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|-----------------|------------|
| Item ID: | LA-3203-27 |
| Revision Level: | |
| Revision Date: | |

| | |
|--------|---------------------------------------|
| Title: | Material Specification for LA-3203-27 |
|--------|---------------------------------------|

| Chemical Composition Requirements (By weight percent) | | | |
|--|---------|---------|--------|
| Element | Minimum | Maximum | Target |
| Aluminum | - | - | - |
| Boron | - | - | - |
| Carbon | 4.50% | 5.60% | 5.05% |
| Chromium | - | 0.50% | 0.25% |
| Cobalt | 15.00% | 18.00% | 16.50% |
| Free Carbon | - | - | - |
| Iron | - | 1.50% | 0.75% |
| Manganese | - | - | - |
| Molybdenum | - | - | - |
| Nickel | - | 0.50% | 0.25% |
| Oxygen | - | - | - |
| Silicon | - | - | - |
| Sulfur | - | - | - |
| Tungsten | 76.00% | - | 76.00% |
| Vanadium | - | - | - |

| Rotap Sizing Requirements (Weight Percent Per ASTM B214) | | | | |
|---|---|----------|--------|-------|
| U.S. Mesh | | | Min. | Max. |
| Passing Sieve X Retained | | | | |
| | | 140 Mesh | - | - |
| 140 Mesh | X | 170 Mesh | - | - |
| 170 Mesh | X | 200 Mesh | - | - |
| 200 Mesh | X | 230 Mesh | - | - |
| 230 Mesh | X | 270 Mesh | - | 0.00% |
| 270 Mesh | X | 325 Mesh | - | 0.50% |
| 325 Mesh | X | D | 99.50% | - |

| Sub-Sieve Sizing Requirements (Volume Percent Per ASTM B822) | | |
|---|--------|-------|
| Micron Channel | Min | Max |
| -22 μ | 70.00% | - |
| -5.5 μ | - | 8.00% |
| - | - | - |
| - | - | - |
| - | - | - |
| - | - | - |
| - | - | - |
| - | - | - |

| Physical Properties Requirements | | |
|----------------------------------|---------|---------|
| Testing Procedure | Minimum | Maximum |
| Hall Flow (per ASTM B213) | - | - |
| Apparent Density (per ASTM B212) | - | - |
| Mean Value (per ASTM B222) | - | - |
| D10 (per ASTM B222) | - | - |
| D50 (per ASTM B222) | - | - |
| D90 (per ASTM B222) | - | - |

Quality Manager:

Operations Manager:

General Manager: