuges                                           |               |               |               |
|-----------------------------------------------------------------------------------------|---------------|---------------|---------------|
| Centrifuge Frequency                                                                    | 230 V         | 120 V         | 100 V         |
| Weight (empty)                                                                          | 1.4 kg        | 1.4 kg        | 1.4 kg        |
| Maximum Permissible Load                                                                | 64 x 0.5 g    | 64 x 0.5 g    | 64 x 0.5 g    |
| Maximum Speed $n_{\max}$                                                                | 15000 rpm     | 15000 rpm     | 15000 rpm     |
| Maximum RCF-Value at $n_{\max}$                                                         | 17860 x g     | 17860 x g     | 17860 x g     |
| K-Factor at $n_{\max}$                                                                  | 538           | 538           | 538           |
| Max. Cycle Number                                                                       | 50000         | 50000         | 50000         |
| Radius max. / min.                                                                      | 71 mm / 44 mm | 71 mm / 44 mm | 71 mm / 44 mm |
| Angle                                                                                   | 45°           | 45°           | 45°           |
| Acceleration / Braking Time                                                             | 20 s / 32 s   | 20 s / 33 s   | 20 s / 33 s   |
| Sample Temperature at $n_{\max}$<br>(Ambient temperature of 23 °C, run time 60 minutes) | 12 °C         | 12 °C         | 12 °C         |
| Aerosol-tight                                                                           | Yes           | Yes           | Yes           |
| Permissible Temperature Range Autoclavable                                              | 121 °C        | 121 °C        | 121 °C        |

## Accessories

| Article No. | Description                                     | Rotor Capacity<br>(places x volume, mL) | Max Tube Dimensions<br>(Ø x L, mm) |
|-------------|-------------------------------------------------|-----------------------------------------|------------------------------------|
| 75005730    | Replacement ClickSeal Biocontainment Lid (each) |                                         |                                    |
| 75005726    | Replacement O-ring for Lid (each)               |                                         |                                    |

## Biocontainment Certificate

Health Protection Agency  
Microbiology Services  
Porton Down  
Salisbury  
Wiltshire  
SP4 0JG



### Certificate of Containment Testing

### Containment Testing of Rotor 75005720 MicroClick PCR 8x8 in a Thermo Scientific Centrifuge

**Report No. 194-12 C**

**Report Prepared For:** Thermo Fisher Scientific

**Issue Date:** 30<sup>th</sup> October 2012

#### Test Summary

A 75005720 MicroClick PCR 8x8 rotor was containment tested in a Thermo Scientific centrifuge at 15,000 rpm, using Annex AA of IEC 61010-2-20:2006 (2<sup>nd</sup> Ed.). The sealed rotor was shown to contain all contents.

|                                                                                                                                                                                  |                                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Report Written By</b><br><br><b>Name: Ms Anna Moy</b><br><b>Title: Biosafety Scientist</b> | <b>Report Authorised By</b><br><br><b>Name: Mrs Sara Speight</b><br><b>Title: Senior Biosafety Scientist</b> |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

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## 8 x 50 mL Individually Sealed

### Items Supplied



| Article No. | Item                                 | Quantity |
|-------------|--------------------------------------|----------|
| 75003694    | <b>8 x 50 mL Individually Sealed</b> | 1        |
| 50139640    | Instruction Manual                   | 1        |
| 50111786    | Metal Cannister                      | 8        |
| 50129119    | Biocontainment Lid                   | 8        |
| 20290564    | O-Ring                               | 8        |

If any parts are missing, please contact the nearest Thermo Fisher Scientific representative.

### Technical Data

| Megafuge 8R, Sorvall ST 8R and SL 8R Centrifuges                                       |                                    |                 |                                    |
|----------------------------------------------------------------------------------------|------------------------------------|-----------------|------------------------------------|
| Centrifuge Frequency                                                                   | 230 V                              | 120 V           | 100 V                              |
| Weight (empty)                                                                         | 3.3 kg                             | 3.3 kg          | 3.3 kg                             |
| Maximum Permissible Load                                                               | 18 x 9 g                           | 18 x 9 g        | 18 x 9 g                           |
| Maximum Speed $n_{max}$                                                                | 5600 rpm                           | 5600 rpm        | 5600 rpm                           |
| Maximum RCF-Value at $n_{max}$                                                         | 5014 x g                           | 5014 x g        | 5014 x g                           |
| K-Factor at $n_{max}$                                                                  | 5879                               | 5879            | 5879                               |
| Max. Cycle Number                                                                      | 50000                              | 50000           | 50000                              |
| Radius max. / min.                                                                     | 143 mm / 63 mm                     | 143 mm / 63 mm  | 143 mm / 63 mm                     |
| Angle                                                                                  | 45°                                | 45°             | 45°                                |
| Acceleration / Braking Time                                                            | 35 s / 40 s                        | 30 s / 40 s     | 35 s / 40 s                        |
| Maximum Speed at 4 °C                                                                  | 50 Hz: 5600 rpm<br>60 Hz: 5600 rpm | 60 Hz: 5600 rpm | 50 Hz: 5600 rpm<br>60 Hz: 5600 rpm |
| Sample Temperature at $n_{max}$<br>(Ambient temperature of 23 °C, run time 60 minutes) | 50 Hz: < 4 °C<br>60 Hz: < 4 °C     | 60 Hz: < 4 °C   | 50 Hz: < 4 °C<br>60 Hz: < 4 °C     |
| Aerosol-tight                                                                          | Yes                                | Yes             | Yes                                |
| Permissible Temperature Range Autoclavable                                             | 121 °C                             | 121 °C          | 121 °C                             |

## Accessories

| Article No.                                                        | Description                                | Rotor Capacity<br>(places x volume, mL) | Max Tube Dimensions<br>(Ø x L, mm) |
|--------------------------------------------------------------------|--------------------------------------------|-----------------------------------------|------------------------------------|
| 75003011                                                           | Replacement Biocontainment Lids (set of 2) |                                         |                                    |
| 75003789                                                           | Replacement O-ring Kit                     |                                         |                                    |
| <b>Adapters for 8 x 50 mL Individually Sealed Rotor (set of 2)</b> |                                            |                                         |                                    |
| 75005808                                                           | 15 mL Conical Tube                         | 8 x 15                                  | 17 x 121                           |
| 75005804                                                           | 10 mL Blood Collection Tube (16 x 100 mm)  | 8 x 10                                  | 16 x 110                           |
| 75005805                                                           | 7 mL Blood Collection Tube (13 x 100 mm)   | 8 x 7                                   | 13 x 110                           |
| 75005806                                                           | 3.5 mL Blood Collection Tube               | 16 x 3.5                                | 11 x 75                            |

## Biocontainment Certificate

Centre of Emergency Preparedness and Response  
Health Protection Agency  
Porton Down  
Salisbury  
Wiltshire SP4 0JG  
United Kingdom



### Certificate of Containment Testing

#### Containment testing of Thermo Scientific Vessel 75003787

**Report No. 77- 08 B**

**Report prepared for:** Thermo Fisher  
**Issue Date:** 1<sup>st</sup> June 2009

#### Test Summary

A Thermo Scientific vessel 75003787 with aerosol tight lid (Max rcf 7177 x g) was supplied by Thermo Fisher and containment tested at max rcf 7177 x g using the method described in Annex AA of EN 61010-2-020. The vessel was shown to contain a spill when tested in triplicate.

**Report Written By**

A handwritten signature in blue ink, appearing to read "J. Capell", written over a horizontal dashed line.

**Report Authorised By**

A handwritten signature in blue ink, appearing to read "J. Smith", written over a horizontal dashed line.

# Thermo Scientific Auto-Lock Rotor Exchange

## Rotor Installation



### CAUTION

Unapproved or incorrectly combined accessories can cause serious damage to the centrifuge.

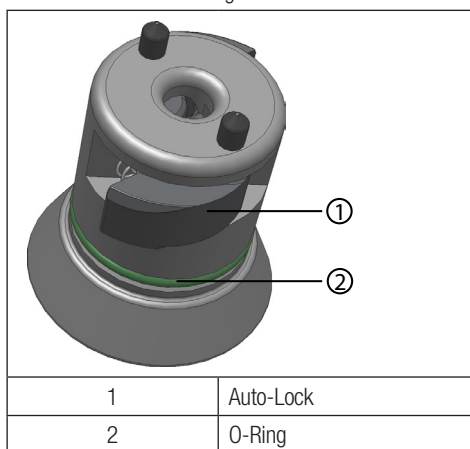
This rotor is equipped with a Thermo Scientific™ Auto-Lock™ rotor exchange.

This system is used to automatically lock the rotor to the centrifuge spindle. The rotor does not have to be bolted onto the centrifuge spindle.

Proceed as follows:

1. Open the door of the centrifuge and if necessary, remove any dust, foreign objects or residue from the chamber.

Auto-Lock and O-ring must be clean and undamaged.



2. Place the rotor over the centrifuge spindle and lower it vertically slowly down the centrifuge spindle. If necessary, a light push may be required to ensure connection.

The rotor clicks automatically into place.



### CAUTION

Do not force the rotor onto the centrifuge spindle.

If the rotor is very light, then it may be necessary to press it onto the centrifuge spindle with little pressure.

3. Check if the rotor is properly installed by lifting it slightly on the handle or from beneath the rotor. If the rotor can be pulled up, then it must be reconnected to the centrifuge spindle.

|                                                                                                                                                                                                                                                                                                                                                                                     |                |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
|                                                                                                                                                                                                                                                                                                    | <b>WARNING</b> |
| <p>If the rotor cannot be properly locked in place after several attempts, then the Auto-Lock is defective, and you are not permitted to operate the rotor.</p> <p>Check for any damage to the rotor: Damaged rotors must not be used.</p> <p>Keep the centrifuge spindle area of the rotor clear of objects.</p> <p>If in doubt, please call Thermo Fisher Scientific Service.</p> |                |

|                                                                                                                                                                                   |                |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
|                                                                                                  | <b>CAUTION</b> |
| <p>Check that the rotor is properly locked on the centrifuge spindle before each use by pulling it at its handle or from beneath the rotor. The rotor has to be locked tight.</p> |                |

4. If available close the rotor with the rotor lid.

|                                                                                   |                |
|-----------------------------------------------------------------------------------|----------------|
|  | <b>CAUTION</b> |
| <p>Be sure to check all seals before starting any aerosol-tight applications.</p> |                |

5. Close the centrifuge door.

## Removing the Rotor

To remove the rotor, proceed as follows:

1. Open the centrifuge door.
2. Grab the rotor handle and fully depress the Auto-Lock button. At the same time, pull the rotor directly upwards and remove it from the centrifuge spindle. Make sure not to tilt the rotor while doing this.



## Rotor Loading

### Before a Run

1. Read and observe the precautions and the safety instructions in this manual and in the instruction manual of the centrifuge.
2. Check the rotor and all accessory parts for damages such as cracks, scratches or traces of corrosion.
3. Check the rotor chamber, the centrifuge spindle and the Auto-Lock.
4. Check the rotor suitability. ([“Chemical Compatibility Chart”](#) on page 65)

### Rotor Temperature Range

|                                                                                                                                  |                |
|----------------------------------------------------------------------------------------------------------------------------------|----------------|
|                                                | <b>CAUTION</b> |
| Operate the rotor in a temperature range between -9 °C and +40 °C only. A pre-tempering in a freezer below -9 °C is not allowed. |                |

|                                                                                                                                                                                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>NOTICE</b>                                                                                                                                                                  |
| The rotors can warm up in ventilated centrifuges at high ambient temperatures. Temperature above 45 °C blood samples can be damaged. Let the rotor cool down between two runs. |

### Rotor Loading

|                                                                                                                                 |                |
|---------------------------------------------------------------------------------------------------------------------------------|----------------|
|                                              | <b>CAUTION</b> |
| Failure to load all buckets may lead to damage or accident. All buckets and sleeves must be in place before starting the rotor. |                |

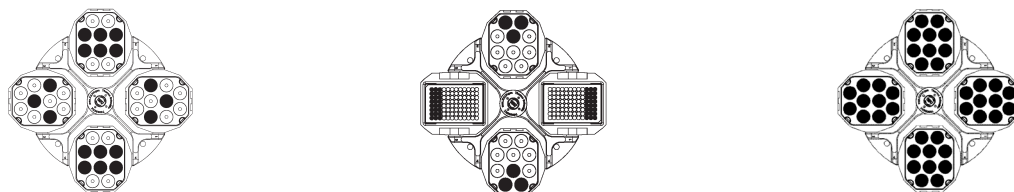
Always balance opposite loads. Balance opposite loads in number of tubes and by position to ensure safe and smooth operation.

## Correct Balances

### Fixed Angle Rotors

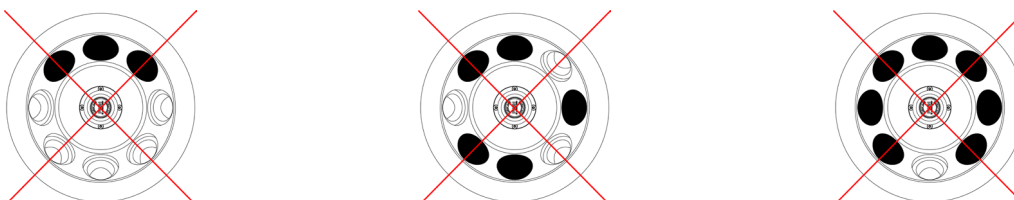


### Swing Out Rotors

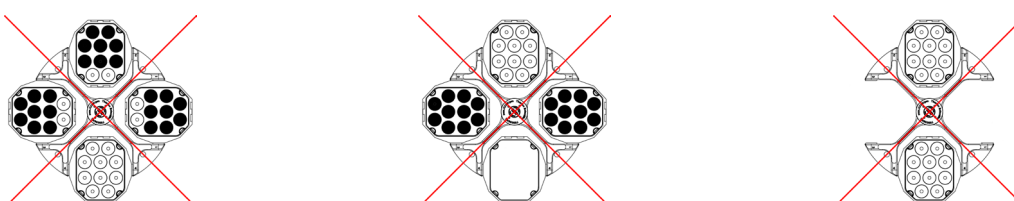


## Incorrect Balances

### Fixed Angle Rotors



### Swing Out Rotors



## Maximum Loading

The rotor can run at high speeds. Each rotor is specifically designed to run at its maximum speed with a defined load. For further details please refer to the rotor manual supplied with the rotor.

The safety system of the centrifuge requires that you do not overload the rotor.

The rotors are designed to work with solution with a density of up to 1.2 g/ml. Above this density or if total load is above the maximum weight the following steps should be taken:

- Reduce the fill level.
- Reduce the speed.

Use the table or the formula:

$$n_{adm} = n_{max} \sqrt{\frac{\text{Maximum permissible Load}}{\text{Effective Load}}}$$

$n_{adm}$  = admissible speed

$n_{max}$  = maximum speed

### Explanation of RCF-Value

The relative centrifugal force (RCF) is given as a multiple of the force of gravity  $g$ . It is a unit less numerical value which is used to compare the separation or sedimentation capacity of various centrifuges, since it is independent of the type of device. Only the centrifuging radius and the speed are used for calculation:

$$RCF = 11.18 \times \left(\frac{n}{1000}\right)^2 \times r$$

$r$  = centrifuging radius in cm

$n$  = rotational speed in rpm

The maximum RCF value is related to the maximum radius of the tube opening.

Remember that this value is reduced depending on the tubes and adapters used.

This can be accounted for in the calculation above if required.

Once the rotor has been properly installed, the main switch turned on and the centrifuge door closed, you may start centrifuging.

## Use of Tubes and Consumables

Care should be taken to ensure that the tubes and bottles used in the centrifuge are:

- Rated to or above the selected rcf to be spun at
- They are being used at or above their minimum fill volume
- They are not being used above their design life (age or number of runs)
- They are inspected for damage

Please refer to manufacturers data sheets for further information.

## Rotor Life Time



### WARNING

Replace the rotor when the specified number of cycles is reached. Due to the mechanical load a rotor can break and damage the centrifuge. Replace the rotor and buckets when the specified number of cycles is reached.

The lifetime of rotors and buckets is dependent on the amount of mechanical load. Do not exceed them number of cycles recommended for rotors and buckets.

The maximum number of cycles is given in the rotor table in the rotor specification section.

The maximum number of cycles for buckets is marked on the buckets themselves.

## Service Life Examples

| Usage profile                              | Maximum service life at 50,000 cycles |
|--------------------------------------------|---------------------------------------|
| Frequent use 20 runs / day 220 days / year | 7 years                               |



## Aerosol-tight Applications

### Basic Principles

|                                                                                                                                                                                                                                                                                                                                                                                        |                |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
|                                                                                                                                                                                                                                                                                                       | <b>CAUTION</b> |
| <p>Biological seals are part of bio-containment systems as specified in international and national bio-safety guidelines and cannot be relied on as the only means of safeguarding workers and the environment when handling pathogenic micro-organisms.</p> <p>Mind the “Laboratory Biosafety Manual” of the World Health Organization (WHO) and the regulations in your country.</p> |                |

|                                                                                                                                                                                   |                |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
|                                                                                                  | <b>CAUTION</b> |
| <p>When centrifuging hazardous samples, do not open aerosol-tight rotors or buckets unless placed in a safety cabinet. Always bear in mind the maximum permitted fill levels.</p> |                |

|                                                                                     |                |
|-------------------------------------------------------------------------------------|----------------|
|  | <b>WARNING</b> |
| <p>Be sure to check all seals before starting any aerosol-tight applications.</p>   |                |

Check that the sample containers are well suited for the desired centrifugation process.

### Placing O-Ring

The O-ring fulfills its purpose best, when it is neither stressed nor bulked. Meaning the O-ring should be equally placed in the groove of the lid.

Place the O-ring as follows:

1. Place the O-ring above the groove.
2. Push the O-ring on two opposite places into the groove. Make sure the rest of the O-ring is equally distributed.
3. Push the centers of the loose parts into the groove.
4. Push the remaining O-ring into place.

|                                                                                                     |
|-----------------------------------------------------------------------------------------------------|
| <b>NOTE</b>                                                                                         |
| <p>If the O-ring seems to be too long or too short, take it off the lid and repeat the process.</p> |

## Fill Level

The tubes are only to be filled to a level which ensures that the sample is unable to reach the top of the tube during centrifugation. Therefore, fill the tube only 2/3 of the rated level.

## Checking the Aerosol-Tightness

The aerosol tightness testing of the rotors and buckets took place according to the microbiological test process in accordance with the EN 61010-2-020 Appendix AA.

Whether or not a rotor is aerosol-tight depends primarily on proper handling.

Check as needed to make sure your rotor is aerosol-tight.

The careful inspection of the seals and seal surfaces for signs of wear and damage such as cracks, scratches and embrittlement are extremely important.

Aerosol-tight applications are not possible if the bucket tops are open.

Aerosol-tightness requires the correct operation when filling the sample vessels and closing the rotor lid.

## Quick Test

As a quick test, it is possible to test the aerosol-tight beaker and fixed-angle rotors using the following process:

1. Lubricate all seals lightly.

Always use the special grease (part no. 76003500) when lubricating the seals.

2. Fill the bucket or the rotor with approx. 10 ml of carbonated mineral water.

3. Close the bucket or the rotor as explained in the handling instructions.

4. Shake the bucket or the rotor vigorously using your hands.

This releases the carbonic acid gas which is bound in the water, resulting in excess pressure. Do not apply pressure to the lid when doing so!

Leaks can be detected by escaping water or the sound of escaping gas.

Replace the seals if you detect any leaks. Then repeat the test.

5. Dry the bucket, rotor, rotor cover and the cover seal.



### CAUTION

Prior to each use, the seals in the rotor are to be inspected in order to assure that they are correctly seated and are not worn or damaged.

Damaged seals are to be replaced immediately.

Replacement seals are supplied with the rotors and can also be re-ordered as a spare part set.

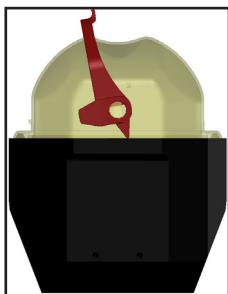
When loading the rotor, ensure that the rotor lid closes securely.

Damaged or clouded rotor covers are to be replaced immediately.

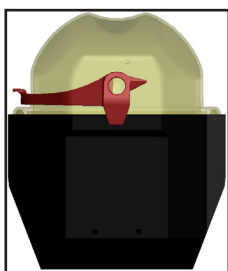
## Aerosol-tight Closure with ClickSeal

1. If necessary, grease the lid joint before closing the lid. Use grease (76003500) for this.
2. Raise the latch.

The cap can now be easily placed on the bucket.



3. Lower the latch to close the bucket aerosol-tight; be sure the latch clicks into place.



### CAUTION

If the latch is not flipped down, the caps could be damaged during centrifuging.

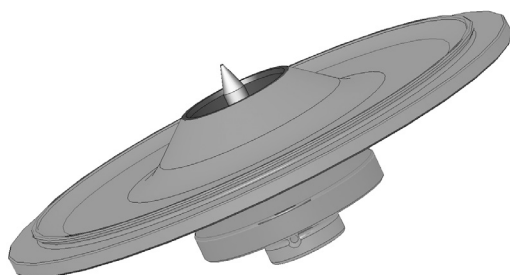
If the latch has not clicked into place, the bucket is not aerosol-tight. Never raise the bucket at its latch.

## Removing of Aerosol-tight Rotors

For your protection when using an aerosol tight lid, the rotor should only be removed with the lid closed.

### NOTICE

Rotors supplied with a lid for aerosol-tight applications come with a mandrel, which belongs to the Auto-Lock. Be sure not to place the lid onto this mandrel to prevent it from being damaged.



### CAUTION

Skin can be pierced by sharp mandrel tip.  
Do not touch the mandrel.

## Maintenance and Care

### Cleaning Intervals

For the sake of personal, environmental, and material protection, it is your duty to clean and if necessary, disinfect the centrifuge on a regular basis.

| Maintenance          | Recommended Interval   |
|----------------------|------------------------|
| Rotor Chamber (Bowl) | Daily or when polluted |
| Rotor                | Daily or when polluted |
| Accessories          | Daily or when polluted |

|                                                                                                                                                                                                                                                                                      |                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
|                                                                                                                                                                                                     | <b>CAUTION</b> |
| <p>Refrain from using any other cleaning or decontamination procedure than those recommended here, if you are not entirely sure that the intended procedure is safe for the equipment.</p> <p>Use only approved cleansers.</p> <p>If in doubt, contact Thermo Fisher Scientific.</p> |                |

### Basics

|                                                                                                                                                                                                                                                                                                                                                                                                       |                |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
|                                                                                                                                                                                                                                                                                                                    | <b>CAUTION</b> |
| <p>Not rated procedures or agents could deteriorate the materials of the centrifuge and lead to malfunction.</p> <p>Refrain from using any other cleaning or decontamination procedure than those recommended here, if you are not entirely sure that the intended procedure is safe for the equipment.</p> <p>Use only approved cleansers.</p> <p>If in doubt, contact Thermo Fisher Scientific.</p> |                |

- Use warm water with a neutral detergent that is suitable for use with the materials of the centrifuge. If in doubt contact the manufacturer of the cleaning agents.
- Never use caustic cleaning agents such as soap suds, phosphoric acid, bleaching solutions or scrubbing powder.
- Remove rotor and clean bowl with a small amount of cleaning agent, applied to a clean cloth.
- Use a soft brush without metal bristles to remove stubborn residue.
- Afterwards rinse with a small amount of distilled water and remove any excess with absorbent towels.
- Use only disinfectants with a pH of 6-8.

### Rotor and Accessories Inspection

After thoroughly cleaning rotors, they should be inspected for damage, wear and corrosion.

## Metal Parts

Ensure that the black protective coating is complete. It can be removed through wear and chemical attack and can lead to unseen corrosions. Any signs of corrosions, such as rust or white / metallic pitting, the rotor or accessories should be immediately removed from service. Particular attention should be taken with the bottom of buckets on swing out rotors and tube cavities on fixed angle rotors.

## Plastic Parts

Check for signs plastic crazing, fading, bruising or cracking.

|                                                                                                                                                                                                                                                                                                        |                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
|                                                                                                                                                                                                                       | <b>CAUTION</b> |
| <p>Do not run any rotor or accessories with sign of damage.</p> <p>Ensure that the rotor, buckets and accessories are within the service life and number of cycles.</p> <p>It is recommend that you have rotors and accessories inspected yearly as part of your routine service to ensure safety.</p> |                |

## Cleaning

|                                                                                                                                                                                                                       |                |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
|                                                                                                                                      | <b>CAUTION</b> |
| <p>Before using any cleaning methods except those recommended by the manufacturer.</p> <p>Users should check with the manufacturer of the cleaning agents that the proposed method will not damage the equipment.</p> |                |

Clean as follows:

1. Clean rotor, buckets and accessories outside of the centrifuge bowl.
2. Separate all rotors, buckets, lids, adapters and tubes to allow thorough cleaning.
3. Rinse rotor and all accessories with warm water and a neutral detergent that is suitable for use with the materials of the centrifuge. If in doubt contact the manufacturer of the cleaning agents. Ensure grease on rotor trunnions (pivot point for swinging buckets) is cleaned away.
4. Use a soft brush without metal bristles to remove stubborn residue.
5. Rinse rotor and all accessories with distilled water.
6. Place the rotors on a plastic grate with their cavities pointing down, to allow to fully drain and dry.
7. Dry all of the rotors and accessories after cleaning with a cloth or in a warm air cabinet at a maximum temperature of 50 °C. If drying boxes are used, the temperature must never exceed 50 °C, since higher temperatures could damage the material and shorten the lifetime of the parts.

Once clean and dry, inspect the rotor and accessories.

After cleaning, treat the entire surface of aluminum parts including the cavities with corrosion protection oil (70009824).

Treat the bolt of the swing out rotor with bolt grease (75003786).

|                                                                                                                                                                                                                                                                                                 |                |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
|                                                                                                                                                                                                              | <b>CAUTION</b> |
| <p>Drive and lid lock can be damaged by entering liquids. Do not allow liquids, especially organic solvents, to get on the drive shaft, the drive bearings or the centrifuge door locks.</p> <p>Organic solvents break down the grease in the motor bearing. The drive shaft could lock up.</p> |                |

# Disinfection

|                                                                                                                                                                                                                                                                                                                               |                |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
|                                                                                                                                                                                                                                              | <b>WARNING</b> |
| <p>A hazard of infection is possible when touching the contaminated rotor and centrifuge parts. Infectious material can get into the centrifuge when a tube breaks or as a result of spills.</p> <p>In case of contamination, make sure that others are not put at risk.</p> <p>Disinfect the affected parts immediately.</p> |                |

|                                                                                                                                                                                                                                                                                                                                                                                        |                |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
|                                                                                                                                                                                                                                                                                                       | <b>CAUTION</b> |
| <p>Equipment can be damaged by inappropriate disinfection methods or agents.</p> <p>Before using any cleaning or disinfection methods except those recommended by the manufacturer, users should check with the manufacturer that the proposed method will not damage the equipment.</p> <p>Observe the safety precautions and handling instructions for the cleaning agents used.</p> |                |

The rotor chamber and the rotor should be treated preferably with a neutral disinfectant.

Contact the Service Department of Thermo Fisher Scientific for questions regarding the use of other disinfectants.

For details, see [“Basics” on page 59](#).

Disinfect as follows:

1. Disinfect rotor, buckets and accessories outside of the centrifuge bowl.
2. Separate all rotors, buckets, lids, adapters and tubes to allow thorough disinfection.
3. Treat the rotor and accessories according to the instructions for the disinfectant. Adhere strictly to the given application times.  
  
Be sure the disinfectant can drain off the rotor.
4. Rinse the rotor and accessories thoroughly with water and then rub down.
5. Place the rotors on a plastic grate with their cavities pointing down, to allow to fully drain and dry.
6. Dispose the disinfectant according to the applicable guidelines.

Clean the rotor after disinfecting as described in [“Cleaning” on page 60](#).

## Decontamination

|                                                                                                                                                                                                                                                                                                                        |                |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
|                                                                                                                                                                                                                                       | <b>WARNING</b> |
| <p>Radiation is possible when touching the contaminated rotor and centrifuge parts. Radioactive material can get into the centrifuge when a tube breaks or as a result of spills.</p> <p>In case of contamination, make sure that others are not put at risk.</p> <p>Decontaminate the affected parts immediately.</p> |                |

|                                                                                                                                                                                                                                                                                                                                                                                              |                |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
|                                                                                                                                                                                                                                                                                                             | <b>CAUTION</b> |
| <p>Equipment can be damaged by inappropriate decontamination methods or agents.</p> <p>Before using any cleaning or decontamination methods except those recommended by the manufacturer, users should check with the manufacturer that the proposed method will not damage the equipment.</p> <p>Observe the safety precautions and handling instructions for the cleaning agents used.</p> |                |

For general radioactive decontamination use a solution of equal parts of 70 % ethanol, 10 % SDS (Sodium Dodecyl Sulfate) and water.

Decontaminate as follows:

1. Decontaminate rotor, buckets and accessories outside of the centrifuge bowl.
2. Separate all rotors, buckets, lids, adapters and tubes to allow thorough decontamination.
3. Treat the rotor and accessories according to the instructions for the decontamination solution. Adhere strictly to the given application times.  
Be sure the decontamination solution can drain off the rotor.
4. Rinse the rotor first with ethanol and then with deionized water.  
Adhere strictly to the given application times.
5. Be sure the decontamination solution can drain off the rotor.
6. Rinse the rotor and accessories thoroughly with water.
7. Place the rotors on a plastic grate with their cavities pointing down, to allow to fully drain and dry.
8. Dispose of the decontamination solution according to the applicable guidelines.

Clean the rotor after disinfecting as described in [“Cleaning” on page 60](#).

# Autoclaving

|                                                                                   |                |
|-----------------------------------------------------------------------------------|----------------|
|  | <b>CAUTION</b> |
| Never exceed the permitted temperature and duration when autoclaving.             |                |

|                                                   |
|---------------------------------------------------|
| <b>NOTE</b>                                       |
| No chemical additives are permitted in the steam. |

1. Before autoclaving clean rotor and accessories as described above.
2. Place the rotor on a flat surface.
  - Rotors and adapter can be autoclaved at 121 °C.
  - The maximum permissible autoclave cycle is 20 minutes at 121 °C.

Clean the rotor before autoclaving and rinse it with distilled water. Remove all accessories (tubes, adapters) from the rotor. Place the rotor on a flat surface.

## Service of Thermo Fisher Scientific

Thermo Fisher Scientific recommends having the centrifuge and accessories serviced once a year by an authorized service technician. The service technicians check the following:

- electrical equipment safety;
- suitability of the set-up site;
- door lock, imbalance and safety system;
- rotor;
- fixation of rotor and drive shaft.

Before service, centrifuge and rotors should be thoroughly cleaned and decontaminated to ensure full and safe inspection can be completed.

Thermo Fisher Scientific offers inspection and service contracts for this work. Any necessary repairs are performed for free during the warranty period and afterwards for a charge.

This is only valid if the centrifuge has only been maintained by an authorized Thermo Scientific service technician.

## Storage

Any moisture left on a metal rotor can initiate corrosion, so after cleaning ensure proper storage:

- Remove all adapters from rotor cavities when not in use.
- Dry and store upside-down on a plastic matting to allow for airflow or a ventilated shelf to avoid gathering condensation in the cavity or bucket bottom.

## Shipping and Disposal

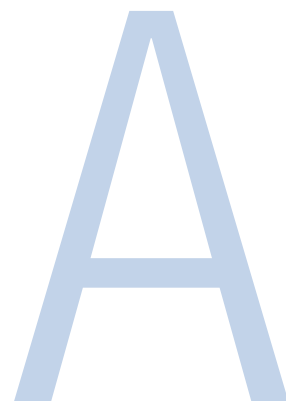


### WARNING

When removing the centrifuge and accessories from use for disposal you have to clean and if necessary disinfect or decontaminate the entire system. In doubt contact the Thermo Fisher Scientific customer service.

For the disposal of the centrifuge mind the regulations in your country. Contact the Thermo Fisher Scientific Customer Service for the disposal of the centrifuge. For contact information check the back page of this manual or visit [www.thermofisher.com/centrifuge](http://www.thermofisher.com/centrifuge)

For the countries of the European Union the disposal is regulated by the European Union's Waste Electrical & Electronic Equipment (WEEE) Directive 2012/19/EU. ("WEEE Compliance" on page 2)



## Chemical Compatibility Chart

| CHEMICAL                   | MATERIAL | ALUMINUM | ANODIC COATING for ALUMINUM | BUNA N | CELLULOSE ACETATE BUTYRATE | POLYURETHANE ROTOR PAINT | COMPOSITE Carbon Fiber/Epoxy | DELRI <sup>TM</sup> | ETHYLENE PROPYLENE | GLASS | NEOPRENE | NORLY <sup>TM</sup> | NYLON | PET <sup>1</sup> , POLYCLEAR <sup>TM</sup> , CLEARCRIMP <sup>TM</sup> | POLYALLUMER | POLYCARBONATE | POLYESTER, GLASS THERMOSET | POLYETHERIDE | POLYETHYLENE | POLYPROPYLENE | POLYSULFONE | POLYVINYL CHLORIDE | RULON A <sup>TM</sup> , TEFLON <sup>TM</sup> | SILICONE RUBBER | STAINLESS STEEL | TITANIUM | TYGON <sup>TM</sup> | VITON <sup>TM</sup> |
|----------------------------|----------|----------|-----------------------------|--------|----------------------------|--------------------------|------------------------------|---------------------|--------------------|-------|----------|---------------------|-------|-----------------------------------------------------------------------|-------------|---------------|----------------------------|--------------|--------------|---------------|-------------|--------------------|----------------------------------------------|-----------------|-----------------|----------|---------------------|---------------------|
| 2-mercaptoethanol          |          | S        | S                           | U      | /                          | S                        | M                            | S                   | /                  | S     | U        | S                   | S     | U                                                                     | S           | S             | /                          | S            | S            | S             | S           | U                  | S                                            | S               | S               | S        | S                   | S                   |
| Acetaldehyde               |          | S        | /                           | U      | U                          | /                        | /                            | /                   | M                  | /     | U        | /                   | /     | /                                                                     | M           | U             | U                          | U            | M            | M             | /           | M                  | S                                            | U               | /               | S        | /                   | U                   |
| Acetone                    |          | M        | S                           | U      | U                          | S                        | U                            | M                   | S                  | S     | U        | U                   | S     | U                                                                     | S           | U             | U                          | U            | S            | S             | U           | U                  | S                                            | M               | M               | S        | U                   | U                   |
| Acetonitrile               |          | S        | S                           | U      | /                          | S                        | M                            | S                   | /                  | S     | S        | U                   | S     | U                                                                     | M           | U             | U                          | /            | S            | M             | U           | U                  | S                                            | S               | S               | S        | U                   | U                   |
| Alconox <sup>TM</sup>      |          | U        | U                           | S      | /                          | S                        | S                            | S                   | /                  | S     | S        | S                   | S     | S                                                                     | S           | M             | S                          | S            | S            | S             | S           | S                  | S                                            | S               | S               | S        | S                   | U                   |
| Allyl Alcohol              |          | /        | /                           | /      | U                          | /                        | /                            | S                   | /                  | /     | /        | /                   | S     | /                                                                     | S           | S             | M                          | S            | S            | S             | /           | M                  | S                                            | /               | /               | S        | /                   | /                   |
| Aluminum Chloride          |          | U        | U                           | S      | S                          | S                        | S                            | U                   | S                  | S     | S        | S                   | M     | S                                                                     | S           | S             | S                          | /            | S            | S             | S           | S                  | S                                            | M               | U               | U        | S                   | S                   |
| Formic Acid (100 %)        |          | /        | S                           | M      | U                          | /                        | /                            | U                   | /                  | /     | /        | /                   | U     | /                                                                     | S           | M             | U                          | U            | S            | S             | /           | U                  | S                                            | /               | U               | S        | /                   | U                   |
| Ammonium Acetate           |          | S        | S                           | U      | /                          | S                        | S                            | S                   | /                  | S     | S        | S                   | S     | S                                                                     | S           | S             | U                          | /            | S            | S             | S           | S                  | S                                            | S               | S               | S        | S                   | S                   |
| Ammonium Carbonate         |          | M        | S                           | U      | S                          | S                        | S                            | S                   | S                  | S     | S        | S                   | S     | S                                                                     | S           | U             | U                          | /            | S            | S             | S           | S                  | S                                            | S               | M               | S        | S                   | S                   |
| Ammonium Hydroxide (10 %)  |          | U        | U                           | S      | U                          | S                        | S                            | M                   | S                  | S     | S        | S                   | S     | /                                                                     | S           | U             | M                          | S            | S            | S             | S           | S                  | S                                            | S               | S               | S        | M                   | S                   |
| Ammonium Hydroxide (28 %)  |          | U        | U                           | S      | U                          | S                        | U                            | M                   | S                  | S     | S        | S                   | S     | U                                                                     | S           | U             | M                          | S            | S            | S             | S           | S                  | S                                            | S               | S               | S        | M                   | S                   |
| Ammonium Hydroxide (conc.) |          | U        | U                           | U      | U                          | S                        | U                            | M                   | S                  | /     | S        | /                   | S     | U                                                                     | S           | U             | U                          | S            | S            | S             | /           | M                  | S                                            | S               | S               | S        | /                   | U                   |
| Ammonium Phosphate         |          | U        | /                           | S      | /                          | S                        | S                            | S                   | S                  | S     | S        | S                   | S     | /                                                                     | S           | S             | M                          | /            | S            | S             | S           | S                  | S                                            | S               | M               | S        | S                   | S                   |
| Ammonium Sulfate           |          | U        | M                           | S      | /                          | S                        | S                            | U                   | S                  | S     | S        | S                   | S     | S                                                                     | S           | S             | S                          | /            | S            | S             | S           | S                  | S                                            | S               | U               | S        | S                   | U                   |
| Amyl Alcohol               |          | S        | /                           | M      | U                          | /                        | /                            | S                   | S                  | /     | M        | /                   | S     | /                                                                     | M           | S             | S                          | S            | S            | M             | /           | /                  | /                                            | U               | /               | S        | /                   | M                   |
| Aniline                    |          | S        | S                           | U      | U                          | S                        | U                            | S                   | M                  | S     | U        | U                   | U     | U                                                                     | U           | U             | U                          | /            | S            | M             | U           | U                  | S                                            | S               | S               | S        | U                   | S                   |
| Sodium Hydroxide (<1 %)    |          | U        | /                           | M      | S                          | S                        | S                            | /                   | /                  | S     | M        | S                   | S     | /                                                                     | S           | M             | M                          | S            | S            | S             | S           | S                  | S                                            | M               | S               | S        | /                   | U                   |
| Sodium Hydroxide (10 %)    |          | U        | /                           | M      | U                          | /                        | /                            | U                   | /                  | M     | M        | S                   | S     | U                                                                     | S           | U             | U                          | S            | S            | S             | S           | S                  | S                                            | M               | S               | S        | /                   | U                   |
| Barium Salts               |          | M        | U                           | S      | /                          | S                        | S                            | S                   | S                  | S     | S        | S                   | S     | S                                                                     | S           | S             | M                          | /            | S            | S             | S           | S                  | S                                            | S               | M               | S        | S                   | S                   |
| Benzene                    |          | S        | S                           | U      | U                          | S                        | U                            | M                   | U                  | S     | U        | U                   | S     | U                                                                     | U           | U             | M                          | U            | M            | U             | U           | U                  | S                                            | U               | U               | S        | U                   | S                   |
| Benzyl Alcohol             |          | S        | /                           | U      | U                          | /                        | /                            | M                   | M                  | /     | M        | /                   | S     | U                                                                     | U           | U             | U                          | U            | U            | U             | /           | M                  | S                                            | M               | /               | S        | /                   | S                   |
| Boric Acid                 |          | U        | S                           | S      | M                          | S                        | S                            | U                   | S                  | S     | S        | S                   | S     | S                                                                     | S           | S             | S                          | U            | S            | S             | S           | S                  | S                                            | S               | S               | S        | S                   | S                   |
| Cesium Acetate             |          | M        | /                           | S      | /                          | S                        | S                            | S                   | /                  | S     | S        | S                   | S     | /                                                                     | S           | S             | /                          | /            | S            | S             | S           | S                  | S                                            | S               | M               | S        | S                   | S                   |
| Cesium Bromide             |          | M        | S                           | S      | /                          | S                        | S                            | S                   | /                  | S     | S        | S                   | S     | S                                                                     | S           | S             | /                          | /            | S            | S             | S           | S                  | S                                            | S               | M               | S        | S                   | S                   |
| Cesium Chloride            |          | M        | S                           | S      | U                          | S                        | S                            | S                   | /                  | S     | S        | S                   | S     | S                                                                     | S           | S             | /                          | /            | S            | S             | S           | S                  | S                                            | S               | M               | S        | S                   | S                   |

| CHEMICAL                  | MATERIAL | ALUMINIUM | ANODIC COATING for ALUMINIUM | BUNAN | CELLULOSE ACETATE BUTYRATE | POLYURETHANE ROTOR PAINT | COMPOSITE Carbon Fiber/Epoxy | DELFIN™ | ETHYLENE PROPYLENE | GLASS | NEOPRENE | NORYL™ | NYLON | PET <sup>1</sup> , POLYCLEAR™, CLEARCRIMP™ | POLYALLOMER | POLYCARBONATE | POLYESTER, GLASS THERMOSET | POLYIMIDE | POLYETHYLENE | POLYPROPYLENE | POLYSULFONE | POLYVINYL CHLORIDE | RULON A™, TEFLON™ | SILICONE RUBBER | STAINLESS STEEL | TITANIUM | TYGON™ | VITON™ |
|---------------------------|----------|-----------|------------------------------|-------|----------------------------|--------------------------|------------------------------|---------|--------------------|-------|----------|--------|-------|--------------------------------------------|-------------|---------------|----------------------------|-----------|--------------|---------------|-------------|--------------------|-------------------|-----------------|-----------------|----------|--------|--------|
| Cesium Formate            |          | M         | S                            | S     | /                          | S                        | S                            | S       | /                  | S     | S        | S      | S     | S                                          | S           | S             | /                          | /         | S            | S             | S           | S                  | S                 | S               | M               | S        | S      | S      |
| Cesium Iodide             |          | M         | S                            | S     | /                          | S                        | S                            | S       | /                  | S     | S        | S      | S     | S                                          | S           | S             | /                          | /         | S            | S             | S           | S                  | S                 | S               | M               | S        | S      | S      |
| Cesium Sulfate            |          | M         | S                            | S     | /                          | S                        | S                            | S       | /                  | S     | S        | S      | S     | S                                          | S           | S             | /                          | /         | S            | S             | S           | S                  | S                 | S               | M               | S        | S      | S      |
| Chloroform                |          | U         | U                            | U     | U                          | S                        | S                            | M       | U                  | S     | U        | U      | M     | U                                          | M           | U             | U                          | U         | M            | M             | U           | U                  | S                 | U               | U               | U        | M      | S      |
| Chromic Acid (10 %)       |          | U         | /                            | U     | U                          | S                        | U                            | U       | /                  | S     | S        | S      | U     | S                                          | S           | M             | U                          | M         | S            | S             | U           | M                  | S                 | M               | U               | S        | S      | S      |
| Chromic Acid (50 %)       |          | U         | /                            | U     | U                          | /                        | U                            | U       | /                  | /     | /        | S      | U     | U                                          | S           | M             | U                          | M         | S            | S             | U           | M                  | S                 | /               | U               | M        | /      | S      |
| Cresol Mixture            |          | S         | S                            | U     | /                          | /                        | /                            | S       | /                  | S     | U        | U      | U     | U                                          | U           | U             | /                          | /         | U            | U             | /           | U                  | S                 | S               | S               | S        | U      | S      |
| Cyclohexane               |          | S         | S                            | S     | /                          | S                        | S                            | S       | U                  | S     | U        | S      | S     | U                                          | U           | U             | M                          | S         | M            | U             | M           | M                  | S                 | U               | M               | M        | U      | S      |
| Deoxycholate              |          | S         | S                            | S     | /                          | S                        | S                            | S       | /                  | S     | S        | S      | S     | S                                          | S           | S             | /                          | /         | S            | S             | S           | S                  | S                 | S               | S               | S        | S      | S      |
| Distilled Water           |          | S         | S                            | S     | S                          | S                        | S                            | S       | S                  | S     | S        | S      | S     | S                                          | S           | S             | S                          | S         | S            | S             | S           | S                  | S                 | S               | S               | S        | S      | S      |
| Dextran                   |          | M         | S                            | S     | S                          | S                        | S                            | S       | /                  | S     | S        | S      | S     | S                                          | S           | S             | S                          | S         | S            | S             | S           | S                  | S                 | S               | M               | S        | S      | S      |
| Diethyl Ether             |          | S         | S                            | U     | U                          | S                        | S                            | S       | U                  | S     | U        | U      | S     | U                                          | U           | U             | U                          | U         | U            | U             | U           | U                  | S                 | S               | S               | S        | M      | U      |
| Diethyl Ketone            |          | S         | /                            | U     | U                          | /                        | /                            | M       | /                  | S     | U        | /      | S     | /                                          | M           | U             | U                          | U         | M            | M             | /           | U                  | S                 | /               | /               | S        | U      | U      |
| Diethylpyro-carbonate     |          | S         | S                            | U     | /                          | S                        | S                            | S       | /                  | S     | S        | U      | S     | U                                          | S           | U             | /                          | /         | S            | S             | S           | M                  | S                 | S               | S               | S        | S      | S      |
| Dimethylsulfoxide         |          | S         | S                            | U     | U                          | S                        | S                            | S       | /                  | S     | U        | S      | S     | U                                          | S           | U             | U                          | /         | S            | S             | U           | U                  | S                 | S               | S               | S        | U      | U      |
| Dioxane                   |          | M         | S                            | U     | U                          | S                        | S                            | M       | M                  | S     | U        | U      | S     | U                                          | M           | U             | U                          | /         | M            | M             | M           | U                  | S                 | S               | S               | S        | U      | U      |
| Ferric Chloride           |          | U         | U                            | S     | /                          | /                        | /                            | M       | S                  | /     | M        | /      | S     | /                                          | S           | /             | /                          | /         | S            | S             | /           | /                  | /                 | M               | U               | S        | /      | S      |
| Acetic Acid (Glacial)     |          | S         | S                            | U     | U                          | S                        | S                            | U       | M                  | S     | U        | S      | U     | U                                          | U           | U             | U                          | M         | S            | U             | M           | U                  | S                 | U               | U               | S        | /      | U      |
| Acetic Acid (5 %)         |          | S         | S                            | M     | S                          | S                        | S                            | M       | S                  | S     | S        | S      | S     | M                                          | S           | S             | S                          | S         | S            | S             | S           | M                  | S                 | S               | M               | S        | S      | M      |
| Acetic Acid (60 %)        |          | S         | S                            | U     | U                          | S                        | S                            | U       | /                  | S     | M        | S      | U     | U                                          | M           | U             | S                          | M         | S            | M             | S           | M                  | S                 | M               | U               | S        | M      | U      |
| Ethyl Acetate             |          | M         | M                            | U     | U                          | S                        | S                            | M       | M                  | S     | S        | U      | S     | U                                          | M           | U             | U                          | /         | S            | S             | U           | U                  | S                 | M               | M               | S        | U      | U      |
| Ethyl Alcohol (50 %)      |          | S         | S                            | S     | S                          | S                        | S                            | M       | S                  | S     | S        | S      | S     | U                                          | S           | U             | S                          | S         | S            | S             | S           | S                  | S                 | S               | M               | S        | M      | U      |
| Ethyl Alcohol (95 %)      |          | S         | S                            | S     | U                          | S                        | S                            | M       | S                  | S     | S        | S      | S     | U                                          | S           | U             | /                          | S         | S            | S             | M           | S                  | S                 | S               | U               | S        | M      | U      |
| Ethylene Dichloride       |          | S         | /                            | U     | U                          | /                        | /                            | S       | M                  | /     | U        | U      | S     | U                                          | U           | U             | U                          | U         | U            | U             | /           | U                  | S                 | U               | /               | S        | /      | S      |
| Ethylene Glycol           |          | S         | S                            | S     | S                          | S                        | S                            | S       | S                  | S     | S        | S      | S     | /                                          | S           | U             | S                          | S         | S            | S             | S           | S                  | S                 | S               | M               | S        | M      | S      |
| Ethylene Oxide Vapor      |          | S         | /                            | U     | /                          | /                        | U                            | /       | /                  | S     | U        | /      | S     | /                                          | S           | M             | /                          | /         | S            | S             | S           | U                  | S                 | U               | S               | S        | S      | U      |
| Ficoll-Hypaque™           |          | M         | S                            | S     | /                          | S                        | S                            | S       | /                  | S     | S        | S      | S     | /                                          | S           | S             | /                          | S         | S            | S             | S           | S                  | S                 | S               | M               | S        | S      | S      |
| Hydrofluoric Acid (10 %)  |          | U         | U                            | U     | M                          | /                        | /                            | U       | /                  | /     | U        | U      | S     | /                                          | S           | M             | U                          | S         | S            | S             | S           | M                  | S                 | U               | U               | U        | /      | /      |
| Hydrofluoric Acid (50 %)  |          | U         | U                            | U     | U                          | /                        | /                            | U       | /                  | /     | U        | U      | U     | U                                          | S           | U             | U                          | U         | S            | S             | M           | M                  | S                 | U               | U               | U        | /      | M      |
| Hydrochloric Acid (conc.) |          | U         | U                            | U     | U                          | /                        | U                            | U       | M                  | /     | U        | M      | U     | U                                          | M           | U             | U                          | U         | /            | S             | /           | U                  | S                 | U               | U               | U        | /      | /      |
| Formaldehyde (40 %)       |          | M         | M                            | M     | S                          | S                        | S                            | S       | M                  | S     | S        | S      | S     | M                                          | S           | S             | S                          | U         | S            | S             | M           | S                  | S                 | S               | M               | S        | M      | U      |
| Glutaraldehyde            |          | S         | S                            | S     | S                          | /                        | /                            | S       | /                  | S     | S        | S      | S     | S                                          | S           | S             | /                          | /         | S            | S             | S           | /                  | /                 | S               | S               | S        | /      | /      |
| Glycerol                  |          | M         | S                            | S     | /                          | S                        | S                            | S       | S                  | S     | S        | S      | S     | S                                          | S           | S             | S                          | /         | S            | S             | S           | S                  | S                 | S               | S               | S        | S      | S      |
| Guanidine Hydrochloride   |          | U         | U                            | S     | /                          | S                        | S                            | S       | /                  | S     | S        | S      | S     | S                                          | S           | S             | /                          | /         | S            | S             | S           | S                  | S                 | S               | U               | S        | S      | S      |
| Haemo-Sol™                |          | S         | S                            | S     | /                          | /                        | /                            | S       | /                  | S     | S        | S      | S     | S                                          | S           | S             | /                          | /         | S            | S             | S           | S                  | S                 | S               | S               | S        | S      | S      |
| Hexane                    |          | S         | S                            | S     | /                          | S                        | S                            | S       | /                  | S     | S        | U      | S     | U                                          | M           | U             | S                          | S         | U            | S             | S           | M                  | S                 | U               | S               | S        | U      | S      |

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|-----------------------------|----------|-----------|------------------------------|--------|----------------------------|--------------------------|------------------------------|---------|--------------------|-------|----------|--------|-------|-------------------------------|-------------|---------------|----------------------------|-----------|--------------|---------------|-------------|--------------------|-------------------|-----------------|-----------------|----------|--------|--------|
| Isobutyl Alcohol            |          | /         | /                            | M      | U                          | /                        | /                            | S       | S                  | /     | U        | /      | S     | U                             | S           | S             | M                          | S         | S            | S             | /           | S                  | S                 | S               | /               | S        | /      | S      |
| Isopropyl Alcohol           |          | M         | M                            | M      | U                          | S                        | S                            | S       | S                  | S     | U        | S      | S     | U                             | S           | U             | M                          | S         | S            | S             | S           | S                  | S                 | S               | M               | M        | M      | S      |
| Iodoacetic Acid             |          | S         | S                            | M      | /                          | S                        | S                            | S       | /                  | S     | M        | S      | S     | M                             | S           | S             | /                          | M         | S            | S             | S           | S                  | S                 | M               | S               | S        | M      | M      |
| Potassium Bromide           |          | U         | S                            | S      | /                          | S                        | S                            | S       | /                  | S     | S        | S      | S     | S                             | S           | S             | S                          | S         | S            | S             | /           | S                  | S                 | S               | M               | S        | S      | S      |
| Potassium Carbonate         |          | M         | U                            | S      | S                          | S                        | S                            | S       | /                  | S     | S        | S      | S     | S                             | S           | U             | S                          | S         | S            | S             | S           | S                  | S                 | S               | S               | S        | S      | S      |
| Potassium Chloride          |          | U         | S                            | S      | /                          | S                        | S                            | S       | S                  | S     | S        | S      | S     | S                             | S           | S             | /                          | S         | S            | S             | S           | S                  | S                 | S               | U               | S        | S      | S      |
| Potassium Hydroxide (5 %)   |          | U         | U                            | S      | S                          | S                        | S                            | M       | /                  | S     | S        | S      | S     | /                             | S           | U             | S                          | S         | S            | S             | S           | S                  | S                 | M               | U               | M        | S      | U      |
| Potassium Hydroxide (conc.) |          | U         | U                            | M      | U                          | /                        | /                            | M       | /                  | M     | S        | S      | /     | U                             | M           | U             | U                          | U         | S            | M             | /           | M                  | U                 | /               | U               | U        | /      | U      |
| Potassium Permanganate      |          | S         | S                            | S      | /                          | S                        | S                            | S       | /                  | S     | S        | S      | U     | S                             | S           | S             | M                          | /         | S            | M             | S           | U                  | S                 | S               | M               | S        | U      | S      |
| Calcium Chloride            |          | M         | U                            | S      | S                          | S                        | S                            | S       | S                  | S     | S        | S      | S     | S                             | S           | M             | S                          | /         | S            | S             | S           | S                  | S                 | S               | M               | S        | S      | S      |
| Calcium Hypochlorite        |          | M         | /                            | U      | /                          | S                        | M                            | M       | S                  | /     | M        | /      | S     | /                             | S           | M             | S                          | /         | S            | S             | S           | M                  | S                 | M               | U               | S        | /      | S      |
| Kerosene                    |          | S         | S                            | S      | /                          | S                        | S                            | S       | U                  | S     | M        | U      | S     | U                             | M           | M             | S                          | /         | M            | M             | M           | S                  | S                 | U               | S               | S        | U      | S      |
| Sodium Chloride (10 %)      |          | S         | /                            | S      | S                          | S                        | S                            | S       | /                  | /     | /        | /      | S     | S                             | S           | S             | S                          | /         | S            | S             | S           | S                  | /                 | S               | S               | M        | /      | S      |
| Sodium Chloride (sat'd)     |          | U         | /                            | S      | U                          | S                        | S                            | S       | /                  | /     | /        | /      | S     | S                             | S           | S             | S                          | /         | S            | S             | /           | S                  | /                 | S               | S               | M        | /      | S      |
| Carbon Tetrachloride        |          | U         | U                            | M      | S                          | S                        | U                            | M       | U                  | S     | U        | U      | S     | U                             | M           | U             | S                          | S         | M            | M             | S           | M                  | M                 | M               | M               | U        | S      | S      |
| Aqua Regia                  |          | U         | /                            | U      | U                          | /                        | /                            | U       | /                  | /     | /        | /      | /     | U                             | U           | U             | U                          | U         | U            | U             | /           | /                  | /                 | /               | /               | S        | /      | M      |
| Solution 555 (20 %)         |          | S         | S                            | S      | /                          | /                        | /                            | S       | /                  | S     | S        | S      | S     | S                             | S           | S             | /                          | /         | S            | S             | S           | /                  | S                 | S               | S               | S        | S      | S      |
| Magnesium Chloride          |          | M         | S                            | S      | /                          | S                        | S                            | S       | S                  | S     | S        | S      | S     | S                             | S           | S             | S                          | S         | S            | S             | S           | S                  | S                 | S               | M               | S        | S      | S      |
| Mercaptoacetic Acid         |          | U         | S                            | U      | /                          | S                        | M                            | S       | /                  | S     | M        | S      | U     | U                             | U           | U             | /                          | S         | U            | U             | S           | M                  | S                 | U               | S               | S        | S      | S      |
| Methyl Alcohol              |          | S         | S                            | S      | U                          | S                        | S                            | M       | S                  | S     | S        | S      | S     | U                             | S           | U             | M                          | S         | S            | S             | S           | S                  | S                 | S               | M               | S        | M      | U      |
| Methylene Chloride          |          | U         | U                            | U      | U                          | M                        | S                            | S       | U                  | S     | U        | U      | S     | U                             | U           | U             | U                          | U         | M            | U             | U           | U                  | S                 | S               | M               | U        | S      | U      |
| Methyl Ethyl Ketone         |          | S         | S                            | U      | U                          | S                        | S                            | M       | S                  | S     | U        | U      | S     | U                             | S           | U             | U                          | U         | S            | S             | U           | U                  | S                 | S               | S               | S        | U      | U      |
| Metrizamide™                |          | M         | S                            | S      | /                          | S                        | S                            | S       | /                  | S     | S        | S      | S     | /                             | S           | S             | /                          | /         | S            | S             | S           | S                  | S                 | S               | M               | S        | S      | S      |
| Lactic Acid (100 %)         |          | /         | /                            | S      | /                          | /                        | /                            | /       | /                  | /     | M        | S      | U     | /                             | S           | S             | S                          | M         | S            | S             | /           | M                  | S                 | M               | S               | S        | /      | S      |
| Lactic Acid (20 %)          |          | /         | /                            | S      | S                          | /                        | /                            | /       | /                  | /     | M        | S      | M     | /                             | S           | S             | S                          | S         | S            | S             | S           | M                  | S                 | M               | S               | S        | /      | S      |
| N-Butyl Alcohol             |          | S         | /                            | S      | U                          | /                        | /                            | S       | /                  | /     | S        | M      | /     | U                             | S           | M             | S                          | S         | S            | S             | M           | M                  | S                 | M               | /               | S        | /      | S      |
| N-Butyl Phthalate           |          | S         | S                            | U      | /                          | S                        | S                            | S       | /                  | S     | U        | U      | S     | U                             | U           | U             | M                          | /         | U            | U             | S           | U                  | S                 | M               | M               | S        | U      | S      |
| N, N-Dimethyl-formamide     |          | S         | S                            | S      | U                          | S                        | M                            | S       | /                  | S     | S        | U      | S     | U                             | S           | U             | U                          | /         | S            | S             | U           | U                  | S                 | M               | S               | S        | S      | U      |
| Sodium Borate               |          | M         | S                            | S      | S                          | S                        | S                            | S       | S                  | S     | S        | S      | U     | S                             | S           | S             | S                          | /         | S            | S             | S           | S                  | S                 | S               | M               | S        | S      | S      |
| Sodium Bromide              |          | U         | S                            | S      | /                          | S                        | S                            | S       | /                  | S     | S        | S      | S     | S                             | S           | S             | S                          | /         | S            | S             | S           | S                  | S                 | S               | M               | S        | S      | S      |
| Sodium Carbonate (2 %)      |          | M         | U                            | S      | S                          | S                        | S                            | S       | S                  | S     | S        | S      | S     | S                             | S           | U             | S                          | S         | S            | S             | S           | S                  | S                 | S               | S               | S        | S      | S      |

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|----------------------------------|----------|-----------|------------------------------|--------|----------------------------|--------------------------|------------------------------|---------|--------------------|-------|----------|--------|-------|------------------------------|-------------|---------------|----------------------------|-----------|--------------|---------------|-------------|--------------------|-------------------|-----------------|-----------------|----------|--------|--------|
| Sodium Dodecyl Sulfate           |          | S         | S                            | S      | /                          | S                        | S                            | S       | /                  | S     | S        | S      | S     | S                            | S           | S             | /                          | S         | S            | S             | S           | S                  | S                 | S               | S               | S        | S      | S      |
| Sodium Hypochlorite (5 %)        |          | U         | U                            | M      | S                          | S                        | M                            | U       | S                  | S     | M        | S      | S     | S                            | M           | S             | S                          | S         | S            | M             | S           | S                  | S                 | M               | U               | S        | M      | S      |
| Sodium Iodide                    |          | M         | S                            | S      | /                          | S                        | S                            | S       | /                  | S     | S        | S      | S     | S                            | S           | S             | /                          | /         | S            | S             | S           | S                  | S                 | S               | M               | S        | S      | S      |
| Sodium Nitrate                   |          | S         | S                            | S      | /                          | S                        | S                            | S       | S                  | S     | S        | S      | S     | S                            | S           | S             | S                          | /         | S            | S             | S           | S                  | S                 | U               | S               | S        | S      | S      |
| Sodium Sulfate                   |          | U         | S                            | S      | /                          | S                        | S                            | S       | S                  | S     | S        | S      | S     | S                            | S           | S             | S                          | S         | S            | S             | S           | S                  | S                 | S               | M               | S        | S      | S      |
| Sodium Sulfide                   |          | S         | /                            | S      | S                          | /                        | /                            | /       | S                  | /     | /        | /      | S     | S                            | S           | U             | U                          | /         | /            | S             | /           | /                  | /                 | S               | S               | M        | /      | S      |
| Sodium Sulfite                   |          | S         | S                            | S      | /                          | S                        | S                            | S       | S                  | M     | S        | S      | S     | S                            | S           | S             | M                          | /         | S            | S             | S           | S                  | S                 | S               | S               | S        | S      | S      |
| Nickel Salts                     |          | U         | S                            | S      | S                          | S                        | S                            | /       | S                  | S     | S        | /      | /     | S                            | S           | S             | S                          | /         | S            | S             | S           | S                  | S                 | S               | M               | S        | S      | S      |
| Oils (Petroleum)                 |          | S         | S                            | S      | /                          | /                        | /                            | S       | U                  | S     | S        | S      | S     | U                            | U           | M             | S                          | M         | U            | U             | S           | S                  | S                 | U               | S               | S        | S      | S      |
| Oils (Other)                     |          | S         | /                            | S      | /                          | /                        | /                            | S       | M                  | S     | S        | S      | S     | U                            | S           | S             | S                          | S         | U            | S             | S           | S                  | S                 | /               | S               | S        | M      | S      |
| Oleic Acid                       |          | S         | /                            | U      | S                          | S                        | S                            | U       | U                  | S     | U        | S      | S     | M                            | S           | S             | S                          | S         | S            | S             | S           | S                  | S                 | M               | U               | S        | M      | M      |
| Oxalic Acid                      |          | U         | U                            | M      | S                          | S                        | S                            | U       | S                  | S     | S        | S      | S     | U                            | S           | U             | S                          | S         | S            | S             | S           | S                  | S                 | S               | U               | M        | S      | S      |
| Perchloric Acid (10 %)           |          | U         | /                            | U      | /                          | S                        | U                            | U       | /                  | S     | M        | M      | /     | /                            | M           | U             | M                          | S         | M            | M             | /           | M                  | S                 | U               | /               | S        | /      | S      |
| Perchloric Acid (70 %)           |          | U         | U                            | U      | /                          | /                        | U                            | U       | /                  | S     | U        | M      | U     | U                            | M           | U             | U                          | U         | M            | M             | U           | M                  | S                 | U               | U               | S        | U      | S      |
| Phenol (5 %)                     |          | U         | S                            | U      | /                          | S                        | M                            | M       | /                  | S     | U        | M      | U     | U                            | S           | U             | M                          | S         | M            | S             | U           | U                  | S                 | U               | M               | M        | M      | S      |
| Phenol (50 %)                    |          | U         | S                            | U      | /                          | S                        | U                            | M       | /                  | S     | U        | M      | U     | U                            | U           | U             | U                          | S         | U            | M             | U           | U                  | S                 | U               | U               | U        | M      | S      |
| Phosphoric Acid (10 %)           |          | U         | U                            | M      | S                          | S                        | S                            | U       | S                  | S     | S        | S      | U     | /                            | S           | S             | S                          | S         | S            | S             | S           | S                  | S                 | U               | M               | U        | S      | S      |
| Phosphoric Acid (conc.)          |          | U         | U                            | M      | M                          | /                        | /                            | U       | S                  | /     | M        | S      | U     | U                            | M           | M             | S                          | S         | S            | M             | S           | M                  | S                 | U               | M               | U        | /      | S      |
| Physiologic Media (Serum, Urine) |          | M         | S                            | S      | S                          | /                        | /                            | S       | /                  | S     | S        | S      | S     | S                            | S           | S             | S                          | S         | S            | S             | S           | S                  | S                 | S               | S               | S        | S      | S      |
| Picric Acid                      |          | S         | S                            | U      | /                          | S                        | M                            | S       | S                  | S     | M        | S      | U     | S                            | S           | S             | U                          | S         | S            | S             | S           | U                  | S                 | U               | M               | S        | M      | S      |
| Pyridine (50 %)                  |          | U         | S                            | U      | U                          | S                        | U                            | U       | /                  | U     | S        | S      | U     | U                            | M           | U             | U                          | /         | U            | S             | M           | U                  | S                 | S               | U               | U        | U      | U      |
| Rubidium Bromide                 |          | M         | S                            | S      | /                          | S                        | S                            | S       | /                  | S     | S        | S      | S     | S                            | S           | S             | /                          | /         | S            | S             | S           | S                  | S                 | S               | M               | S        | S      | S      |
| Rubidium Chloride                |          | M         | S                            | S      | /                          | S                        | S                            | S       | /                  | S     | S        | S      | S     | S                            | S           | S             | /                          | /         | S            | S             | S           | S                  | S                 | S               | M               | S        | S      | S      |
| Sucrose                          |          | M         | S                            | S      | /                          | S                        | S                            | S       | S                  | S     | S        | S      | S     | S                            | S           | S             | S                          | S         | S            | S             | S           | S                  | S                 | S               | S               | S        | S      | S      |
| Sucrose, Alkaline                |          | M         | S                            | S      | /                          | S                        | S                            | S       | /                  | S     | S        | S      | S     | S                            | S           | U             | S                          | S         | S            | S             | S           | S                  | S                 | S               | M               | S        | S      | S      |
| Sulfosalicylic Acid              |          | U         | U                            | S      | S                          | S                        | S                            | S       | /                  | S     | S        | S      | U     | S                            | S           | S             | /                          | S         | S            | S             | /           | S                  | S                 | S               | U               | S        | S      | S      |
| Nitric Acid (10 %)               |          | U         | S                            | U      | S                          | S                        | U                            | U       | /                  | S     | U        | S      | U     | /                            | S           | S             | S                          | S         | S            | S             | S           | S                  | S                 | M               | S               | S        | S      | S      |
| Nitric Acid (50 %)               |          | U         | S                            | U      | M                          | S                        | U                            | U       | /                  | S     | U        | S      | U     | U                            | M           | M             | U                          | M         | M            | M             | S           | S                  | S                 | U               | S               | S        | M      | S      |
| Nitric Acid (95 %)               |          | U         | /                            | U      | U                          | /                        | U                            | U       | /                  | /     | U        | U      | U     | U                            | M           | U             | U                          | U         | U            | M             | U           | U                  | S                 | U               | S               | S        | /      | S      |
| Hydrochloric Acid (10 %)         |          | U         | U                            | M      | S                          | S                        | S                            | U       | /                  | S     | S        | S      | U     | U                            | S           | U             | S                          | S         | S            | S             | S           | S                  | S                 | S               | U               | M        | S      | S      |
| Hydrochloric Acid (50 %)         |          | U         | U                            | U      | U                          | S                        | U                            | U       | /                  | S     | M        | S      | U     | U                            | M           | U             | U                          | S         | S            | S             | S           | M                  | S                 | M               | U               | U        | M      | M      |
| Sulfuric Acid (10 %)             |          | M         | U                            | U      | S                          | S                        | U                            | U       | /                  | S     | S        | M      | U     | S                            | S           | S             | S                          | S         | S            | S             | S           | S                  | S                 | U               | U               | U        | S      | S      |
| Sulfuric Acid (50 %)             |          | M         | U                            | U      | U                          | S                        | U                            | U       | /                  | S     | S        | M      | U     | U                            | S           | U             | U                          | M         | S            | S             | S           | S                  | S                 | U               | U               | U        | M      | S      |
| Sulfuric Acid (conc.)            |          | M         | U                            | U      | U                          | /                        | U                            | U       | M                  | /     | /        | M      | U     | U                            | S           | U             | U                          | U         | M            | S             | U           | M                  | S                 | U               | U               | U        | /      | S      |
| Stearic Acid                     |          | S         | /                            | S      | /                          | /                        | /                            | S       | M                  | S     | S        | S      | S     | /                            | S           | S             | S                          | S         | S            | S             | S           | S                  | S                 | M               | M               | S        | S      | S      |
| Tetrahydrofuran                  |          | S         | S                            | U      | U                          | S                        | U                            | U       | M                  | S     | U        | U      | S     | U                            | U           | U             | /                          | M         | U            | U             | U           | U                  | S                 | U               | S               | S        | U      | U      |

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|--------------------------|----------|-----------|------------------------------|--------|----------------------------|--------------------------|------------------------------|---------|--------------------|-------|----------|--------|-------|--------------------------------------------|-------------|---------------|----------------------------|--------------|--------------|---------------|-------------|--------------------|-------------------|-----------------|-----------------|----------|--------|--------|---|
| Toluene                  |          | S         | S                            | U      | U                          | S                        | S                            | M       | U                  | S     | U        | U      | S     | U                                          | U           | U             | S                          | U            | M            | U             | U           | U                  | S                 | U               | S               | U        | U      | M      |   |
| Trichloroacetic Acid     |          | U         | U                            | U      | /                          | S                        | S                            | U       | M                  | S     | U        | S      | U     | U                                          | S           | M             | /                          | M            | S            | S             | U           | U                  | S                 | U               | U               | U        | M      | U      |   |
| Trichloroethane          |          | S         | /                            | U      | /                          | /                        | /                            | M       | U                  | /     | U        | /      | S     | U                                          | U           | U             | U                          | U            | U            | U             | U           | U                  | S                 | U               | /               | S        | /      | S      |   |
| Trichloroethylene        |          | /         | /                            | U      | U                          | /                        | /                            | /       | U                  | /     | U        | /      | S     | U                                          | U           | U             | U                          | U            | U            | U             | U           | U                  | S                 | U               | /               | U        | /      | S      |   |
| Trisodium Phosphate      |          | /         | /                            | /      | S                          | /                        | /                            | M       | /                  | /     | /        | /      | /     | /                                          | S           | /             | /                          | S            | S            | S             | S           | /                  | /                 | S               | /               | /        | S      | /      | S |
| Tris Buffer (neutral pH) |          | U         | S                            | S      | S                          | S                        | S                            | S       | /                  | S     | S        | S      | S     | S                                          | S           | S             | S                          | S            | S            | S             | S           | S                  | S                 | S               | S               | S        | S      | S      | S |
| Triton X/100™            |          | S         | S                            | S      | /                          | S                        | S                            | S       | /                  | S     | S        | S      | S     | S                                          | S           | S             | S                          | S            | S            | S             | S           | S                  | S                 | S               | S               | S        | S      | S      | S |
| Urea                     |          | S         | /                            | U      | S                          | S                        | S                            | S       | /                  | /     | /        | /      | S     | S                                          | S           | M             | S                          | S            | S            | S             | S           | /                  | S                 | S               | S               | M        | S      | /      | S |
| Hydrogen Peroxide (10 %) |          | U         | U                            | M      | S                          | S                        | U                            | U       | /                  | S     | S        | S      | U     | S                                          | S           | S             | M                          | U            | S            | S             | S           | S                  | S                 | S               | M               | S        | U      | S      |   |
| Hydrogen Peroxide (3 %)  |          | S         | M                            | S      | S                          | S                        | /                            | S       | /                  | S     | S        | S      | S     | S                                          | S           | S             | S                          | M            | S            | S             | S           | S                  | S                 | S               | S               | S        | S      | S      |   |
| Xylene                   |          | S         | S                            | U      | S                          | S                        | S                            | M       | U                  | S     | U        | U      | U     | U                                          | U           | U             | M                          | U            | M            | U             | U           | U                  | S                 | U               | M               | S        | U      | S      |   |
| Zinc Chloride            |          | U         | U                            | S      | S                          | S                        | S                            | U       | S                  | S     | S        | S      | S     | S                                          | S           | S             | S                          | S            | S            | S             | S           | S                  | S                 | S               | U               | S        | S      | S      |   |
| Zinc Sulfate             |          | U         | S                            | S      | /                          | S                        | S                            | S       | S                  | S     | S        | S      | S     | S                                          | S           | S             | S                          | S            | S            | S             | S           | S                  | S                 | S               | S               | S        | S      | S      |   |
| Citric Acid (10 %)       |          | M         | S                            | S      | M                          | S                        | S                            | M       | S                  | S     | S        | S      | S     | S                                          | S           | S             | S                          | M            | S            | S             | S           | S                  | S                 | S               | S               | S        | S      | S      |   |

<sup>1</sup>Polyethyleneterephthalate**Key**

S – Satisfactory.

M – Moderate attack, may be satisfactory for use in centrifuge depending on length of exposure, speed involved, etc.; suggest testing under actual conditions of use.

U – Unsatisfactory, not recommended.

/ – Performance unknown; suggest testing, using sample to avoid loss of valuable material.

**NOTICE**

Chemical resistance data is included only as a guide to product use. Because no organized chemical compatibility data exists for materials under the stress of centrifugation, when in doubt we recommend pretesting sample lots.



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