Requirements for the Production of C-TUFF™ and SILAR® Materials.

The following are requirements and guidelines for working with Haydale Technologies Inc. C-TUFF™ and SILAR® materials.

Forming Capability

- Blends can be dry-pressed, iso-pressed, extruded, or hot-pressed.
- Extrudable paste compositions have been established and can be provided upon request.
- Haydale Technologies Inc. can sell custom extrudable pastes and can pre-compound the paste in advance.
- Binder-free hot-pressed versions are also available.

Debinding Capability

- Debind in air at temperatures of 475-500°C.
- Vacuum inert gas debinding is also acceptable, but not required.
- Ensure through weight-loss testing that all organics have been removed.
- Hot-press blends are binder free and do not need to be dewaxed

Sinter Capability

- Inert gas (flowing nitrogen) is required.
- Graphite resistance furnace is preferred.
- Temperatures up to 1650°C for low whisker blends, 1900°C for hot-press blends.
- Gas-pressure sintering, pressure-assisted sintering, high-pressure sinter or sinter/HIP is not required, but can be done to improve properties.
- HIP can be done to improve properties further.
- Hot-press pressure must be at least 8000 kPa. Higher pressure results in better physical properties.
- CERAMTUFF™ products can be "over-fired" where a slight decrease in fracture toughness is seen if the firing time and temperature is excessive.

Dust Control

- Standard HEPA filter vacuum collection is recommended over all dust-prone material transfer locations.