|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Oxidizer Selection Decision Matrix** | | | | | | | | | | |
|  | Commercial Availability | | Handling & Storage Requirements | | Health Hazard Risk | | Simplicity of Delivery System | |  | |
| Weight: 20% | | Weight: 20% | | Weight: 30% | | Weight: 30% | |
| Rank | Weighted Rank | Rank | Weighted Rank | Rank | Weighted Rank | Rank | Weighted Rank | Total | Weighted Total |
| HT Hydrogen Peroxide | 1 | 0.2 | 1 | 0.2 | 1 | 0.3 | 1 | 0.3 | 4 | 1 |
| Liquid Oxygen (LOX) | 2 | 0.4 | 2 | 0.4 | 2 | 0.6 | 2 | 0.6 | 8 | 2 |
| Liquid Nitrous Oxide | 2 | 0.4 | 3 | 0.6 | 2 | 0.6 | 3 | 0.9 | 10 | 2.5 |

Scale: 1 (worst) – 3(best)

To Conclude: Liquid Nitrous Oxide (N2O) is the best option for oxidizer according to the decision matrix

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Reducer (Solid Fuel) Selection Decision Matrix** | | | | | | | | | | |
|  | Commercial Availability | | Existing Performance Data w/ N20 | | Cost | | Moldability | |  | |
| Weight: 20% | | Weight: 40% | | Weight: 20% | | Weight: 20% | |
| Rank | Weighted Rank | Rank | Weighted Rank | Rank | Weighted Rank | Rank | Weighted Rank | Total | Weighted Total |
| Paraffin Wax | 3 | 0.6 | 3 | 1.2 | 4 | 0.8 | 2 | 0.4 | 12 | 3 |
| HTPB | 2 | 0.4 | 4 | 1.6 | 2 | 0.4 | 4 | 0.8 | 11 | 3.2 |
| PVC Plastic | 3 | 0.6 | 1 | 0.4 | 3 | 0.6 | 1 | 0.2 | 8 | 1.8 |
| HTPB w/ Aluminum Powder | 1 | 0.2 | 2 | 0.8 | 1 | 0.2 | 3 | 0.6 | 7 | 1.8 |

Scale: 1 (worst) – 4(best)

To Conclude: HTPB is the best option for oxidizer according to the decision matrix