What to Verify Before Specifying a Grade

A project-specific review framework. A nominal Al2O3 percentage is a starting point, not proof of service life, interchangeability or document availability.

1. Define the service envelope

Record the furnace and exact lining zone. Separate measured operating data from design assumptions. Include normal and upset temperatures; direct flame, slag, alkali vapour or dust exposure; static load; abrasion; heating and cooling frequency; the existing lining's observed damage; and the installation design.

Input	Evidence to request	Reason for review
Location and duty	Furnace drawing, zone and lining arrangement	Different zones in one furnace can have different duty.
Thermal profile	Normal and upset temperatures, measurement location, cycling	Peak, duration and cycling must be considered together.
Exposure	Slag or ash analysis where available, alkali sources, abrasion and load	Composition alone does not establish corrosion or wear resistance.
Geometry	Brick drawing, dimensions, jointing and installation method	Shape and lining design must be compatible.

2. Request product-specific data

Obtain the exact offered grade and manufacturer's current datasheet. Relevant properties may include declared Al2O3 composition, bulk density, apparent porosity, cold crushing strength, hot-load or creep behaviour, thermal-shock results and chemical-resistance evidence. Record each result with its test method, units, test conditions and specimen or lot basis. Do not fill gaps from a generic grade table.

3. Keep load-test methods distinct

ASTM C16 describes testing under a specified compressive load at a specified temperature for a specified time. ISO 1893 addresses refractoriness under load under rising temperature. They are not interchangeable names for one universal RUL number. The contract must identify the method and acceptance basis required for the project. This guide does not assign a fixed margin between a test result and operating temperature.

4. Compare offers like for like

Align the offered grade, drawing, quantity, tolerances, test and document scope, packing, destination, commercial basis and confirmed lead time. Higher alumina content alone does not prove longer service life or lower total cost.

5. Release a project-specific specification

Review item	Record before approval
Service basis	Measured and assumed conditions, zone and failure history.
Offered product	Manufacturer, grade, revision-controlled datasheet and drawing.

Review item	Record before approval
Acceptance	Test methods, criteria, sampling or witnessing and approver.
Documents	Required reports, certificates or lot records and their due stage.
Supply	Quantity, packing, destination, commercial terms and lead time.

Frequently asked questions

Is a higher Al2O3 percentage always better?

No. It describes one aspect of composition. Suitability also depends on the actual service environment and the offered product's test data.

Can I select a grade from a generic RUL table?

Not safely. Request the offered grade's reported result, method, test conditions and the project's acceptance criteria.

Are ASTM C16 and ISO 1893 interchangeable?

No. Their stated test conditions differ. Specify which result is required rather than treating them as one figure.

Will every shipment include an English COA or a batch load-test report?

Document availability must be confirmed for the specific manufacturer, grade and contract. Do not assume either document is standard for every order.

What should I send for an initial project review?

Send the furnace and zone, temperature range and upsets, exposure, cycling, drawings, quantity, destination and required reports. We will first check whether a suitable proposal and documentation can be supported.

Project review

Send the scope and mandatory document list through the website contact page. Availability, compliance, quotation timing and document coverage are confirmed only after review of the specific inquiry.

Technical scope references: ASTM C16 (store.astm.org/standards/c16) and ISO 1893 (iso.org/standard/44297.html). Their official scope pages do not substantiate any Vuulcan product value or batch-document commitment.

Web article: www.vuulcanrefractories.com/technical-center/high-alumina-brick-grade-selection/