

*Nuclear Science and Technology Research Institute  
Nuclear Fuel Cycle School  
Safety & Environmental Laboratory*

*Report name: Respirator Filter Media Quality Test*

*Date: 1/31/2021*

*Report number: 199-2988-2*

### **Laboratory Data**

*Report No: 199-2988-2*

*Date: 1/31/2021*

*Test Laboratory: Safety & Environmental Laboratory*

*Operator: Mohamad Asghari*

*Supervisor: Prof. Asghar Sadighzadeh*

*Particle Counter(s): Condensation Particle Counter (Grimm) and Laser Particle Counter (Grimm)*

*Manometer: Kimo MP 202*

### **Device Manufacturer's Data**

*Manufacturer: Zist Abzar Pajouhan Co.*

*Product Name: Respirator Filter Media*

*Product Model declared by manufacturer: 2*

*Test requested by: Zist Abzar Pajouhan Co.*

*Sample obtained from: Mr. Reza Faridy*

### **Test Conditions**

*Temperature (°C): 20*

*RH (%): 30*

*Air flow rate (l/min<sup>1</sup>): 5, 10, 15, 20, 25, 30*



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<sup>1</sup>Liter Per minute

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## *Respirator Filter Media Quality Test*

*Note: Air Filtration Media surface area used for test is 100 cm<sup>2</sup>.*

### *I. Pressure drop $\Delta P$ as a function of air flow rate $Q$*

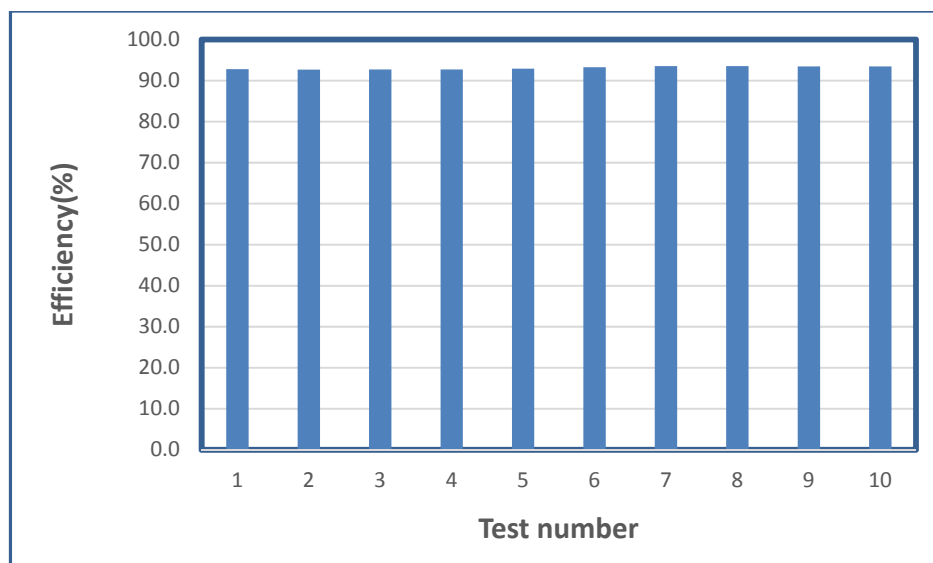
|                                   |              |           |           |           |           |           |
|-----------------------------------|--------------|-----------|-----------|-----------|-----------|-----------|
| <i><math>Q</math> (l/min)</i>     | <i>5</i>     | <i>10</i> | <i>15</i> | <i>20</i> | <i>25</i> | <i>30</i> |
| <i><math>\Delta P(P^2)</math></i> | <i>&lt;1</i> | <i>3</i>  | <i>7</i>  | <i>12</i> | <i>19</i> | <i>26</i> |

### *II. Efficiency $E$*

#### *a. Total removal efficiency for aerosol particle with diameter $\geq 3$ nm*

*Data extracted by Condensation Particle Counter (CPC)*

*Average removal efficiency for aerosol particles with diameter  $\geq 3$  nm: 93.1%*



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***b. Removal efficiency in term of aerosol particle size(Dp)***

*Data extracted from Laser Particle Counter (Grimm)*

*Average removal efficiency for aerosol particles with diameter > 0.3  $\mu\text{m}$ : 97.16%*

*Average removal efficiency for aerosol particles with diameter > 2  $\mu\text{m}$ : 100%*

