



## Contact

272 Free Hill Rd  
Johnson City, TN 37615

## Technical Areas of Expertise

Refractories, hydraulic high temperature castable formulations (both low cement and no cement), ceramic repair muds for investment casting applications (shell and core), sol-gel derived ceramics, non-oxide composite materials such as carbon-carbon or SiC, abrasives, PVD coatings, colloidal ceramic suspensions of a variety of chemistries, 3-D printing of ceramics, formulations for use in 3-D printed ceramics, slip-cast and pressure cast processes, extrusion and injection processes both low and high pressure, investment casting materials for shells and cores, processes in support of investment casting, whitewares and stoneware materials and processes, glazes used in the whiteware and pottery industry

## Education

Case Western Reserve University  
MS Materials Science

Clemson University  
BS Ceramic Engineering

## Background

*November 2022 - Present*

Founder/President • Gray Materials Technology

Materials consulting with aerospace and industrial applications

*June 1989 – November 2022*

Howmet Aerospace – Various Engineering and Leadership Roles

*June 1982 – Present*

Ceramic Artist – Potter

## Key Skills

Ceramic Materials  
Ceramic Process  
Problem Solving  
Project Management  
Budget Planning  
Communication

Process Engineering and Manufacturing Support in the areas of Shell and Core technology. I also had a brief stint supervising DS/SC casting, shell and mold prep at the Howmet Hampton facility before I became the process engineering manager.

Shell experience:

Shell solutions for Titanium castings including non-reactive face coat.

Optimization of shell for large structural castings

Development of all silica, silica/zircon and laminate shells for DS/SC

Core experience:

Development and Implementation of advanced poured core for large product lines

Development of injection molding core formulations capable of high dimensional fidelity and large cross sections

## Patents

US 6,315,941

US 6,494,250

US 6,578,623

US 6,588,484

US 6,720,028

---

Development of transfer molding core formulations for DS/SC cores as well as equiaxed cores.

Manufacturing support experience:

Spent 10 years working as the core process owner for Howmet – established best practices to be shared across facilities both within US and overseas.

Extensive problem solving around core/casting related issues.

Certified Master Injection Molder (RJG Academy)

---

## **Communication**

Managed a cross-functional team of companywide experts in core manufacturing and use. Communicated with all levels of the corporation from operators on the floor to CEO's and senior leadership as well as customers and suppliers.

---

## **Leadership**

30 years of engineering management

Shell systems for DS/SC castings

Wax process engineering for large power generation castings

Casting engineering equiax and DS/SC processes

Core development for aerospace investment castings

---

## **References**

Available upon request.