



INNOVATIVE SOLUTIONS FOR CRITICAL ENVIRONMENTS

**Valutek, Inc**

220 South 9th St.

Phoenix, Arizona, 85034, United States

P +1 602.256.0540 | F +1 602.252.1972

[valutek.com](http://valutek.com) | [quality@valutek.com](mailto:quality@valutek.com)

## CERTIFICATE OF ANALYSIS

|                              |                                             |
|------------------------------|---------------------------------------------|
| <b>Product Category:</b>     | Gloves                                      |
| <b>Substrate Material:</b>   | Nitrile                                     |
| <b>Part Number:</b>          | VTGNPFB12-LG                                |
| <b>Lot Number:</b>           | 240320-N100                                 |
| <b>Sample Received Date:</b> | 03-08-2024                                  |
| <b>Manufacturing Date:</b>   | 03-20-2024                                  |
| <b>Test Date:</b>            | 03-25-2024                                  |
| <b>Expiry Date:</b>          | 03-20-2029 *Subject to storage and handling |

Page 1 of 2

\*Should not be exposed to direct sunlight, UV, light, high temperature, moisture and stored at well ventilated area.

### Physical Inspection

Test Method: ASTM D5151 & ASTM D6319

|                             |                 |            |               |
|-----------------------------|-----------------|------------|---------------|
| <b>1. Water Tight Test</b>  | <b>Sampling</b> | <b>AQL</b> | <b>Result</b> |
|                             | G1              | 1.5        | Pass          |
| <b>2. Visual Inspection</b> | <b>Sampling</b> | <b>AQL</b> | <b>Result</b> |
| Critical Defects            | G1              | 1.5        | Pass          |
| Major Defects               | G1              | 2.5        | Pass          |
| Minor Defects               | G1              | 4.0        | Pass          |
| <b>3. Dimension Test</b>    | <b>Sampling</b> | <b>AQL</b> | <b>Result</b> |
| Length                      | S2              | 4.0        | Pass          |
| Thickness                   | S2              | 4.0        | Pass          |

### Physical Properties

|                            |               |                 |               |               |
|----------------------------|---------------|-----------------|---------------|---------------|
| <b>Physical Test</b>       | <b>Method</b> | <b>Criteria</b> | <b>Actual</b> | <b>Result</b> |
| <b>4. Tensile Strength</b> | ASTM D412     | Min. 14 Mpa     | 22.95         | Pass          |
| <b>5. Elongation</b>       | ASTM D412     | min. 500%       | 666           | Pass          |

### Cleanliness

Liquid Particle Count Test

|                                            |                 |                      |               |               |
|--------------------------------------------|-----------------|----------------------|---------------|---------------|
| <b>LPC</b>                                 | <b>Method</b>   | <b>Specification</b> | <b>Actual</b> | <b>Result</b> |
| Counts / cm <sup>2</sup><br>(≥ 0.5 micron) | IEST-RP-CC005.4 | <2400                | 1758.21       | Pass          |

## Contamination Detection

### Fourier Transform Infra-Red Test

| FTIR                 | Method          | Specification | Actual | Result |
|----------------------|-----------------|---------------|--------|--------|
| Silicone, Amide, DOP | IEST-RP-CC005.4 | Absent        | Absent | Pass   |

### Total Non Volatile Residue Test

| TNVR                                      | Method          | Specification | Actual | Result |
|-------------------------------------------|-----------------|---------------|--------|--------|
| Isopropyl Alcohol (mg/cm <sup>2</sup> )   | IEST-RP-CC005.4 | < 5.0         | 3.20   | Pass   |
| DI H <sub>2</sub> O (mg/cm <sup>2</sup> ) | IEST-RP-CC005.4 | < 2.0         | 0.40   | Pass   |

### Extractable Ions Test (µg/cm<sup>2</sup>):

| Ionic(Anions) | Method          | F <sup>-</sup> | Br <sup>-</sup> | Cl <sup>-</sup> | NO <sub>2</sub> <sup>-</sup> | NO <sub>3</sub> <sup>-</sup> | SO <sub>4</sub> <sup>2-</sup> | PO <sub>4</sub> <sup>3-</sup> | Result |
|---------------|-----------------|----------------|-----------------|-----------------|------------------------------|------------------------------|-------------------------------|-------------------------------|--------|
| Specification | IEST-RP-CC005.4 | < 0.001        | < 0.001         | < 0.60          | < 0.001                      | < 0.50                       | < 0.20                        | < 0.002                       |        |
| Result        | Actual          | ND             | ND              | 0.360           | ND                           | 0.262                        | 0.076                         | ND                            | Pass   |

| Ionic(Cations) | Method          | Na <sup>+</sup> | K <sup>+</sup> | Ca <sup>2+</sup> | Mg <sup>2+</sup> | Li <sup>+</sup> | NH <sub>4</sub> <sup>+</sup> | Result |
|----------------|-----------------|-----------------|----------------|------------------|------------------|-----------------|------------------------------|--------|
| Specification  | IEST-RP-CC005.4 | < 0.02          | < 0.02         | < 0.50           | < 0.005          | < 0.005         | < 0.005                      |        |
| Result         | Actual          | 0.011           | 0.011          | 0.323            | ND               | ND              | ND                           | Pass   |

| Ionic (Heavy metal) | Method          | Al <sup>3+</sup> | Fe <sup>3+</sup> | Cu <sup>2+</sup> | Zn <sup>2+</sup> | Result |
|---------------------|-----------------|------------------|------------------|------------------|------------------|--------|
| Specification       | IEST-RP-CC005.4 | < 0.010          | < 0.005          | < 0.0004         | < 0.100          |        |
| Result              | Actual          | 0.004            | 0.002            | ND               | 0.025            | Pass   |

## Electrical Properties

### Electrostatic Decay

| ESD                           | Method         | Specification          | Actual                 | Result |
|-------------------------------|----------------|------------------------|------------------------|--------|
| Surface Resistance (ohms)     | ESD/EOS S11.11 | < 1 x 10 <sup>11</sup> | 8.0 x 10 <sup>10</sup> | Pass   |
| Static Decay Time (seconds)   |                | < 5.0                  | 0.7                    | Pass   |
| Tribo Electric Charge (volts) |                | < 50                   | 40                     | Pass   |

Notes:



Tested by:  
Renugaa Krishnan  
Laboratory Coordinator



Approved by:  
Vijendraan Venkitasalam  
Quality Manager