

# ASTM Face Mask Standards and What You Need to Know

Understanding the appropriate mask needed for particular environments is important especially when key factors such as fluid resistance and particle filtration play a large part in your Personal Protective Equipment (PPE) protocols. Even though the masks seem similar in design, there are notable differences with those key factors which will help in the selection process and ensure that your mask will provide the right ASTM level for the environment you are working in.

IFR Health manufactures all ASTM level 2 & level 3 disposable face masks in Alberta, Canada. Our Alberta 3-Ply masks have been tested and approved to all the ASTM F2100 standard specifications and designated into performance levels based on the properties below:



ASTM F2100-11 STANDARDS	ASTM LEVEL 1	ASTM LEVEL 2	ASTM LEVEL 3
FLUID RESISTANCE, mmHg	80	120	160
BFE	≥95%	≥98%	≥98%
PFE, @0.1 micron	≥95%	≥98%	≥98%
DELTA P, mm H <sub>2</sub> O/cm <sup>2</sup>	<4.0	<5.0	<5.0
FLAME SPREAD	Class 1	Class 1	Class 1



## UNDERSTANDING THE TERMS:

**FLUID RESISTANCE** represents the mask's resistance to penetration by synthetic blood under pressure (mmHg). It measures the ability of a mask's material construction to minimize fluids from travelling through the material and potentially coming into contact with the wearer. The higher the fluid resistance (filtration), the better the protection.

**BFE** (Bacterial Filtration Efficiency) represents the percentage of aerosol particulates filtered at a size of 3 microns. It is the measure of the efficiency of the mask in filtering bacteria passing through it.

**PFE** (Sub-Micron Particulate Filtration Efficiency) represents the percentage of submicron particulates filtered at 0.1 microns. PFE is the measure of the efficiency of the mask in filtering particles passing through it. The size of the particles filtered is critical.

**DELTA P** (Differential Pressure) represents the pressure drop across the mask or resistance to air flow in mmH<sub>2</sub>O/cm<sup>2</sup>. This determines breathing resistance - the higher the Delta P, the less the breathability, but the better the filtration.

**FLAME SPREAD** is a ranking derived by laboratory standard to test methodology of a material's propensity to burn rapidly and spread flames.

## PERFORMANCE PROTECTION LEVELS:



### ASTM Level 1 Protection

For environments where low amounts of fluid, spray and/or aerosols are produced.



### ASTM Level 2 Protection

For environments where moderate to low amounts of fluid, spray and/or aerosols are produced.



### ASTM Level 3 Protection

For environments where heavy to moderate amounts of fluid, spray and/or aerosols are produced.