

Certificate of Analysis**HR2-689**

Optimize™ reagents are preformulated macromolecular crystallization grade solutions designed specifically for the crystallization of proteins, peptides, and nucleic acids. Each Optimize solution is formulated using high purity salts, polymers, and buffers. Sterile filtered Optimize reagents are formulated at convenient ready to use concentrations. Optimize reagents remove the guesswork and make the process of reproducing preliminary screening conditions and general optimization faster, easier, and more convenient. When using Optimize reagents the user moves directly from the screen to the optimization with no time wasted searching for and formulating salts, buffers, and viscous polymers. This Certificate of Analysis indicates the quality and performance of the reagent.

Technical Support

Inquiries regarding Optimize reagent formulation, interpretation of screen results, optimization strategies and general inquiries regarding crystallization are welcome. Please e-mail, fax, or telephone your request to Hampton Research. Fax and e-mail Technical Support are available 24 hours a day. Telephone technical support is available 8:00 a.m. to 5:00 p.m. USA Pacific Standard Time.

Danielle Taylor
Quality Control

| <u>Property Test</u> | <u>Lot (Sample) Results</u> |
|--------------------------------|--|
| Product Name | 10.0 M Ammonium fluoride |
| Product Number | HR2-689 |
| Formula | NH ₄ F FH ₄ N |
| Formula Weight | 37.04 |
| CAS Number | [12125-01-8] |
| EC Number | 2351859 |
| Merck | 13,524 |
| RTECS | BQ6300000 |
| UN Number | 2505 (Hazard Class 6.1 / PG III) |
| Purity | ≥ 98.0 % |
| Titration | 99.7 |
| Titration Method | Precipitation Titration |
| Appearance (Starting Material) | Colorless, Fine Crystals |
| Appearance (Solution) | Clear, Colorless |

| <u>Property Test</u> | <u>Lot (Sample) Results</u> |
|------------------------|--|
| Residue On Ignition | ≤ 0.05 % as (SO ₄) |
| Trace Analysis | Passed |
| Residue (Filter test) | No Residue |
| Absorbance (λ) | 1.0 M in H ₂ O |
| UV Absorption | λ: 260 nm A max: 0.015 λ: 280 nm A max: 0.014 |
| Refractive Index Range | 1.35973 - 1.35993 at 20 °C |
| pH Range | 7.4 - 8.0 at 25 °C |
| Conductivity Range | 350.8 - 433.4 mS at 25 °C |
| Total Impurities | Insoluble matter, passes filter test ≤ 1% Ammonium hydrogen difluoride (NH ₄ HF ₂) |
| Al | ≤ 0.0005% |
| As | ≤ 0.00001% |
| Ba | ≤ 0.0005% |
| Bi | ≤ 0.0005% |
| Ca | ≤ 0.001% |
| Cd | ≤ 0.0005% |
| Cl | ≤ 0.0005% |
| Co | ≤ 0.0005% |
| Cr | ≤ 0.0005% |
| Cu | ≤ 0.0005% |
| Fe | ≤ 0.0005% |
| K | ≤ 0.005% |
| Li | ≤ 0.0005% |
| Mg | ≤ 0.0005% |
| Mn | ≤ 0.0005% |
| Mo | ≤ 0.0005% |
| Na | ≤ 0.005% |
| Ni | ≤ 0.0005% |
| Pb | ≤ 0.0005% |
| SiF ₆ | ≤ 0.1% |
| SO ₄ | ≤ 0.005% |
| Sr | ≤ 0.0005% |
| Zn | ≤ 0.0005% |

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