Filter Class

NIOSH-approved filters are rated as N95, R95, P95, N99, N100 or P100.
The number 95, 99 or 100 indicates the filter efficiency percentage rate
The letter preceding indicates the environmental application
N Series - Used in environments free of oil aerosols
R Series - Resistant to oil mist. Use is restricted to one 8-hr. work shift
P Series - Oil proof with time use restrictions specified by manufacturer

Protection against Particulates, Dust, Aerosols

CLASS 1 (P1 or FFP1) - for protection against coarse, solid particulates - low toxicity

CLASS 2 (P2 or FFP2) - for protection against solid and/or liquid aerosols - low/average toxicity

CLASS 3 (P3 or FFP3) - for protection against solid and/or liquid aerosols - high toxicity

Nuisance Removal

Respirators are marked by their relief against nuisance levels as follows:
AG - Acid Gas
OV - Organic Vapor
OZ - Ozone

EN 136: 1998
Respiratory Protective Devices - Full Face Masks.
This European Standard specifies minimum requirements for full face masks for respiratory protective devices.

EN 140: 1998
Respiratory Protective Devices - Half Masks and Quarter Masks.
This European Standard specifies minimum requirements for half masks and quarter masks for use as part of respiratory protective devices, except escape apparatus and diving apparatus.

EN 143: 2000
Respiratory Protective Devices - Particle Filters
This European Standard specifies particle filters for use as components in unassisted respiratory protective devices with the exception of escape apparatus and filtering face pieces.

EN 14387: 2004
Respiratory Protective Devices - Gas Filter(s) And Combined Filter(s).
This European Standard refers to gas filters and combined filters for use as components in unassisted respiratory protective devices.

NIOSH
National Institute for Occupational Safety

American Standard for filtering facial masks.
NIOSH N95: Filter at least 95% of the particles suspended in the air.
NIOSH N99: Filter at least 99% of the particles suspended in the air.

How to Protect Yourself? Easy!
4 Steps to Choose the Appropriate Respiratory Protection.

1- Identify the Hazard.

Dust = Solid particles of several sizes generated by crushing solid materials.
Mist = Particles of evaporated liquid (water or organic basis.
Fumes = Small size particles of evaporated or melted solids, generally coming from combustion.

Solid particles
= need a mechanical and electrostatic filter:

FFP1/P2/P3 (check page 451)

+ P filter

Gas & Vapors = Substances that are normally airborne. Could be fluid generated by the passage from liquid or solid status to airborne, through evaporation or boiling.

Airborne substances
= need an activated charcoal filter+ A/B/E/K or combined filter.

2- Identify the Toxic Agent (CAS NR TABLE - see pages 520-521).
3-Identify the Concentration & Compare with the Exposure Limit.

(TLV = contaminant concentration to which the user may be exposed without health effects).

a)Threshold limit value - Time weighted average (TLV-TWA): Average exposure on the basis of a 8h/day, 40h/week work schedule.
b)Threshold limit value - Short-term exposure limit (TLV-STEL): Spot exposure for a duration of 15 minutes, that cannot be repeated more than 4 times per day with at least 60 minutes between exposure periods.
c)Threshold limit value - Ceiling limit (TLV-C): Absolute exposure limit that should not be exceeded at any time.

4-Select the Type of protection.

Gas and Vapours Filters		
Type	Colour Code	Application
A		Organic Vapours and Gases with a boiling point of 65C and above (solvents and hydrocarbons).
B		Inorganic Vapours and Gases (excluding Carbon Dioxide/Monoxide).
E		Sulphur Dioxide and other Acidic Vapors and Gases.
K		Ammonia and its Organic Ammonia Derivatives Vapours and Gases.

Dust and Aerosol Filters		
Type	Colour Code	Application
P1		Protects from non-toxic dust and/or water-based aerosols.
P2		Protects from slightly toxic or irritating solid aerosols and / or liquids..
P3		Protects from solid aerosols and / or liquids listed as toxic.

Gas & Vapours Filters: Absorption Capacity
Class 1: Low capacity filter (pollutant concentration < 0.1% or 1000 ppm*).
Class 2: Average capacity filter (pollutant concentration < 0.5% or 5000 ppm*).
Class 3: High capacity filter (pollutant concentration < 1% or 10 000 ppm*).

*ppm = concentration in parts per million

EN 149: 2001 +A1:2009 Respiratory Protective Devices - Filtering half masks to protect against particles

European Standard for filtering half-masks. It contains laboratory tests to check the conformity with resistance to impacts, to cleansers and disinfectants, to temperature, to flame and with respiratory resistance. With A1:2009 amendment, filtering dust masks are now classified as either single use /single shift (NR) or reusable/more than 1 shift (R).

TLV: check page 353

TIL : Total INWARD LEAKAGE - Leakage of the ambient atmosphere into the respiratory interface.

NPF: Nominal Protection Factor - Nominal level of protection given by respiratory PPE (in Laboratory conditions).

APV: Assigned Protection Factor - Level of protection which can realistically be expected in the workplace conditions.

DOLOMITE TEST (D): Optional test under EN149 for clogging with dolomite dust. Respirators which pass the dolomite clogging test are proven to provide a more comfortable breathing level and longer lasting performances of filtration. These respirators are marked with "D" letter.

DO YOU KNOW?

What's the Difference between Low/ Medium/High Capacity Filters?

Higher Capacity /Class means:• bigger quantity of activated charcoal inside the filter.• longer duration of the filter.• higher volume and weight of the filter.• higher breathing resistance.

Example: A B2 filter gives the same type of protection than a B1 filter but it will have a longer durability. On the other hand it's probably less comfortable to use because it's heavier and has higher breathing resistance.

Safety Filter Selection Guide

Bayonet Filters EN143:2000/ EN14387:2004

Filter Guide for P420, P430, P500, P510 - Bayonet Connection.
Filters only sold in packs.

Type A
Application Organic Vapours and Gases with a boiling point of 65C and above (solvents and hydrocarbons).

Type B
Application Inorganic Vapours and Gases (excluding Carbon Dioxide/Mon-oxide).

Type E
Application Sulphur Dioxide and other Acidic Vapors and Gases.

Type K
Application Ammonia and its Organ-ic Ammonia Derivatives Vapours and Gases.

Type ABEK
Application Combination Filter (all of the above)

Type P
Application P. Dust/Particle

Code	Filter Type	Class		
P901	Gas Filter	A1	96 / 6	1
P921	Gas Filter	ABEK1	96 / 6	1
P941	Particle Filter	P3R	96 / 6	1
P951	Combination Filter	A1P3R	64 / 4	1
P961	Combination Filter	ABE1P3R	64 / 4	1
P971	Combination Filter	ABEK1P3R	64 / 4	1

How to Protect Yourself? Guideline			
	FFP1	**FFP2**	**FFP3**
Protection	Protects from non-toxic dust and / or water-bases aerosols.	Protects from slightly toxic or irritating solid aerosols and / or liquids.	Protects from solid aerosols and / or liquids listed as toxic.
Examples of Application	Handling of stone, rubble, cellulose, concrete drilling.	Sanding of soft wood, composite materials, rust, putty, plaster, plastics / cutting, milling, grind-ing, metal drilling.	Sanding of hard wood (beech, oak), treatment of wood using copper, chrome or arsenic based products, impact stripping of paint, sanding of cement.
Substances	Flour, calcium carbonate (chalk), graphite, cotton, dust concrete.	Untreated softwood, grinding, cutting, welding, milling, coal, glass fiber, mineral fiber, pow-dered pesticide, grain dust.	Asbestos (without handling it), powered pesticide, biological, pharmaceutical, powder, treated wood, hard wood (exotic), chro-mium, lime, lead.
% Min of Filtration:	**80%**	**94%**	**99%**
Total Inward Leakage (TIL)	**22%**	**8%**	**2%**
Nominal Protection Factor (NPF)	**4,5 x TLV**	**12,5 x TLV**	**50 x TLV**
Assigned Protection Value (APV)	**4 x TLV**	**10 x TLV**	**20 x TLV**