

# Chem-Impex International, Inc.

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## Certificate of Analysis

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|--------------------------|----------------------------------------------------------------------------|
| <b>Catalogue Number</b>  | 00159                                                                      |
| <b>Lot Number</b>        | 002152-1230104                                                             |
| <b>Product</b>           | <b>Glutathione reduced form</b><br>$\gamma$ -L-Glutamyl-L-cysteinylglycine |
| <b>CAS Number</b>        | 70-18-8                                                                    |
| <b>Molecular Formula</b> | C <sub>10</sub> H <sub>17</sub> N <sub>3</sub> O <sub>6</sub> S            |
| <b>Molecular Weight</b>  | 307.33                                                                     |

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|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Appearance</b>                    | A white crystalline powder                                                                                                                                                          |
| <b>Clarity &amp; Color</b>           | Clear and colorless solution                                                                                                                                                        |
| <b>Heavy Metals</b>                  | < 10 ppm                                                                                                                                                                            |
| <b>Anion</b>                         | Chloride (Cl) : < 200 ppm<br>Sulphates (SO <sub>4</sub> <sup>2-</sup> ) : < 300 ppm                                                                                                 |
| <b>Cation</b>                        | Arsenic (As) : < 1 ppm<br>Ammonium (NH <sub>4</sub> <sup>+</sup> ) : < 200 ppm<br>Iron (Fe) : < 10 ppm<br>Cadmium (Cd) : < 1 ppm<br>Lead (Pb) : < 3 ppm<br>Mercury (Hg) : < 0.1 ppm |
| <b>Yeast and Mold</b>                | < 100 cfu/g                                                                                                                                                                         |
| <b>Optical Rotation</b>              | [α] <sub>D</sub> <sup>20</sup> = -16.5 °                                                                                                                                            |
| <b>Loss on Drying</b>                | 0.3% at 105 °C, 5 h                                                                                                                                                                 |
| <b>Residual Solvents</b>             | Passes test                                                                                                                                                                         |
| <b>Coliform Organisms</b>            | < 100 cfu/g                                                                                                                                                                         |
| <b>E. Coli, Salmonella, S.Aureus</b> | Absent/10g                                                                                                                                                                          |
| <b>Microbial Count</b>               | < 1000 cfu/g (TPC)                                                                                                                                                                  |
| <b>Related Substances</b>            | Total : 1%, GSSG : 0.36%                                                                                                                                                            |
| <b>Residue On Ignition</b>           | 0.02%                                                                                                                                                                               |
| <b>Assay</b>                         | 98.7% (On dry basis)                                                                                                                                                                |
| <b>Grade</b>                         | Meets USP specification                                                                                                                                                             |
| <b>Storage</b>                       | Store at 0 - 8 °C                                                                                                                                                                   |
| <b>Additional Information</b>        | Identification :<br>Infrared spectrum : Conforms to structure                                                                                                                       |

## ***Certificate of Analysis***

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**Remarks**

See material safety data sheet for additional information

For laboratory use only

**The foregoing is a copy of the Certificate of Analysis as provided by our supplier**

A handwritten signature in black ink, appearing to read 'Bala Kumar', with a stylized flourish at the end.

**Bala Kumar**  
**Quality Control Manager**