

# **NIOSH 42 CFR Part 84 Compliant Cartridges & Filters for Air-Purifying Respirators**



***Your Best Source For  
Compliance NOW***

# The Source of Choice

No matter what the current state of your inventory, new air-purifying respirator performance regulations are here to stay. Effective July 10, 1998, all air-purifying respirators, cartridges and filters must be certified in compliance with regulations contained in 42 CFR Part 84 of the National Institute for Occupational Safety and Health (NIOSH) requirements for particulate respirators. The new standard is a result of many new technologies in filters, testing and measurement methods, as well as the recognition of new workplace hazards.

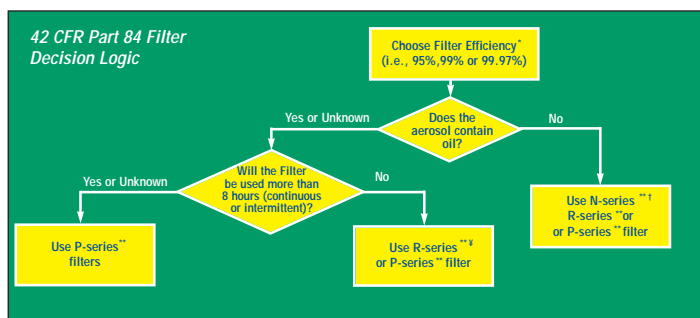
42 CFR Part 84 offers the respirator provider a choice of three levels of purifying efficiency and three categories of filter hazard resistance. The three levels of efficiency are 95 percent, 99 percent and 99.97 percent. The three categories of hazard resistance are "N" for Not resistant to oil, "R" for Resistant to oil, and "P" for oil-Proof. In any atmosphere containing oil, only the "P" series filter may be worn for more than eight hours; the "N" may not be used at all, and the "R" may be worn for only one working shift.

The selection of filter efficiency depends on how much filter leakage can be accepted, given the specific hazard. Also, practical considerations of hygiene, damage and breathing resistance should limit the service life of any filter.

## Now, You Decide

Essentially, three decisions are necessary in selecting the most appropriate, 42 CFR Part 84 compliant filter for any application.

First, choose the filter efficiency – 95%, 99% or 99.97% – relative to the risk of exposure to the hazard



Source: The NIOSH Guide to the Selection and Use of Particulate Respirators Certified Under 42 CFR Part 84.

\* The higher the filter efficiency, the lower the filter leakage.

\*\* Limited by considerations of hygiene, damage, and breathing resistance.

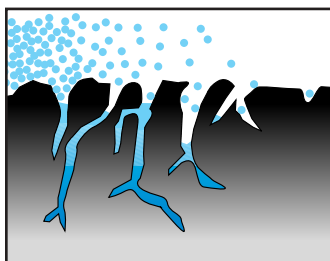
† High (200mg) filter loading in the certification test is intended to address the potential for filter efficiency degradation by solid or water-based (i.e. non-oil) aerosols in the workplace. Accordingly, there is no recommended service time in most workplace settings. However, in dirty workplaces (high aerosol concentrations), service time should be extended beyond 8 hours of use (continuous or intermittent) only by performing an evaluation in specific workplace settings that demonstrates (a) that extended use will not degrade the filter efficiency below the certified efficiency level, or (b) that the total mass loading of the filter is less than 200mg (100mg per filter for dual-filter respirators).

‡ No specific service time limit when oil aerosols are not present. In the presence of oil aerosols, service time may be extended beyond 8 hours of use (continuous or intermittent) by demonstrating (a) that extended use will not degrade the filter efficiency below the certified efficiency level, or (b) that the total mass loading of the filter is less than 200mg (100mg per filter for dual-filter respirators).

present. MSA's RESPONSE® Respirator Selector Guide is your best guide to chemical exposure limits.

Second, determine if the atmosphere or hazard contains oil. If oil is not present, you may choose either an "N", "R" or "P" series filter. A time-use restriction may apply to "N", as well as "R" series filters.

Third, if oil is present, decide if the filter must be worn by the same person for more than one eight-hour shift. If so, or if the length of time cannot be determined, select a "P" series filter. If the filter will be worn for less than eight hours, choose either an "R" or "P" filter.



Producing carbons with long pores ensures maximum adsorption of vapors, enabling MSA to manufacture smaller cartridges without sacrificing performance.



MSA's LowRider, ShortStack and Advantage cartridges offer a recessed opening for easy, self-performed negative-pressure fit checking.

## New Respirator Cartridges for Compliance Now

Producing carbons with long pores ensures maximum adsorption of vapors, enabling MSA to manufacture smaller cartridges without sacrificing performance. MSA manufactures the industry standard in respirator cartridges.

All cartridges are made of durable, high-quality materials. Comfo® and Advantage® Cartridges attach easily to MSA facepieces and offer improved facepiece balance. MSA offers intelligent cartridge designs to benefit any respirator wearer:

## Comfo® Cartridges




MSA's most versatile line of chemical and combination cartridges, Comfo Cartridges, like our LowRider® and ShortStack® cartridges, can be interchangeably used with the full line of MSA respirator facepieces, including the Advantage series. Be sure to see our two "super" cartridges, GME and GME P100, which are NIOSH-approved for a multitude of gases and vapors, while outperforming a wide range of single-gas cartridges.

## Advantage® Cartridges

The Advantage 200 Respirator has a new line of particulate, chemical and combination cartridges approved under 42 CFR Part 84, NIOSH's new respirator standard. These cartridges provide the best in light-weight, low-profile performance.

The swept-back chemical and combination cartridges improve balance and enhance fit and comfort.

# Respirator Cartridges

MSA Cartridge Designation	Ultra-Twin <sup>®</sup> / Ultra Elite <sup>®</sup> † Comfo Part No.	Advantage 1000/ Advantage 200 Part No.	Color Coding																Filter Type & Efficiency***	See Notes Below		
			OV	CL	SD	CD	HC	HS*	AM	MA	FM	HF	MV	P100	R95	N95						
GMA	464031 (10 in pkg.)	815355 (2 in pkg.)	Black	☠																☠ with R95	☠ with N95	2,3
GMA (P100) Short Stack†	815178 (6 in pkg.)	815362 (2 in pkg.)	Black	☠																☠		2,3,4
GMA (P100)	815186 (6 in pkg.)	—	Black	☠																☠		2,3,4
GMB	464032 (10 in pkg.)	815356 (2 in pkg.)	White		☠	☠	☠	☠	☠	☠										☠ with R95	☠ with N95	2
GMB (P100)	815179 (6 in pkg.)	815363 (2 in pkg.)	White		☠	☠	☠	☠	☠											☠		2,4
GMB (P100) Short Stack†	815187 (6 in pkg.)	—	White		☠	☠	☠	☠	☠											☠		2,4
GMC	464046 (10 in pkg.)	815357 (2 in pkg.)	Orange	☠	☠	☠	☠	☠	☠											☠ with R95	☠ with N95	2,3
GMC (P100)	815180 (6 in pkg.)	815364 (2 in pkg.)	Orange	☠	☠	☠	☠	☠	☠											☠		2,3,4
GMC (P100) Short Stack†	815188 (6 in pkg.)	—	Orange	☠	☠	☠	☠	☠	☠											☠		2,3,4
GMD	464033 (10 in pkg.)	815358 (2 in pkg.)	Green							☠	☠									☠ with R95	☠ with N95	2,3
GMD (P100)	815181 (6 in pkg.)	815365 (2 in pkg.)	Green							☠	☠									☠		2,3,4
GMD (P100) Short Stack†	815189 (6 in pkg.)	—	Green							☠	☠									☠		2,3,4
GME	492790 (10 in pkg.)	815359 (2 in pkg.)	Olive	☠	☠	☠	☠	☠	☠	☠	☠	☠	☠							☠ with R95	☠ with N95	2,3
GME (P100)	815182 (6 in pkg.)	815366 (2 in pkg.)	Olive	☠	☠	☠	☠	☠	☠	☠	☠	☠	☠							☠		2,3,4
GMF	490173 (10 in pkg.)	815360 (2 in pkg.)	Yellow/Black	☠	☠	☠	☠	☠												☠ with R95	☠ with N95	2,3
GMF (P100)	815183 (6 in pkg.)	815367 (2 in pkg.)	Yellow/Black	☠	☠	☠	☠	☠												☠		2,3,4
GMF (P100) Short Stack†	815191 (6 in pkg.)	—	Yellow/Black	☠	☠	☠	☠	☠												☠		2,3,4
GMI (P100)**	815184 (6 in pkg.)	815641 (2 in pkg.)	Pink	☠																☠		2,4
GMI (P100) Short Stack**†	815192 (6 in pkg.)	—	Pink	☠																☠		2,4
Mersorb <sup>®</sup>	466204 (10 in pkg.)	815361 (2 in pkg.)	Green/Black		☠															☠ with R95	☠ with N95	2,4
Mersorb (P100)	815185 (6 in pkg.)	815368 (2 in pkg.)	Green/Black		☠															☠		2,4
Mersorb (P100) Short Stack†	815193 (6 in pkg.)	—	Green/Black		☠															☠		2,4
(P100)	815175 (10 in pkg.)	—	Pink																	☠		1,4
Sparkfoe <sup>®</sup> (P100)	815176 (10 in pkg.)	—	Yellow/Black																	☠		1,4
Low Profile (P100)	815177 (10 in pkg.)	815369 (2 in pkg.)	Pink																	☠		1,4
Stand-alone & cover 	816662 N95 (10 in pkg.) 816661 N95 (50 in pkg.) 489353 Reusable snap-on cover (1 in pkg.; 2 req.)	816662 N95 (10 in pkg.) 816661 N95 (50 in pkg.) 809999 Adapters (2 in pkg.; 2 req.) 489353 Reusable snap-on cover (1 in pkg.; 2 req.)	Grey																		☠	1
Prefilter & cover 	816662 N95 (10 in pkg.) 816661 N95 (50 in pkg.) 489353 Reusable snap-on cover (1 in pkg.; 2 req.)	815394 N95 (10 in pkg.) 816357 N95 (50 in pkg.) 815392 Reusable snap-on cover (2 in pkg.; 2 req.)	Grey																		☠	1
Prefilter & cover 	816287 R95 (20 in pkg.) 489219 R95 Reusable snap-on cover (1 in pkg.; 2 req.)	815397 R95 (20 in pkg.) 815401 R95 Reusable snap-on cover (1 in pkg.; 2 req.)	Grey																	☠		1

\*Escape only. \*\* Effective against, but not NIOSH approved for Iodine Vapor. † Short Stack, Ultra-Twin and Ultra ELite are registered trademarks of MSA.

## WARNING

Below is a partial list of gaseous materials for which chemical cartridge respirators must not be used for respiratory protection (for routine use) regardless of concentration or time of exposure. Failure to follow this warning can result in serious personal injury or death. This partial list is far from complete and is offered as a guide to many of the contaminants found in industry. Contact MSA for further information on other specific materials.

- |                  |                    |                 |                        |
|------------------|--------------------|-----------------|------------------------|
| Acrolein         | Hydrogen cyanide   | Nitric acid     | Phosphorus trichloride |
| Aniline          | Hydrogen selenide  | Nitro compounds | Stibine                |
| Arsine           | Methanol           | Nitrogen oxides | Sulfur chloride        |
| Bromine          | Methyl bromide     | Nitroglycerin   | Urethane or other      |
| Carbon monoxide  | Methyl chloride    | Nitromethane    | diisocyanate-          |
| Diisocyanates    | Methylene chloride | Phosgene        | containing paints      |
| Dimethyl sulfate | Nickel carbonyl    | Phosphine       | Vinyl chloride         |

### \*\*\* Definitions

- P100-Particulate Filter (99.97% filter efficiency level)** effective against all particulate aerosols.
- N95-Particulate Filter (95% filter efficiency level)** effective against particulate aerosols free of oil; time use restrictions may apply.
- R95-Particulate Filter (95% filter efficiency level)** effective against all particulate aerosols; time use restrictions may apply.

### Notes

- Do not use in atmospheres containing less than 19.5 percent oxygen, in atmospheres containing gases or vapors or in atmospheres immediately dangerous to life or health.
- Do not use in atmospheres containing less than 19.5 percent oxygen, or in atmospheres immediately dangerous to life or health.
- Do not wear for protection against organic vapors with poor warning properties or those which generate high heats of reaction with the sorbent material in the cartridge.
- 99.97 percent efficient against 0.3 micron DOP.

# Comfort isn't a NIOSH requirement... but it is an Advantage

Introducing the Advantage® 200 Respirator, a new generation of air-purifying respirators designed to provide the comfort level your employees have been waiting for.

Simply put, the Advantage 200 Respirator is unlike any other half-mask respirator you'll find. Offering unmatched fit and comfort, it's the first respirator to feature MSA's new patented MultiFlex™ System, a soft, pliable combination of rubber and plastic that provides a virtually customized fit. The result is a respirator that feels great on any face because it works to remove the pressure points from the face seal area. At the same time, the MultiFlex System delivers exceptional stability – which means the Advantage 200 Respirator won't collapse during wear.

*The exclusive MultiFlex System provides a soft, pliable fit without sacrificing the ruggedness needed for everyday use.*



*Interchangeable Advantage Series filters and cartridges provide exceptional versatility – they're also compatible with the full-face Advantage® 1000 Respirator.*

*Inhalation and exhalation valves function as a single part, reducing inventory costs.*

To provide you with a complete inventory of 42 CFR Part 84 cartridges, the new NIOSH standard required necessary changes to our part numbers. This chart will help you select the correct part number representing equivalent cartridge types for either the Advantage or the Comfo series of air-purifying respirators.

## Replace Your Inventory Now

<i>if you stock this today...</i>				<i>stock this tomorrow.</i>	
<b>Advantage® 100</b> (Round)				<b>Advantage® 200</b> (Oval)	
30 CFR Part 11		42 CFR Part 84		42 CFR Part 84	
Was Designation	Part No.	Was Designation	Part No.	Is Now Designation	Part No.
GMA	802233	GMA	802233	GMA	815355
GMB	802234	GMB	802234	GMB	815356
GMC	802235	GMC	802235	GMC	815357
GMD	802236	GMD	802236	GMD	815358
GME	806942	GME	806942	GME	815359
GMF	803373	GMF	803373	GMF	815360
Mersorb*	n/a	Mersorb	n/a	Mersorb	815361
Type H	806564	P100	815157	P100	815369
GMA-H	802238	GMA-P100	815158	GMA-P100	815362
GMB-H	802239	GMB-P100	815159	GMB-P100	815363
GMC-H	802241	GMC-P100	815160	GMC-P100	815364
GMD-H	802243	GMD-P100	815161	GMD-P100	815365
GME-H	802244	GME-P100	815162	GME-P100	815366
GMF-H	803374	GMF-P100	815163	GMF-P100	815367
GMI-H	802245	GMI-P100	815164	GMI-P100	815641
Mersorb-H	802247	Mersorb-P100	815165	Mersorb-P100	815368

<b>Comfo®</b>		<b>Comfo®</b>	
30 CFR Part 11		42 CFR Part 84	
Was Designation	Part No.	Is Now Designation	Part No.
GMA	464031	GMA	464031
GMB	464032	GMB	464032
GMC	464046	GMC	464046
GMD	464033	GMD	464033
GME	492790	GME	492790
GMF	490173	GMF	490173
Mersorb	466204	Mersorb	466204
Type H	464035	P100	815175
Sparkfoe® Type H	465798	Sparkfoe P100	815176
LowRider®	807482	LowRider	815177
GMA-H	464029	GMA-P100	815178
GMB-H	464028	GMB-P100	815179
GMC-H	464027	GMC-P100	815180
GMD-H	464030	GMD-P100	815181
GME-H	491630	GME-P100	815182
GMF-H	490174	GMF-P100	815183
GMI-H	464049	GMI-P100	815184
Mersorb-H	803953	Mersorb-P100	815185
<i>ShortStack® Versions:</i>		<i>ShortStack Versions:</i>	
GMA-H	809102	GMA-P100	815186
GMB-H	809103	GMB-P100	815187
GMC-H	809104	GMC-P100	815188
GMD-H	809105	GMD-P100	815189
GME-H	n/a	GME-P100	n/a
GMF-H	809106	GMF-P100	815191
GMI-H	809108	GMI-P100	815192
Mersorb-H	809107	Mersorb-P100	815193

To update your inventory to the Advantage 200 series respirator, you must first determine which cartridge types in your inventory are – or are not – compliant with 42 CFR Part 84. Then, simply exchange the part number in either column one or column two with the part number in the third column. To update your Comfo cartridge inventory, simply exchange the “was” column part number with the “is now” column part number.

**Note:** Any HEPA type combination cartridge, and/or cartridges with a suffix of “-H” now have the suffix of “P100”, reflecting the new NIOSH standard for protection against particulates.

Advantage 100 products are scheduled to be replaced by Advantage 200 products as inventories are consumed.

**MSA** Be Sure. Choose MSA.

Offices and representatives in principal cities worldwide.  
 In U.S. call the Customer Service Center toll-free at 1-800-MSA-2222.  
 To reach MSA International, call (412) 967-3354 or Fax (412) 967-3451.  
 www.MSAnet.com

Note: This Bulletin contains only a general description of the products shown. While uses and performance capabilities are described, under no circumstances shall the products be used by untrained or unqualified individuals and not until the product instructions including any warnings or cautions provided have been thoroughly read and understood. Only they contain the complete and detailed information concerning proper use and care of these products.

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