Comparison of KN95 and N95 Filtering Facepiece Respirators

Filtering facepiece respirators (FFR), which are sometimes called disposable respirators, are subject to various regulatory standards around the world. These standards specify certain required physical properties and performance characteristics for respirators to claim compliance with the particular standard. During pandemic or emergency situations, health authorities often reference these standards when making respirator recommendations, stating, for example, that certain populations should use an "N95, or equivalent" respirator.

This document is only intended to help clarify some key similarities between such references, specifically to the following FFR performance standards:

- N95 (United States NIOSH-42CFR84)
- KN95 (China GB2626-2006)

As shown in the following summary table, respirators certified as meeting these standards can be expected to function very similarly to one another, based on the performance requirements stated in the standards and confirmed during conformity testing.

Based on this comparison, it is reasonable to consider China KN95, as "equivalent" to US NIOSH N95 for filtering non-oil-based particles such as those resulting from wildfires, PM 2.5 air pollution, volcanic eruptions, or bioaerosols (e.g. viruses). However, prior to selecting a respirator, users should consult their local respiratory protection regulations and requirements or check with their local public health authorities for selection guidance.

Certification/ Class (Standard)	N95 (US: NIOSH-42C FR84)	KN95 (China: GB2626-20 06)
Filter performance – (must be ≥ X% efficient)	≥ 95%	≥ 95%
Test agent	NaCl	NaCl
Flow rate	85 L/min	85 L/min
Total inward leakage (TIL)* – tested on human subjects each performing exercises	N/A	≤ 8% leakage (arithmetic mean)
Inhalation resistance – max pressure drop	≤ 343 Pa	≤ 350 Pa
Flow rate	85 L/min	85 L/min
Exhalation resistance - max pressure drop	≤ 245 Pa	≤ 250 Pa
Flow rate	85 L/min	85 L/min
Exhalation valve leakage requirement	Leak rate ≤ 30 mL/min	Depressurization to 0 Pa ≥ 20 sec
Force applied	-245 Pa	-1180 Pa
CO2 clearance requirement	N/A	≤ 1%

**From 3M's Comparison of FFP2, KN95, and N95 and Other Filtering Facepiece Respirator Classes link*

Definitions

Filter performance – the filter is evaluated to measure the reduction in concentrations of specific aerosols in air that passes through the filter.

Test agent - the aerosol that is generated during the filter performance test.

Total inward leakage (TIL) – the amount of a specific aerosol that enters the tested respirator facepiece via both filter penetration and faceseal leakage, while a wearer performs a series of exercises in a test chamber.

Inward leakage (IL)– the amount of a specific aerosol that enters the tested respirator facepiece, while a wearer performs a normal breathing for 3 minutes in a test chamber. The test aerosol size (count median diameter) is about 0.5 micrometer.

Pressure drop – the resistance air is subjected to as it moves through a medium, such as a respirator filter.

IMPORTANT: Always read and follow respirator user instructions.