



Introduction to Properties and Testing of Refractories Expected Course Agenda: July 16–18, 2025

Learn about the significant properties of refractories in this course with classroom lectures and laboratory demonstrations.

This course is an intensive combination of classroom lectures and laboratory demonstrations that address most of the significant properties of refractories, both theoretically and experimentally. The morning lectures will emphasize common refractory testing techniques and microstructural-property relationships for all classes of refractories. The afternoon laboratory sessions are designed to give the participants experience with common refractory tests. The individual sessions are titled in the accompanying outline of the daily topics.

<u>Class Dates</u>	<u>Topics / Activities During Class</u>
1) July 16, 2025	Introduction to Refractories (0.5 hr) 8–8:30 a.m. Thermal Properties (1.0 hr) 8:30–9:30 a.m. Break 9:30–9:45 a.m. Mechanical Properties (1.0 hr) 9:45–10:45 a.m. Break 10:45–11 a.m. Corrosion Properties (1.0 hr) 11 a.m.–12 p.m. Lunch 12–1 p.m. (Hilton Garden Inn) Thermo-Mechanical Properties (0.75 hr) 1–1:45 p.m. Standard Test Methods (0.75 hr) 1:45–2:30 p.m. Break & Travel 2:30–3 p.m. Laboratory Sessions (2.0 hr) 3–5 p.m. Lab 1 — C1113: Thermal Conductivity by Hot Wire Lab 2 — C832: Creep Lab 3 — C862 and C1445: Castable Preparation and Flow Table Lab 4 — C1171, C1419, and C1548: Thermal Shock, Sonic Velocity, and Elastic Moduli



2) July 17, 2025	Silica Refractories (1.0 hr) 8–9 a.m. Break 9–9:15 a.m. Alumino-Silicate Refractories (1.0 hr) 9:15–10:15 a.m. Break 10:15–10:30 a.m. Basic Refractories (1.5 hr) 10:30 a.m.–12 p.m. Lunch 12–1 p.m. (Hilton Garden Inn) Insulating Refractories (0.75 hr) 1–1:45 p.m. Standard Test Methods (0.75 hr) 1:45–2:30 p.m. Break & Travel 2:30–3 p.m. Laboratory Sessions (2.0 hr) 3–5 p.m. Lab 1 — C133: Modulus of Rupture, Cold Crushing Lab 2 — C113 and E228: Reheat and Thermal Expansion Lab 3 — C830: Porosity and Density Lab 4 — C583: Hot Modulus of Rupture
3) July 18, 2025	Monolithic Refractories (1.25 hr) 8–9:15 a.m. Break 9:15–9:30 a.m. Non-Oxide Refractories (0.75 hr) 9:30–10:15 a.m. Break 10:15–10:30 a.m. Composite Refractories (0.75 hr) 10:30–11:15 a.m. Zircon-Zirconia Refractories (0.75 hr) 11:15 a.m.–12 p.m. Lunch 12–1 p.m. (Hilton Garden Inn)



	Fused Cast Refractories (0.75 hr) 1–1:45 p.m. Standard Test Methods (0.75 hr) 1:45–2:30 p.m. Break & Travel 2:30–3 p.m. Laboratory Sessions (2.0 hr) 3–5 p.m. Lab 1 — C201: Thermal Conductivity by Water Calorimeter Lab 2 — C16 and C24: Hot Load and PCE Lab 3 — C577: Permeability Lab 4 — C704: Abrasion
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Additional References or Resources:

1. **Morning Sessions:** [Hilton Garden Inn](#), Columbus/Polaris; 8535 Lyra Dr, Columbus, OH 43240
2. **Afternoon Sessions:** [Edward Orton Jr. Headquarters](#); 6991 S Old 3C Rd Hwy, Westerville, OH 43082
3. **Airport:** [John Glenn Columbus International Airport \(CMH\)](#)