

Thermo Scientific Nalgene Centrifuge Ware

Guidelines for Use

Nalgene® centrifuge ware includes reusable plastic tubes and bottles. Choose from several premium resins to suit your demanding requirements for mechanical strength, transparency, chemical and temperature resistance and autoclavability.

Physical Properties

Resin Codes	Max. Use Temp. ^{1,5} , °C	Brittleness Temp. ^{1,5} , °C	Transparency	Autoclavable	Dry Heat ² Sterilization
LDPE	80	-100	Translucent	No	No
HDPE	120	-76	Translucent	No	No
PP	135	0	Translucent	Yes	No
PPCO	121	-40	Contact-Clear ³	Yes	No
FEP	205	-270	Translucent	Yes	Yes
ETFE	150	-105	Translucent	Yes	Yes
PC	135	-135	Clear	Yes ⁴	No
PS	90	20	Clear	No	No
PSF	165	-100	Clear	Yes	Yes ⁴

Key:

LDPE	Low-Density Polyethylene
HDPE	High-Density Polyethylene
PP	Polypropylene
PPCO	Polypropylene Copolymer
FEP	Teflon® FEP (fluorinated ethylene propylene)
ETFE	Tefzel® (ethylene-tetrafluoroethylene)
PC	Polycarbonate
PS	Polystyrene
PSF	Polysulfone

- Temperature ranges here are for tube or bottle materials ONLY. For use with closures, check listings for Tefzel ETFE and polypropylene. CAUTION: Do not exceed Max. Use Temp. above, or expose labware to chemicals which, when heated, attack the plastic or are rapidly absorbed.
- Dry heat; 2 hours at 160°C/320°F. All resins can also be gas-sterilized (ethylene oxide).
- Nearly transparent when in contact with clear liquid.
- Reduces mechanical strength.
- These temperatures apply to STATIC USE ONLY. Centrifugation at temperatures above 22°C or below 4°C may cause tube or bottle failure.

Chemical Resistance Summary

The compatibility between chemicals and plastic centrifuge ware is affected by temperature, chemical concentration, g-force, length of run and other factors. **Because of the stresses associated with centrifugation, these ratings are a general guide only. We recommend a trial run before using a certain chemical.** If any doubt exists about a particular application, refer to the detailed chemical resistance charts in the current Nalgene Labware Catalog or contact Nalgene Technical Service at 1-800-625-4327; Email: Technical.nalgene@thermofisher.com.

Resin Codes	Acids, dilute/weak	Acids, strong/concentrated	Alcohols	Aldehydes	Bases	Esters	Hydrocarbons/aliphatic	Hydrocarbons/aromatic	Hydrocarbons/halogenated	Ketones	Oxidizing agents/strong
LDPE	S	S	S	M	S	M	M	U	U	M	U
HDPE	S	S	S	M	S	M	M	M	M	M	M
PP	S	S	S	M	S	M	M	M	M	M	U
PPCO	S	S	S	M	S	M	M	M	M	M	U
FEP	S	S	S	S	S	S	S	S	S	S	S
ETFE	S	S	S	S	S	S	S	M	S	M	S
PC	S	U	U	M	U	U	M	U	U	U	U
PS	S	M	M	U	S	U	U	U	U	U	U
PSF	S	M	M	M	M	U	M	U	U	U	U

Key:

- S = Satisfactory
M = Marginal, may or may not be satisfactory for centrifugation, depending on length of exposure and speed. We suggest testing under operating conditions
U = Unsatisfactory; not recommended

Additional Guidelines

Cleaning

- Soak centrifuge ware in a mild, non-alkaline detergent (such as Nalgene L900) to loosen debris.
- Hand wash and rinse thoroughly, with a final rinse in distilled water. Do not use abrasive cleansers or brushes.

Autoclaving

- These plastics can be autoclaved repeatedly for 15-minute cycles at 121°C/15 psig (1.02 bar): PP, PPCO, FEP, ETFE.
- PC and PSF can be autoclaved repeatedly, but a loss in mechanical strength will result. Inspect these materials periodically for signs of crazing (minute cracks). Discard product if cracks are readily visible to the unaided eye.**
- Do not autoclave LDPE, HDPE or PS.
- Leave closures (cap and plug) unassembled from units to prevent collapse of tubes or bottles when cooling.

Closures and Sealing Caps

Nalgene centrifuge tube closures (Cat. No. DS3111) are friction-fit closures for Nalgene round and conical-bottom centrifuge tubes. They may not provide a liquid-tight seal during high-speed runs. The Nalgene screw closures supplied with Oak Ridge tubes and bottles provide leakproof service when containers are run partially full. Nalgene sealing caps and sealing cap assemblies are also available to ensure leakproof service when spinning full Oak Ridge tubes and bottles. They are also recommended when spinning hazardous materials.

Rotor Fit and Balancing

Make sure your tube or bottle fits your rotor properly. Consult the current Nalgene Labware Catalog or rotor manufacturer for correct tube and bottle size. Also make sure that tubes and bottles are properly balanced in the rotor.

Tubes and bottles must be at least 80% full for proper performance unless otherwise noted.

Special Note

- FEP Oak Ridge Tubes (Cat. No. 3114) are rated at 50,000 x g only if run completely full in a refrigerated centrifuge. These conditions prevent deformation of the tubes. For guaranteed leakproof service at the rated speed, also use a Nalgene sealing cap assembly (Cat. No. DS3131).
- FEP bottles (Cat. No. 3127) are rated at 4,000 x g only if run tightly capped and 100% full in a refrigerated centrifuge. These conditions minimize leakage of bottles when used with standard closures. For guaranteed leakproof service at the rated speed, also use a Nalgene sealing cap assembly (Cat. No. DS3131).

- PPCO bottles (Cat. No. 3120-9500) are rated to 4,800 x g only when bottles are filled to 75% of total capacity. Fill volumes greater than 75% may leak, deforming bottle and potentially damaging centrifuge equipment. Sealing caps are not available to fit this bottle.

IMPORTANT NOTE

The written warranty on your centrifuge does not prohibit you from using Nalgene Centrifuge Ware. Should the centrifuge manufacturer or representative inform you that the use of tubes other than those they manufacture affects the warranty on your centrifuge, please contact your Nalgene representative.

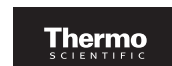
© 2010 Thermo Fisher Scientific Inc. All rights reserved. Teflon and Tefzel are registered trademarks of duPont. All other trademarks are the property of Thermo Fisher Scientific Inc. and its subsidiaries.

www.thermoscientific.com

Asia: China Toll-free: 800-810-5118 or 400-650-5118; India: +91 22 6716 2200, India Toll-free: 1 800 22 8374; Japan: +81 3 3816 3355; Other Asian countries: 65 68729717
Europe: Austria: +43 1 801 40 0; Belgium: +32 53 73 42 41; Denmark: +45 4631 2000; France: +33 2 2803 2180; Germany: +49 6184 90 6940, Germany Toll-free: 08001-536 376; Italy: +39 02 02 95059 or 434-254-375; Netherlands: +31 76 571 4440; Nordic/Baltic countries: +358 9 329 100; Russia/CIS: +7 (812) 703 42 15; Spain/Portugal: +34 93 223 09 18; Switzerland: +41 44 454 12 12; UK/Ireland: +44 870 609 9203
North America: USA/Canada +1 585 586 8800; USA Toll-free: 800 625 4327
South America: USA sales support: +1 585 899 7198
Countries not listed: +49 6184 90 6940 or +33 2 2803 2180

8-0403-95 0210

Manufactured under an ISO 13485 registered quality management system.



Thermo Scientific Nalgene Low- and High-Speed Centrifuge Ware Selector Guide

Product Ref. Code	Nominal Vol., ml	Catalog Number	Description	Nom. Dim. Dia. x Ht., mm	Material	Maximum RCF 4°C	Maximum RCF 22°C	Closure Cat. No.	Sealing Cap Cat. No.	Rack* Cat. No.
AD	10	3114-0010	Oak Ridge tube, Screw top	16.0 x 81.5	FEP	50,000	20,000	71-2174-0130		5970-0x16
AD	10	3115-0010	Oak Ridge tube, Screw top	16.0 x 82.0	PSF	50,000	50,000	71-2150-0130		5970-0x16
AD	10	3118-0010	Oak Ridge tube, Screw top	16.1 x 81.7	PC	50,000	50,000	71-2150-0130		5970-0x16
AD	10	3119-0010	Oak Ridge tube, Screw top	16.0 x 81.4	PPCO	50,000	50,000	71-2150-0130		5970-0x16
AE	10	3138-0010	Oak Ridge tube, Sealing cap	16.1 x 82.3	PC	50,000	50,000	Included	Included	5970-0x16
AE	10	3139-0010	Oak Ridge tube, Sealing cap	16.0 x 82.0	PPCO	50,000	50,000	Included	Included	5970-0x1
AG	12	3110-0120	Round tube, Open top	15.9 x 103.0	PPCO	50,000	50,000	DS3111-0016		5970-0x16
AG	12	3117-0120	Round tube, Open top	16.0 x 103.5	PC	50,000	50,000	DS3111-0016		5970-0x16
AH	15	3103-0015	Conical Bottom tube, Open top	16.9 x 118.9	PPCO	6,000	6,000	DS3111-0017		5970-0x16
AH	15	3105-0015	Conical Bottom tube, Open top	16.9 x 120.2	PC	6,000	6,000	DS3111-0017		5970-0x16
AJ	15	3110-0150	Round tube, Open top	15.9 x 113.9	PPCO	50,000	50,000	DS3111-0016		5970-0x16
AJ	15	3117-0150	Round tube, Open top	16.1 x 114.3	PC	50,000	50,000	DS3111-0016		5970-0x16
AK	16	3138-0016	Oak Ridge tube, Sealing cap	18.2 x 106.9	PC	50,000	50,000			5970-0x20
AK	16	3139-0016	Oak Ridge tube, Sealing cap	17.9 x 106.9	PPCO	50,000	50,000			5970-0x20
AM	16	3110-0160	Round tube, Open top	18.0 x 99.3	PPCO	50,000	50,000	DS3111-0018		5970-0x20
AM	16	3117-0160	Round tube, Open top	18.1 x 100.6	PC	50,000	50,000	DS3111-0018		5970-0x20
AP	28	3118-0028	Oak Ridge tube, Screw top	25.4 x 101.8	PC	50,000	50,000	71-2150-0200		5830-0025
AP	28	3119-0028	Oak Ridge tube, Screw top	25.4 x 101.9	PPCO	50,000	50,000	71-2150-0200		5830-0025
AS	30	3114-0030	Oak Ridge tube, Screw top	25.7 x 93.7	FEP	50,000	20,000	71-2174-0200	DS3131-0020	5830-0025
AS	30	3115-0030	Oak Ridge tube, Screw top	25.7 x 94.5	PSF	50,000	50,000	71-2150-0200	DS3132-0020	5830-0025
AS	30	3118-0030	Oak Ridge tube, Screw top	25.7 x 94.5	PC	50,000	50,000	71-2150-0200	DS3132-0020	5830-0025
AS	30	3119-0030	Oak Ridge tube, Screw top	25.5 x 94.3	PPCO	50,000	50,000	71-2150-0200	DS3132-0020	5830-0025
AT	30	3137-0030	Oak Ridge tube, Sealing cap	25.7 x 101.6	PSF	50,000	50,000	DS3132-0020	DS3132-0020	5830-0025
AT	30	3138-0030	Oak Ridge tube, Sealing cap	25.7 x 101.6	PC	50,000	50,000	DS3132-0020	DS3132-0020	5830-0025
AT	30	3139-0030	Oak Ridge tube, Sealing cap	25.5 x 101.4	PPCO	50,000	50,000	DS3132-0020	DS3132-0020	5830-0025
AW	35	3146-0050	Conical Oak Ridge tube, Sealing cap	28.8 x 114.1	PC	50,000	50,000	71-2150-0240	DS3132-0024	5830-0025
AW	35	3148-0050	Conical Oak Ridge tube, Sealing cap	28.6 x 113.8	PPCO	50,000	50,000	71-2150-0240	DS3132-0024	5830-0025
AX	38	3110-0380	Round tube, Open top	25.4 x 89.1	PPCO	50,000	50,000	DS3111-0025		5830-0025
AX	38	3117-0380	Round tube, Open top	25.5 x 88.4	PC	50,000	50,000	DS3111-0025		5830-0025
AZ	50	3103-0050	Conical Bottom tube, Open top	28.6 x 133.4	PPCO	6,000	6,000	DS3111-0029		5970-0030
AZ	50	3105-0050	Conical Bottom tube, Open top	28.9 x 134.5	PC	6,000	6,000	DS3111-0029		5970-0030
BA	50	3114-0050	Oak Ridge tube, Screw top	28.8 x 107.7	FEP	50,000	20,000	71-2174-0240	DS3131-0024	5970-0030
BA	50	3115-0050	Oak Ridge tube, Screw top	29.0 x 107.7	PSF	50,000	50,000	71-2150-0240	DS3132-0024	5970-0030
BA	50	3118-0050	Oak Ridge tube, Screw top	28.8 x 107.0	PC	50,000	50,000	71-2150-0240	DS3132-0024	5970-0030
BA	50	3119-0050	Oak Ridge tube, Screw top	28.8 x 106.7	PPCO	50,000	50,000	71-2150-0240	DS3132-0024	5970-0030
BB	50	3137-0050	Oak Ridge tube, Sealing cap	29.0 x 115.3	PSF	50,000	50,000	DS3132-0024	DS3132-0024	5970-0030
BB	50	3138-0050	Oak Ridge tube, Sealing cap	28.8 x 115.0	PC	50,000	50,000	DS3132-0024	DS3132-0024	5830-0030
BB	50	3139-0050	Oak Ridge tube, Sealing cap	28.8 x 114.1	PPCO	50,000	50,000	DS3132-0024	DS3132-0024	5830-0030
BC	50	3110-0500	Round tube, Open top	28.7 x 103.3	PPCO	50,000	50,000	DS3111-0030		5970-0030
BC	50	3117-0500	Round tube, Open top	29.3 x 103.8	PC	50,000	50,000	DS3111-0030		5970-0030
BD	50	3110-9500	Round tube with lip, Open top	28.7 x 104.2	PPCO	50,000	50,000	DS3111-0029		5970-0030
BD	50	DS3112-0050	Round tube with lip, Open top	28.7 x 101.1	LDPE	10,000	7,000	DS3111-0029		5970-0030
BD	50	3117-9500	Round tube with lip, Open top	28.7 x 106.4	PC	50,000	50,000	DS3111-0029		5970-0030
BE	85	3118-0085	Oak Ridge tube, Screw top	38.2 x 105.7	PC	50,000	50,000	71-2150-0330		5970-0030
BG	100	3110-1000	Round tube with lip, Open top	31.8 x 164.1	PPCO	50,000	50,000	DS3111-0032		5970-0030
BG	100	3117-1000	Round tube with lip, Open top	31.8 x 165.1	PC	50,000	50,000	DS3111-0032		5830-0030
BJ	175	3143-0175	Conical Wide-Mouth Bottle, Sealing cap	61.5 x 143.5	PPCO	27,500	27,500	DS3132-0058	DS3132-0058	
BJ	175	3144-0175	Conical Wide-Mouth Bottle, Sealing cap	61.4 x 144.3	PC	27,500	27,500	DS3132-0058	DS3132-0058	
BK	175	3145-0175	Conical Wide-Mouth Bottle, Sterile	61.5 x 135.6	PS	5,800	5,800			
BM	250	3120-0250	Bottle, Screw top	61.8 x 127.7	PPCO	13,200	13,200	71-2150-0380	DS3131-0038	
BM	250	3122-0250	Bottle, Screw top	61.8 x 127.6	PC	27,500	27,500	71-2150-0380	DS3131-0038	
BN	250	3121-0250	Wide-mouth Bottle, Screw top	61.2 x 131.9	HDPE	8,000	8,000	71-2150-0430		
BP	250	3123-0250	Spherical Bottom Bottle, Screw top	61.9 x 145.8	PC	27,500	27,500	71-2150-0380	DS3131-0038	
BS	250	3127-0250	Bottle, Screw top	60.0 x 128.8	FEP	4,000	NR	71-2174-0380	DS3131-0038	
BT	250	3140-0250	Wide-Mouth Bottle, Sealing cap	61.5 x 135.1	PC	27,500	27,500	DS3132-0058	DS3132-0058	
BT	250	3141-0250	Wide-Mouth Bottle, Sealing cap	60.7 x 133.4	PPCO	27,500	27,500	DS3132-0058	DS3132-0058	
BX	450	3140-0500	Wide-Mouth Bottle, Sealing cap	69.5 x 160.0	PC	13,700	13,700	DS3132-0063	DS3132-0063	
BX	450	3141-0500	Wide-Mouth Bottle, Sealing cap	69.5 x 160.0	PPCO	13,700	13,700	DS3132-0063	DS3132-0063	
BZ	500	3120-0500	Bottle, Screw top	73.8 x 169.8	PPCO	4,800	4,800	71-2150-0480		
CA	500	3120-9500	Bottle, Screw top	69.5 x 170.2	PPCO	4,800	4,800	71-2150-0480		
CA	500	3122-0500	Bottle, Screw top	69.5 x 169.6	PC	13,700	13,700	71-2150-0480		
CB	1000	3120-1000	Bottle, Screw top	97.5 x 184.5	PPCO	7,100	7,100	71-2150-0630	DS3132-0063	
CB	1000	3122-1000	Bottle, Screw top	97.6 x 188.4	PC	7,100	7,100	71-2150-0630	DS3132-0063	
CC	1000	3120-1010	Bottle, Screw top	97.7 x 179.0	PPCO	7,100	7,100	71-2150-0630	DS3132-0063	
CC	1000	3122-1010	Bottle, Screw top	98.1 x 180.2	PC	7,100	7,100	71-2150-0630	DS3132-0063	
CB	1000	3140-1002	Bottle, Sealing cap	97.5 x 195.3	PC	15,810	15,810	DS3132-BLUE	DS3132-BLUE	
CB	1000	3140-1006	Bottle, Sealing cap	97.5 x 195.3	PC	15,810	15,810	DS3132-BLUE	DS3132-BLUE	
CB	1000	3141-1002	Bottle, Sealing cap	97.5 x 195.3	PPCO	15,810	15,810	DS3132-0RED	DS3132-0RED	
CB	1000	3141-1006	Bottle, Sealing cap	97.5 x 195.3	PPCO	15,810	15,810	DS3132-0RED	DS3132-0RED	
2000	3120-2002	BioBottle, Sealing cap		111.5 x 209.3	PPCO	7,333	7,333	DS3132-0063	DS3132-0063	
2000	3120-2006	BioBottle, Sealing cap		111.5 x 209.3	PPCO	7,333	7,333	DS3132-0063	DS3132-0063	
2000	3120-2024	BioBottle, Screw top, Sterile		111.5 x 209.3	PPCO	7,333	7,333	DS3132-0063	DS3132-0063	

Nominal Dimensions include any required Nalgene adapters and sealing caps, sealing cap assemblies, where appropriate.

Included: Closures are provided; no replacement closures are available.

* The "x" represents the color code digit for the catalog number. Available colors are white, yellow, orange, blue, green and red. °°For use in Thermo Scientific H12000 rotor only.