



Thermo Scientific

Hematocrit rotor

Instruction Manual

50134693-1

September 2012

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Preface

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

The information contained in this instruction manual is the property of Thermo Fisher Scientific; it is forbidden to copy or pass on this information without explicit approval.

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

Scope of Supply

Article Number		Quantity	Check
75003473	Hematocrit Rotor	1	<input type="checkbox"/>
70009824	Anti-corrosion Oil	1	<input type="checkbox"/>
76000938	Reading Harp	1	<input type="checkbox"/>
50134706	CD with Manual	1	<input type="checkbox"/>

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

Accessories

Article Number	
7600 0923	Capillaries
7500 0964	Sealing Putty



This symbol refers to general hazards.
WARNING means that injuries or material damage or contamination could occur.
CAUTION means that material damage could occur.



This symbol refers to biological hazards.

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

- Together with this hematocrit rotor the centrifuge becomes an in-vitro diagnostics device to define the hematocrit value by centrifugation.
- Apply DIN 58933 to define the hematocrit value. To obtain reproducible results, standardization is re-quired both in the interest of patients and blood donors and to guarantee the comparability of research results. The hematocrit value allows you to calculated the rate of erythrocytes in the blood. This applies only if the hematocrit rotor 75003473 is used with approved accessories and items listed in the scope of supply.

Precautions

In order to ensure safe operation of the hematocrit rotor, the following general safety regulations must be followed:

- Do not use rotors which show any signs of corrosion and/or cracks.
- Use only with rotors which have been loaded properly.
- Never overload the rotor.
- Operate the rotor always with the lid closed.
- Use only accessories which have been approved by Thermo Fisher Scientific.
- Please observe the safety instructions.

Please 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: $1.2 \frac{g}{cm^3}$

Rotor Data

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Heraeus

230V 50/60Hz

Centrifuge	PICO 17	PICO 21
Catalog Number	75002410	75002415
Places / Volume	24x Blood Capillary Tubes 75 mm	24x Blood Capillary Tubes 75 mm
Maximum permissible Load [g]	24x0.2	24x0.2
Maximum Speed n_{max} [rpm]	13300	14800
Maximum RCF-Value at n_{max}	16800	16800
Radius max. / min. [cm]	2.0 / 8.5	2.0 / 8.5
Angle [°]	90	90
Accel. / Braking Time [s]	10 / 11	11 / 12
Permissible Temperature Range	-4°C to +40°C	-4°C to +40°C
Sample Heating at n_{max} [°C] referred to Ambient Temperature of 23°C, Run Time 60 Minutes	34	35
Aerosol-tight	No	No
Autoclavable	134°C	134°C

Centrifuge	FRESCO 17	FRESCO 21
Catalog Number	75002420	75002425
Places / Volume	24x Blood Capillary Tubes 75 mm	24x Blood Capillary Tubes 75 mm
Maximum permissible Load [g]	24x0.2	24x0.2
Maximum Speed n_{max} [rpm]	13300	14800
Maximum RCF-Value at n_{max}	16800	16800
Radius max. / min. [cm]	2.0 / 8.5	2.0 / 8.5
Angle [°]	90	90
Accel. / Braking Time [s]	9 / 11	10 / 12
Permissible Temperature Range	-4°C to +40°C	-4°C to +40°C
Sample Heating at n_{max} [°C] referred to Ambient Temperature of 23°C	≤0	≤8
Aerosol-tight	No	No
Autoclavable	134°C	134°C

120V 60Hz

Centrifuge	PICO 17	PICO 21
Catalog Number	75002411	75002416
Places / Volume	24x Blood Capillary Tubes 75 mm	24x Blood Capillary Tubes 75 mm
Maximum permissible Load [g]	24x0.2	24x0.2
Maximum Speed n_{\max} [rpm]	13300	14800
Maximum RCF-Value at n_{\max}	16800	16800
Radius max. / min. [cm]	2.0 / 8.5	2.0 / 8.5
Angle [°]	90	90
Accel. / Braking Time [s]	10 / 11	11 / 12
Permissible Temperature Range	-4°C to +40°C	-4°C to +40°C
Sample Heating at n_{\max} [°C] referred to Ambient Temperature of 23 °C, Run Time 60 Minutes	34	35
Aerosol-tight	No	No
Autoclavable	134°C	134°C

Centrifuge	FRESCO 17	FRESCO 21
Catalog Number	75002421	75002426
Places / Volume	24x Blood Capillary Tubes 75 mm	24x Blood Capillary Tubes 75 mm
Maximum permissible Load [g]	24x0.2	24x0.2
Maximum Speed n_{\max} [rpm]	13300	14800
Maximum RCF-Value at n_{\max}	16800	16800
Radius max. / min. [cm]	2.0 / 8.5	2.0 / 8.5
Angle [°]	90	90
Accel. / Braking Time [s]	9 / 11	10 / 12
Permissible Temperature Range	-4°C to +40°C	-4°C to +40°C
Sample Heating at n_{\max} [°C] referred to Ambient Temperature of 23 °C	≤0	≤8
Aerosol-tight	No	No
Autoclavable	134°C	134°C

1 Rotor Data

Heraeus

100V 50/60Hz

Centrifuge	PICO 17	PICO 21
Catalog Number	75002412	75002417
Places / Volume	24x Blood Capillary Tubes 75 mm	24x Blood Capillary Tubes 75 mm
Maximum permissible Load [g]	24x0.2	24x0.2
Maximum Speed n_{\max} [rpm]	13300	14800
Maximum RCF-Value at n_{\max}	16800	16800
Radius max. / min. [cm]	2.0 / 8.5	2.0 / 8.5
Angle [°]	90	90
Accel. / Braking Time [s]	10 / 11	11 / 12
Permissible Temperature Range	-4°C to +40°C	-4°C to +40°C
Sample Heating at n_{\max} [°C] referred to Ambient Temperature of 23 °C, Run Time 60 Minutes	34	35
Aerosol-tight	No	No
Autoclavable	134°C	134°C

Centrifuge	FRESCO 17	FRESCO 21
Catalog Number	75002422	75002427
Places / Volume	24x Blood Capillary Tubes 75 mm	24x Blood Capillary Tubes 75 mm
Maximum permissible Load [g]	24x0.2	24x0.2
Maximum Speed n_{\max} [rpm]	13300	14800
Maximum RCF-Value at n_{\max}	16800	16800
Radius max. / min. [cm]	2.0 / 8.5	2.0 / 8.5
Angle [°]	90	90
Accel. / Braking Time [s]	9 / 11	10 / 12
Permissible Temperature Range	-4°C to +40°C	-4°C to +40°C
Sample Heating at n_{\max} [°C] referred to Ambient Temperature of 23 °C	≤0	≤8
Aerosol-tight	No	No
Autoclavable	134°C	134°C

Sorvall

230V 50/60Hz

Centrifuge	Legend Micro 17	Legend Micro 21
Catalog Number	75002430	75002435
Places / Volume	24x Blood Capillary Tubes 75 mm	24x Blood Capillary Tubes 75 mm
Maximum permissible Load [g]	24x0.2	24x0.2
Maximum Speed n_{\max} [rpm]	13300	14800
Maximum RCF-Value at n_{\max}	16800	16800
Radius max. / min. [cm]	2.0 / 8.5	2.0 / 8.5
Angle [°]	90	90
Accel. / Braking Time [s]	10 / 11	11 / 12
Permissible Temperature Range	-4°C to +40°C	-4°C to +40°C
Sample Heating at n_{\max} [°C] referred to Ambient Temperature of 23 °C, Run Time 60 Minutes	34	35
Aerosol-tight	No	No
Autoclavable	134°C	134°C

Centrifuge	Legend Micro 17R	Legend Micro 21R
Catalog Number	75002440	75002445
Places / Volume	24x Blood Capillary Tubes 75 mm	24x Blood Capillary Tubes 75 mm
Maximum permissible Load [g]	24x0.2	24x0.2
Maximum Speed n_{\max} [rpm]	13300	14800
Maximum RCF-Value at n_{\max}	16800	16800
Radius max. / min. [cm]	2.0 / 8.5	2.0 / 8.5
Angle [°]	90	90
Accel. / Braking Time [s]	9 / 11	10 / 12
Permissible Temperature Range	-4°C to +40°C	-4°C to +40°C
Sample Heating at n_{\max} [°C] referred to Ambient Temperature of 23 °C	≤0	≤8
Aerosol-tight	No	No
Autoclavable	134°C	134°C

120V 60Hz

Centrifuge	Legend Micro 17	Legend Micro 21
Catalog Number	75002431	75002436
Places / Volume	24x Blood Capillary Tubes 75 mm	24x Blood Capillary Tubes 75 mm
Maximum permissible Load [g]	24x0.2	24x0.2
Maximum Speed n_{\max} [rpm]	13300	14800
Maximum RCF-Value at n_{\max}	16800	16800
Radius max. / min. [cm]	2.0 / 8.5	2.0 / 8.5
Angle [°]	90	90
Accel. / Braking Time [s]	10 / 11	11 / 12
Permissible Temperature Range	-4°C to +40°C	-4°C to +40°C
Sample Heating at n_{\max} [°C] referred to Ambient Temperature of 23 °C, Run Time 60 Minutes	34	35
Aerosol-tight	No	No
Autoclavable	134°C	134°C

Centrifuge	Legend Micro 17R	Legend Micro 21R
Catalog Number	75002441	75002446
Places / Volume	24x Blood Capillary Tubes 75 mm	24x Blood Capillary Tubes 75 mm
Maximum permissible Load [g]	24x0.2	24x0.2
Maximum Speed n_{\max} [rpm]	13300	14800
Maximum RCF-Value at n_{\max}	16800	16800
Radius max. / min. [cm]	2.0 / 8.5	2.0 / 8.5
Angle [°]	90	90
Accel. / Braking Time [s]	9 / 11	10 / 12
Permissible Temperature Range	-4°C to +40°C	-4°C to +40°C
Sample Heating at n_{\max} [°C] referred to Ambient Temperature of 23 °C	≤0	≤8
Aerosol-tight	No	No
Autoclavable	134°C	134°C

100V 50/60Hz

Centrifuge	Legend Micro 17	Legend Micro 21
Catalog Number	75002432	75002437
Places / Volume	24x Blood Capillary Tubes 75 mm	24x Blood Capillary Tubes 75 mm
Maximum permissible Load [g]	24x0.2	24x0.2
Maximum Speed n_{\max} [rpm]	13300	14800
Maximum RCF-Value at n_{\max}	16800	16800
Radius max. / min. [cm]	2.0 / 8.5	2.0 / 8.5
Angle [°]	90	90
Accel. / Braking Time [s]	10 / 11	11 / 12
Permissible Temperature Range	-4°C to +40°C	-4°C to +40°C
Sample Heating at n_{\max} [°C] referred to Ambient Temperature of 23 °C, Run Time 60 Minutes	34	35
Aerosol-tight	No	No
Autoclavable	134°C	134°C

Centrifuge	Legend Micro 17R	Legend Micro 21R
Catalog Number	75002442	75002447
Places / Volume	24x Blood Capillary Tubes 75 mm	24x Blood Capillary Tubes 75 mm
Maximum permissible Load [g]	24x0.2	24x0.2
Maximum Speed n_{\max} [rpm]	13300	14800
Maximum RCF-Value at n_{\max}	16800	16800
Radius max. / min. [cm]	2.0 / 8.5	2.0 / 8.5
Angle [°]	90	90
Accel. / Braking Time [s]	9 / 11	10 / 12
Permissible Temperature Range	-4°C to +40°C	-4°C to +40°C
Sample Heating at n_{\max} [°C] referred to Ambient Temperature of 23 °C	≤0	≤8
Aerosol-tight	No	No
Autoclavable	134°C	134°C

MicroCL

230V 50/60Hz

Centrifuge	Micro CL 17	Micro CL 21
Catalog Number	75002450	75002465
Places / Volume	24x Blood Capillary Tubes 75 mm	24x Blood Capillary Tubes 75 mm
Maximum permissible Load [g]	24x0.2	24x0.2
Maximum Speed n_{max} [rpm]	13300	14800
Maximum RCF-Value at n_{max}	16800	16800
Radius max. / min. [cm]	2.0 / 8.5	2.0 / 8.5
Angle [°]	90	90
Accel. / Braking Time [s]	10 / 11	11 / 12
Permissible Temperature Range	-4°C to +40°C	-4°C to +40°C
Sample Heating at n_{max} [°C] referred to Ambient Temperature of 23 °C, Run Time 60 Minutes	34	35
Aerosol-tight	No	No
Autoclavable	134°C	134°C

Centrifuge	Micro CL 17R	Micro CL 21R
Catalog Number	75002455	75002470
Places / Volume	24x Blood Capillary Tubes 75 mm	24x Blood Capillary Tubes 75 mm
Maximum permissible Load [g]	24x0.2	24x0.2
Maximum Speed n_{max} [rpm]	13300	14800
Maximum RCF-Value at n_{max}	16800	16800
Radius max. / min. [cm]	2.0 / 8.5	2.0 / 8.5
Angle [°]	90	90
Accel. / Braking Time [s]	9 / 11	10 / 12
Permissible Temperature Range	-4°C to +40°C	-4°C to +40°C
Sample Heating at n_{max} [°C] referred to Ambient Temperature of 23 °C	≤0	≤8
Aerosol-tight	No	No
Autoclavable	134°C	134°C

120V 60Hz

Centrifuge	Micro CL 17	Micro CL 21
Catalog Number	75002451	75002466
Places / Volume	24x Blood Capillary Tubes 75 mm	24x Blood Capillary Tubes 75 mm
Maximum permissible Load [g]	24x0.2	24x0.2
Maximum Speed n_{\max} [rpm]	13300	14800
Maximum RCF-Value at n_{\max}	16800	16800
Radius max. / min. [cm]	2.0 / 8.5	2.0 / 8.5
Angle [°]	90	90
Accel. / Braking Time [s]	10 / 11	11 / 12
Permissible Temperature Range	-4°C to +40°C	-4°C to +40°C
Sample Heating at n_{\max} [°C] referred to Ambient Temperature of 23 °C, Run Time 60 Minutes	34	35
Aerosol-tight	No	No
Autoclavable	134°C	134°C

Centrifuge	Micro CL 17R	Micro CL 21R
Catalog Number	75002456	75002471
Places / Volume	24x Blood Capillary Tubes 75 mm	24x Blood Capillary Tubes 75 mm
Maximum permissible Load [g]	24x0.2	24x0.2
Maximum Speed n_{\max} [rpm]	13300	14800
Maximum RCF-Value at n_{\max}	16800	16800
Radius max. / min. [cm]	2.0 / 8.5	2.0 / 8.5
Angle [°]	90	90
Accel. / Braking Time [s]	9 / 11	10 / 12
Permissible Temperature Range	-4°C to +40°C	-4°C to +40°C
Sample Heating at n_{\max} [°C] referred to Ambient Temperature of 23 °C	≤0	≤8
Aerosol-tight	No	No
Autoclavable	134°C	134°C

1 Rotor Data

MicroCL

100V 50/60Hz

Centrifuge	Micro CL 17	Micro CL 21
Catalog Number	75002452	75002467
Places / Volume	24x Blood Capillary Tubes 75 mm	24x Blood Capillary Tubes 75 mm
Maximum permissible Load [g]	24x0.2	24x0.2
Maximum Speed n_{\max} [rpm]	13300	14800
Maximum RCF-Value at n_{\max}	16800	16800
Radius max. / min. [cm]	2.0 / 8.5	2.0 / 8.5
Angle [°]	90	90
Accel. / Braking Time [s]	10 / 11	11 / 12
Permissible Temperature Range	-4°C to +40°C	-4°C to +40°C
Sample Heating at n_{\max} [°C] referred to Ambient Temperature of 23 °C, Run Time 60 Minutes	34	35
Aerosol-tight	No	No
Autoclavable	134°C	134°C

Centrifuge	Micro CL 17R	Micro CL 21R
Catalog Number	75002457	75002472
Places / Volume	24x Blood Capillary Tubes 75 mm	24x Blood Capillary Tubes 75 mm
Maximum permissible Load [g]	24x0.2	24x0.2
Maximum Speed n_{\max} [rpm]	13300	14800
Maximum RCF-Value at n_{\max}	16800	16800
Radius max. / min. [cm]	2.0 / 8.5	2.0 / 8.5
Angle [°]	90	90
Accel. / Braking Time [s]	9 / 11	10 / 12
Permissible Temperature Range	-4°C to +40°C	-4°C to +40°C
Sample Heating at n_{\max} [°C] referred to Ambient Temperature of 23 °C	≤0	≤8
Aerosol-tight	No	No
Autoclavable	134°C	134°C

Fisher Scientific

230V 50/60Hz

Centrifuge	AccuSpin 17
Catalog Number	75002460
Places / Volume	24x Blood Capillary Tubes 75 mm
Maximum permissible Load [g]	24x0.2
Maximum Speed n_{\max} [rpm]	13300
Maximum RCF-Value at n_{\max}	16800
Radius max. / min. [cm]	2.0 / 8.5
Angle [°]	90
Accel. / Braking Time [s]	10 / 11
Permissible Temperature Range	-4°C to +40°C
Sample Heating at n_{\max} [°C] referred to Ambient Temperature of 23 °C, Run Time 60 Minutes	34
Aerosol-tight	No
Autoclavable	134°C

Centrifuge	AccuSpin 17R
Catalog Number	75002462
Places / Volume	24x Blood Capillary Tubes 75 mm
Maximum permissible Load [g]	24x0.2
Maximum Speed n_{\max} [rpm]	13300
Maximum RCF-Value at n_{\max}	16800
Radius max. / min. [cm]	2.0 / 8.5
Angle [°]	90
Accel. / Braking Time [s]	9 / 11
Permissible Temperature Range	-4°C to +40°C
Sample Heating at n_{\max} [°C] referred to Ambient Temperature of 23 °C	≤0
Aerosol-tight	No
Autoclavable	134°C

120V 60Hz

Centrifuge	AccuSpin 17
Catalog Number	75002461
Places / Volume	24x Blood Capillary Tubes 75 mm
Maximum permissible Load [g]	24x0.2
Maximum Speed n_{\max} [rpm]	13300
Maximum RCF-Value at n_{\max}	16800
Radius max. / min. [cm]	2.0 / 8.5
Angle [°]	90
Accel. / Braking Time [s]	10 / 11
Permissible Temperature Range	-4°C to +40°C
Sample Heating at n_{\max} [°C] referred to Ambient Temperature of 23 °C, Run Time 60 Minutes	34
Aerosol-tight	No
Autoclavable	134°C

Centrifuge	AccuSpin 17R
Catalog Number	75002463
Places / Volume	24x Blood Capillary Tubes 75 mm
Maximum permissible Load [g]	24x0.2
Maximum Speed n_{\max} [rpm]	13300
Maximum RCF-Value at n_{\max}	16800
Radius max. / min. [cm]	2.0 / 8.5
Angle [°]	90
Accel. / Braking Time [s]	9 / 11
Permissible Temperature Range	-4°C to +40°C
Sample Heating at n_{\max} [°C] referred to Ambient Temperature of 23 °C	≤0
Aerosol-tight	No
Autoclavable	134°C

Thermo Scientific

230V 50/60Hz

Centrifuge	Micro CL 17	Micro CL 21
Catalog Number	75002479	75002481
Places / Volume	24x Blood Capillary Tubes 75 mm	24x Blood Capillary Tubes 75 mm
Maximum permissible Load [g]	24x0.2	24x0.2
Maximum Speed n_{max} [rpm]	13300	14800
Maximum RCF-Value at n_{max}	16800	16800
Radius max. / min. [cm]	2.0 / 8.5	2.0 / 8.5
Angle [°]	90	90
Accel. / Braking Time [s]	10 / 11	11 / 12
Permissible Temperature Range	-4°C to +40°C	-4°C to +40°C
Sample Heating at n_{max} [°C] referred to Ambient Temperature of 23 °C, Run Time 60 Minutes	34	35
Aerosol-tight	No	No
Autoclavable	134°C	134°C

Centrifuge	Micro CL 17R	Micro CL 21R
Catalog Number	75002483	75002485
Places / Volume	24x Blood Capillary Tubes 75 mm	24x Blood Capillary Tubes 75 mm
Maximum permissible Load [g]	24x0.2	24x0.2
Maximum Speed n_{max} [rpm]	13300	14800
Maximum RCF-Value at n_{max}	16800	16800
Radius max. / min. [cm]	2.0 / 8.5	2.0 / 8.5
Angle [°]	90	90
Accel. / Braking Time [s]	9 / 11	10 / 12
Permissible Temperature Range	-4°C to +40°C	-4°C to +40°C
Sample Heating at n_{max} [°C] referred to Ambient Temperature of 23 °C	≤0	≤8
Aerosol-tight	No	No
Autoclavable	134°C	134°C

120V 60Hz

Centrifuge	Micro CL 17	Micro CL 21
Catalog Number	75002480	75002482
Places / Volume	24x Blood Capillary Tubes 75 mm	24x Blood Capillary Tubes 75 mm
Maximum permissible Load [g]	24x0.2	24x0.2
Maximum Speed n_{\max} [rpm]	13300	14800
Maximum RCF-Value at n_{\max}	16800	16800
Radius max. / min. [cm]	2.0 / 8.5	2.0 / 8.5
Angle [°]	90	90
Accel. / Braking Time [s]	10 / 11	11 / 12
Permissible Temperature Range	-4°C to +40°C	-4°C to +40°C
Sample Heating at n_{\max} [°C] referred to Ambient Temperature of 23 °C, Run Time 60 Minutes	34	35
Aerosol-tight	No	No
Autoclavable	134°C	134°C

Centrifuge	Micro CL 17R	Micro CL 21R
Catalog Number	75002484	75002486
Places / Volume	24x Blood Capillary Tubes 75 mm	24x Blood Capillary Tubes 75 mm
Maximum permissible Load [g]	24x0.2	24x0.2
Maximum Speed n_{\max} [rpm]	13300	14800
Maximum RCF-Value at n_{\max}	16800	16800
Radius max. / min. [cm]	2.0 / 8.5	2.0 / 8.5
Angle [°]	90	90
Accel. / Braking Time [s]	9 / 11	10 / 12
Permissible Temperature Range	-4°C to +40°C	-4°C to +40°C
Sample Heating at n_{\max} [°C] referred to Ambient Temperature of 23 °C	≤0	≤8
Aerosol-tight	No	No
Autoclavable	134°C	134°C

Rotor Application

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Filling the Hematocrit Capillaries

Note Mind the lifetime of the capillaries.

1. Fill the hematocrit capillary (760000923) with a blood column of approximately 65 mm. Make sure that the second opening remains dry.
2. Close the dry end of the hematocrit capillary with sealing putty (7500 0964). To do this, push the hematocrit capillary vertically into the sealing putty until its rim touches the sealing putty's plate.
3. Tilt it slightly and pull the hematocrit capillary carefully out of the putty. Make sure that the capillaries are well sealed with the sealing putty.

Rotor Loading

1. Place the hematocrit capillary with its closed end pointing outwards (towards the rim of the rotor) horizontally into the hematocrit rotor. The hematocrit capillary must touch the sealing (7500 3437). The sealing protects the sensible capillaries from the hard rotor rim. The capillaries can break during a run when the sealing is missing.



CAUTION Ensure that a balancing hematocrit capillary is placed opposite in order to avoid imbalance and possible damage.
If not all places are filled with hematocrit capillaries the must be placed with an opposite.

2. Close the rotor lid by turning it clockwise.



CAUTION Damaged parts must be replaced immediately.

Rotor Installation

Use the rotor only in centrifuges that list it in their manual.

The wrench (20360104) is needed for the rotor installation.

Do not install the rotor when the temperature difference between shaft and rotor lock is >20 °C. Otherwise the rotor might jam during the installation.

The installation of a jammed rotor can lead to damages of centrifuge and rotor.

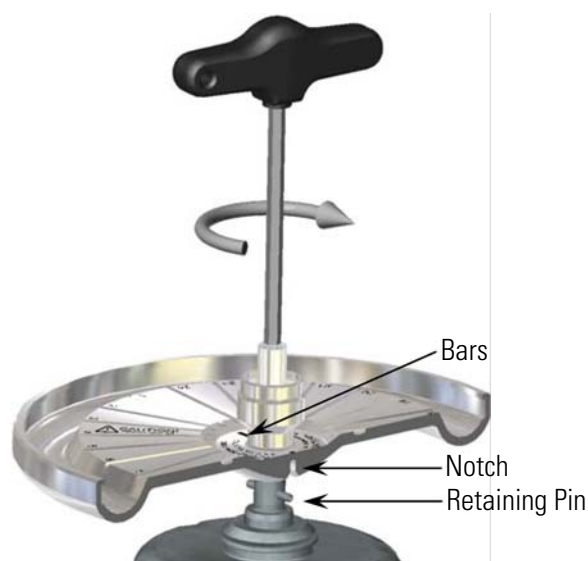
Proceed as follows:

1. Open the centrifuge lid.
2. If necessary remove any dust, foreign objects or residue. The thread and the O-ring on the shaft must be clean and in undamaged.
3. Turn the rotor so that the notch for the engaging the shaft points downwards (see figure below).

- Place the rotor onto the shaft so that the notch of the rotor is placed precisely above the retaining pin.
The two bars in the labeling on the upper side of the rotor indicate the position of the notch. These bars help you to position the rotor (see figure below).
- Press the rotor gently down until it stops.
- Grip the rotor tightly and use the provided allen wrench (20360104) to tighten the rotor.



CAUTION Do not force the rotor onto the centrifuge spindle. If the rotor cannot be tightened, remove the rotor again. Align the notch and the retaining pin again and reinstall the rotor.



Rotor Temperature Range



CAUTION Operate the rotor in a temperature range between -9°C and $+40^{\circ}\text{C}$ only. A pre-tempering in a freezer below -9°C is not allowed.

Note The rotor can warm up in ventilated centrifuges. Temperature above 45°C the samples can be damaged. Let the rotor cool down between two runs.

Duration

The duration depends on the RCF-value. For a clear separation the run should last at least 5 minutes. The following values are suggested for reproducible results.

Speed rpm	Duration in Minutes
13300	8

Explanation of RCF-Value

The relative centrifugal force (RCF) is given as a multiple of the force of gravity *g*. It is a unitless 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 come into play in it:

$$\text{RCF} = 11,18 \times \left(\frac{n}{1000} \right)^2 \times r$$

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.

Rotor Lid

The rotor can be removed the the lid closed.



WARNING The rotor cannot be used for aerosol-tight applications. The O-ring on the rotor lock has the function to secure the rotor lid when screwed on. The external lid lip cannot be sealed.

Open

The rotor lid is screwed onto the shaft with a thread.

1. Turn the rotor handle counter-clockwise to open the lid.
2. Lift the rotor lid.

Using the Reading Graph

The reading graph (7600 0938) is supplied with the rotor. To read the values, proceed as follows:

1. Remove the hematocrit capillaries one by one from the rotor.

Note Be careful not to shake up the sample while removing. If the samples have been shaken up during removal, they can be centrifuge again.

2. Place the bottom end of the hematocrit capillary on the zero line with the blood column and the upper end of the plasma column on the 100% line of the graph.

The dividing line between erythrocytes and plasma indicates the percentage of packed cells.

Note Be careful to place the hematocrit capillary at a right angle to the zero line.

Rotor Life-time

The rotor has no life-time restrictions. For safety reasons please bear the following in mind:

- UV rays reduce the stability of plastics. Do not subject the centrifuge, rotors and plastic accessories to direct sunlight.
- If the rotor shows signs of decoloration, deformation, wear or imbalance it must be replaced.

Maintenance and Care

Contents

- “Cleaning Intervals” on page 3-2
- “Cleaning” on page 3-3
- “Disinfection” on page 3-4
- “Decontamination” on page 3-5
- “Autoclaving” on page 3-6
- “Service of Thermo Fisher Scientific” on page 3-6

Cleaning Intervals

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

Maintenance	Recommended Interval
Clean Rotor Chamber	Daily or when polluted
Clean Rotor	Daily or when polluted
Accessories	Daily or when polluted



CAUTION 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.
Use only approved cleansers.
If in doubt, contact Thermo Fisher Scientific.

Replace Sealing 7500 3437

1. Remove the old sealing.
2. Form the sealing into a ring without twisting it.
3. Put the touching ends into the rotor groove so that they are placed between two capillary slots.



4. Press the rubber strip completely into the groove, avoiding creases or waves.

How to Deal with broken Hematocrit Capillary Tubes



WARNING Infectious material can get into the centrifuge when a tube breaks or as a result of spills. Keep in mind the risk of infection when touching the rotor and take all necessary precautions.
Broken capillary tubes have sharp edges and are a risk of injury

1. Remove the lid of the hematocrit rotor carefully.
2. Remove the larger pieces of the capillary tubes with tweezers.
3. Remove the rotor.
4. Remove the sealing slowly and carefully with the tweezers.
5. Clean and disinfect the rotor as described below.
6. Place a new sealing.

Cleaning

Clean rotor and accessories as follows:

- Use warm water with a neutral solvent.
- Never use caustic cleaning agents such as soap suds, phosphoric acid, bleaching solutions or scrubbing powder.
- Rinse the cavities out thoroughly.
- Use a soft brush without metal bristles to remove stubborn residue.
- Afterwards rinse with distilled water.
- Place the rotors on a plastic grate with their cavities pointing down.
- 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.
- Use only disinfectants with a pH of 6-8.
- Dry aluminum parts off with a soft cloth.
- After cleaning, treat the entire surface of aluminum parts with corrosion protection oil (7000 9824). Also treat the cavities with oil.
- Store the aluminum parts at room temperature or in a cold-storage room with the cavities pointing down.



CAUTION 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.

Clean rotor and accessories as follows:

1. Open the centrifuge.
2. Turn off the centrifuge.
3. Pull out the power supply plug.
4. Grasp the rotor with both hands and lift it vertically off the centrifuge spindle.
5. Remove the centrifuge tubes and adapters.

6. Use a neutral cleaning agent with a pH value between 6 and 8 for cleaning.
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.
 - After cleaning, treat the entire surface of aluminum parts with corrosion protection oil (7000 9824). Also treat the cavities with oil.



CAUTION When cleaning, do not allow liquids, especially organic solvents, to get on the drive shaft or the bearings of the centrifuge. Organic solvents break down the grease in the motor bearing. The drive shaft could freeze up.

After some applications their might be ice. Let the ice melt and drain it off. Clean the rotor as described above.

Disinfection

Disinfect rotor and centrifuge immediately whenever infectious material has spilled during centrifugation.



WARNING Infectious material can get into the centrifuge when a tube breaks or as a result of spills. Keep in mind the risk of infection when touching the rotor and take all necessary precautions. Broken capillary tubes have sharp edges and are a risk of injury. In case of contamination, make sure that others are not put at risk. Decontaminate the affected parts immediately. Take other precautions if need be.

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



CAUTION 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. Observe the safety precautions and handling instructions for the cleaning agents used.

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

Disinfect the rotor and accessories as follows:

1. Open the centrifuge.
2. Turn off the centrifuge.
3. Pull out the power supply plug.
4. Unscrew the rotor with the allen wrench (20360104).
5. Grasp the rotor with both hands and lift it vertically off the centrifuge spindle.
6. Remove the capillary tubes and dispose them.
7. Treat the rotor and accessories according to the instructions for the disinfectant (soak in solution). Adhere strictly to the given application times.

8. Be sure the disinfectant can drain off the rotor.
9. Rinse the rotor and accessories thoroughly with water.
10. Dispose of the disinfectant according to the applicable guidelines.
11. 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.
 - After cleaning, treat the entire surface of aluminum parts with corrosion protection oil (7000 9824). Also treat the cavities with oil.

Decontamination

Decontaminate rotor and centrifuge immediately whenever radioactive material has spilled during centrifugation.



WARNING Radioactive material can get into the centrifuge when a tube breaks or as a result of spills. Keep in mind the risk of infection when touching the rotor and take all necessary precautions.
In case of contamination, make sure that others are not put at risk.
Decontaminate the affected parts immediately.
Take other precautions if need be.



CAUTION 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.

For general radioactive decontamination use a solution of equal parts of 70% ethanol, 10% SDS and water.

1. Open the centrifuge.
2. Turn off the centrifuge.
3. Pull out the power supply plug.
4. Unscrew the rotor with the Allen wrench (20360104).
5. Grasp the rotor with both hands and lift it vertically off the centrifuge spindle.
6. Remove the centrifuge tubes and adapters and dispose of them or disinfect them.
7. Rinse the rotor first with ethanol and then with de-ionized water.
 - Adhere strictly to the given application times.
8. Be sure the decontamination solution can drain off the rotor.
9. Rinse the rotor and accessories thoroughly with water.
10. Dispose of the decontamination solution according to the applicable guidelines.
11. 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.

3 Maintenance and Care

Autoclaving

- After cleaning, treat the entire surface of aluminum parts with corrosion protection oil (7000 9824). Also treat the cavities with oil.

Autoclaving

1. Before autoclaving clean rotor and accessories as described above.
 2. Open the rotor lid and remove the capillary tubes.
 3. Place the rotor on a flat surface.
- Rotors and adapter can be autoclaved at 121°C for 20 minutes.
 - Use the autoclaving protocol “Autoclaving Protocol” on [page D-1](#) to record the cycles.

Note No chemical additives are permitted in the steam.



CAUTION Never exceed the permitted temperature and duration when autoclaving. If the rotor shows signs of corrosion or wear, it must be replaced.

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:

- the electrical equipment
- the suitability of the set-up site
- the lid lock and the safety system
- the rotor
- the fixation of the rotor and the drive shaft

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 a Thermo Fisher Scientific service technician.

Shipping and Deposing of Centrifuge and Accessories

Contact the Thermo Scientific customer service before returning anything. You will receive a RMA that must be used for the shipping. When you have questions regarding the deposing the customer service will help you as well. The contact information can be found in “[Contact Information](#)” on [page C-1](#). Before shipping or deposing centrifuges and accessories you have to clean and if necessary disinfect or decontaminate everything. Before storing the centrifuge and the accessories it must be cleaned and if necessary disinfected and decontaminated.

RCF-Values

Speed rpm	Radius min	Radius max	RCF R _{min}	RCF R _{max}
300	4.4	7.0	4	7
400	4.4	7.0	8	13
500	4.4	7.0	12	20
600	4.4	7.0	18	28
700	4.4	7.0	24	38
800	4.4	7.0	31	50
900	4.4	7.0	40	63
1000	4.4	7.0	49	78
1100	4.4	7.0	60	95
1200	4.4	7.0	71	113
1300	4.4	7.0	83	132
1400	4.4	7.0	96	153
1500	4.4	7.0	111	176
1600	4.4	7.0	126	200
1700	4.4	7.0	142	226
1800	4.4	7.0	159	254
1900	4.4	7.0	178	283
2000	4.4	7.0	197	313
2100	4.4	7.0	217	345
2200	4.4	7.0	238	379
2300	4.4	7.0	260	414
2400	4.4	7.0	283	451
2500	4.4	7.0	307	489
2600	4.4	7.0	333	529
2700	4.4	7.0	359	571
2800	4.4	7.0	386	614
2900	4.4	7.0	414	658
3000	4.4	7.0	443	704

A RCF-Values

Speed rpm	Radius min	Radius max	RCF R _{min}	RCF R _{max}
3100	4.4	7.0	473	752
3200	4.4	7.0	504	801
3300	4.4	7.0	536	852
3400	4.4	7.0	569	905
3500	4.4	7.0	603	959
3600	4.4	7.0	638	1014
3700	4.4	7.0	673	1071
3800	4.4	7.0	710	1130
3900	4.4	7.0	748	1190
4000	4.4	7.0	787	1252
4100	4.4	7.0	827	1316
4200	4.4	7.0	868	1381
4300	4.4	7.0	910	1447
4400	4.4	7.0	952	1515
4500	4.4	7.0	996	1585
4600	4.4	7.0	1041	1656
4700	4.4	7.0	1087	1729
4800	4.4	7.0	1133	1803
4900	4.4	7.0	1181	1879
5000	4.4	7.0	1230	1957
5100	4.4	7.0	1279	2036
5200	4.4	7.0	1330	2116
5300	4.4	7.0	1382	2198
5400	4.4	7.0	1434	2282
5500	4.4	7.0	1488	2367
5600	4.4	7.0	1543	2454
5700	4.4	7.0	1598	2543
5800	4.4	7.0	1655	2633
5900	4.4	7.0	1712	2724
6000	4.4	7.0	1771	2817
6030	4.4	7.0	1789	2846
6100	4.4	7.0	1830	2912
6200	4.4	7.0	1891	3008
6300	4.4	7.0	1952	3106
6400	4.4	7.0	2015	3206
6500	4.4	7.0	2078	3306
6600	4.4	7.0	2143	3409

Speed rpm	Radius min	Radius max	RCF R _{min}	RCF R _{max}
6700	4.4	7.0	2208	3513
6800	4.4	7.0	2275	3619
6900	4.4	7.0	2342	3726
7000	4.4	7.0	2410	3835
7100	4.4	7.0	2480	3945
7200	4.4	7.0	2550	4057
7300	4.4	7.0	2621	4170
7400	4.4	7.0	2694	4286
7500	4.4	7.0	2767	4402
7600	4.4	7.0	2841	4520
7700	4.4	7.0	2917	4640
7800	4.4	7.0	2993	4761
7900	4.4	7.0	3070	4884
8000	4.4	7.0	3148	5009
8100	4.4	7.0	3227	5135
8200	4.4	7.0	3308	5262
8300	4.4	7.0	3389	5391
8400	4.4	7.0	3471	5522
8500	4.4	7.0	3554	5654
8600	4.4	7.0	3638	5788
8700	4.4	7.0	3723	5923
8800	4.4	7.0	3809	6060
8900	4.4	7.0	3896	6199
9000	4.4	7.0	3985	6339
9100	4.4	7.0	4074	6481
9200	4.4	7.0	4164	6624
9300	4.4	7.0	4255	6769
9400	4.4	7.0	4347	6915
9500	4.4	7.0	4440	7063
9600	4.4	7.0	4534	7212
9700	4.4	7.0	4628	7363
9800	4.4	7.0	4724	7516
9900	4.4	7.0	4821	7670
10000	4.4	7.0	4919	7826
10100	4.4	7.0	5018	7983
10200	4.4	7.0	5118	8142
10300	4.4	7.0	5219	8303

Speed rpm	Radius min	Radius max	RCF R _{min}	RCF R _{max}
10350	4.4	7.0	5270	8383
10400	4.4	7.0	5321	8465
10500	4.4	7.0	5423	8628
10600	4.4	7.0	5527	8793
10700	4.4	7.0	5632	8960
10800	4.4	7.0	5738	9128
10900	4.4	7.0	5845	9298
11000	4.4	7.0	5952	9469
11100	4.4	7.0	6061	9642
11200	4.4	7.0	6171	9817
11300	4.4	7.0	6281	9993
11400	4.4	7.0	6393	10171
11500	4.4	7.0	6506	10350
11600	4.4	7.0	6619	10531
11700	4.4	7.0	6734	10713
11800	4.4	7.0	6849	10897
11900	4.4	7.0	6966	11082
12000	4.4	7.0	7084	11269
12100	4.4	7.0	7202	11458
12200	4.4	7.0	7322	11648
12300	4.4	7.0	7442	11840
12400	4.4	7.0	7564	12033
12500	4.4	7.0	7686	12228
12600	4.4	7.0	7810	12425
12700	4.4	7.0	7934	12623
12800	4.4	7.0	8060	12822
12900	4.4	7.0	8186	13023
13000	4.4	7.0	8313	13226
13100	4.4	7.0	8442	13430
13200	4.4	7.0	8571	13636
13300	4.4	7.0	8702	13843
13400	4.4	7.0	8833	14052
13500	4.4	7.0	8965	14263
13600	4.4	7.0	9099	14475
13700	4.4	7.0	9233	14689
13800	4.4	7.0	9368	14904
13900	4.4	7.0	9504	15121

Speed rpm	Radius min	Radius max	RCF R _{min}	RCF R _{max}
14000	4.4	7.0	9642	15339
14100	4.4	7.0	9780	15559
14200	4.4	7.0	9919	15780
14300	4.4	7.0	10059	16003
14400	4.4	7.0	10200	16228
14500	4.4	7.0	10343	16454
14600	4.4	7.0	10486	16682
14700	4.4	7.0	10630	16911
14800	4.4	7.0	10775	17142

Chemical Compatibility Chart

CHEMICAL	MATERIAL																										
	ALUMINUM	ANODIC COATING for ALUMINUM	BUNA N	CELLULOSE ACETATE BUTYRATE	POLYURETHANE ROTOR PAINT	COMPOSITE Carbon Fiber/Epoxy	DELRIN	ETHYLENE PROPYLENE	GLASS	NEOPRENE	NORYL	NYLON	PET ¹ , POLYCLEAR, CLEARCRIMP	POLYALLUMER	POLYCARBONATE	POLYESTER, GLASS THERMOSET	POLYETHERIMIDE	POLYETHYLENE	POLYPROPYLENE	POLYSULFONE	POLYVINYL CHLORIDE	RULON A, TEFLON	SILICONE RUBBER	STAINLESS STEEL	TITANIUM	TYGON	VITON
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	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	M	S	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	U	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	M	S	S	S	S

B Chemical Compatibility Chart

CHEMICAL	MATERIAL																										
	ALUMINUM	ANODIC COATING for ALUMINUM	BUNA N	CELLULOSE ACETATE BUTYRATE	POLYURETHANE ROTOR PAINT	COMPOSITE Carbon Fiber/Epoxy	DELRIN	ETHYLENE PROPYLENE	GLASS	NEOPRENE	NORLYL	NYLON	PET ¹ , POLYCLEAR,CLEARCRIMP	POLYALLOMER	POLYCARBONATE	POLYESTER, GLASS THERMOSET	POLYETHERIMIDE	POLYRTHYLENE	POLYPROPYLENE	POLYSULFONE	POLYVINYL CHLORIDE	RULON A, TEFLON	SILICONE RUBBER	STAINLESS STEEL	TITANIUM	TYGON	VITON
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
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
Diethylpyrocarbonate	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	U	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	-	-

CHEMICAL	MATERIAL																										
	ALUMINUM	ANODIC COATING for ALUMINUM	BUNA N	CELLULOSE ACETATE BUTYRATE	POLYURETHANE ROTOR PAINT	COMPOSITE Carbon Fiber/Epoxy	DELRIN	ETHYLENE PROPYLENE	GLASS	NEOPRENE	NORYL	NYLON	PET ¹ , POLYCLEAR,CLEARCRIMP	POLYALLUMER	POLYCARBONATE	POLYESTER, GLASS THERMOSET	POLYETHERMIDE	POLYRTHYLENE	POLYPROPYLENE	POLYSULFONE	POLYVINYL CHLORIDE	RULON A, TEFLON	SILICONE RUBBER	STAINLESS STEEL	TITANIUM	TYGON	VITON
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
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	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	U	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

B Chemical Compatibility Chart

CHEMICAL	MATERIAL																											
	ALUMINUM	ANODIC COATING for ALUMINUM	BUNA N	CELLULOSE ACETATE BUTYRATE	POLYURETHANE ROTOR PAINT	COMPOSITE Carbon Fiber/Epoxy	DELRIN	ETHYLENE PROPYLENE	GLASS	NEOPRENE	NORYL	NYLON	PET ¹ , POLYCLEAR,CLEARCRIMP	POLYALLOMER	POLYCARBONATE	POLYESTER, GLASS THERMOSET	POLYETHERIMIDE	POLYRTHYLENE	POLYPROPYLENE	POLYSULFONE	POLYVINYL CHLORIDE	RULON A, TEFLON	SILICONE RUBBER	STAINLESS STEEL	TITANIUM	TYGON	VITON	
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-Dimethylformamide	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	
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	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	U	S	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	

CHEMICAL	MATERIAL	ALUMINUM	ANODIC COATING for ALUMINUM	BUNA N	CELLULOSE ACETATE BUTYRATE	POLYURETHANE ROTOR PAINT	COMPOSITE Carbon Fiber/Epoxy	DELRIN	ETHYLENE PROPYLENE	GLASS	NEOPRENE	NORLYL	NYLON	PET ¹ , POLYCLEAR,CLEARCRIMP	POLYALLUMER	POLYCARBONATE	POLYESTER, GLASS THERMOSET	POLYETHERMIDE	POLYRTHYLENE	POLYPROPYLENE	POLYSULFONE	POLYVINYL CHLORIDE	RULON A, TEFLON	SILICONE RUBBER	STAINLESS STEEL	TITANIUM	TYGON	VITON
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	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	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	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	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	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	U	S	U	S	S	U	U
Toluene	S	S	U	U	S	S	M	U	S	U	U	S	U	U	U	S	U	M	U	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	
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	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	S
Xylene	S	S	U	S	S	S	M	U	S	U	U	U	U	U	U	M	U	M	U	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	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	S
Citric Acid (10 %)	M	S	S	M	S	S	M	S	S	S	S	S	S	S	S	S	S	M	S	S	S	S	S	S	S	S	S	S

¹Polyethyleneterephthalate

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.

B Chemical Compatibility Chart

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

Contact Information

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Austria	+43 1 801 400
Belgium	+32 53 73 42 41
Germany	08001 536 376 +49 6184 90 6940
France	+33 2 2803 2180
Italy	+39 02 95059 448
Netherlands	+31 76 571 4440
Nordic / Baltic Countries / CIS	+358 9 329 10200
Russia	+7 (812) 703 42 15
Spain / Portugal	+34 932 23 09 18
Switzerland	+41 44 454 12 12
UK / Ireland	+44 870 609 9203
Australia	+61 39757 4300
China	+86 21 6865 4588 +86 10 8419 3588
India	1800 22 8374 +91 22 6716 2200
Japan	+81 45 453 9220
Other Asian Countries	+852 2885 4613
New Zealand	+64 9 980 6700
Latin America	+1 866 984 3766
Other Countries	+49 6184 90 6940

Autoclaving Protocol

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