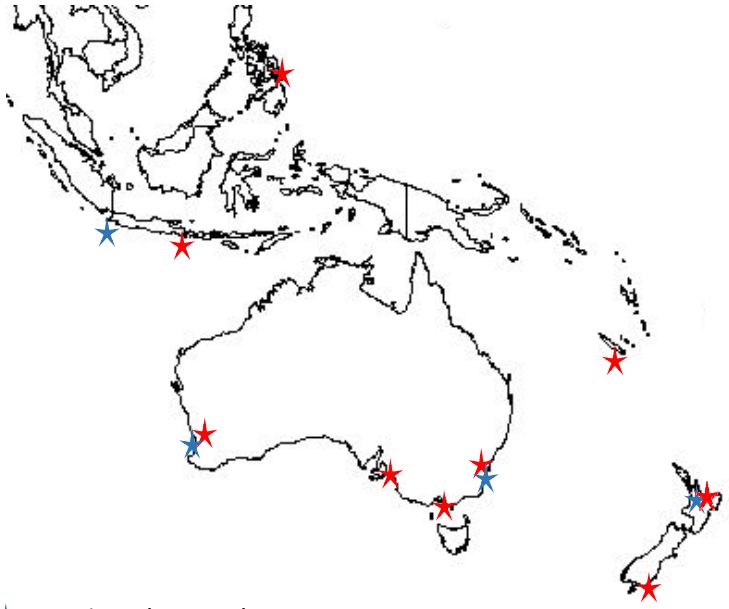


★ Manufacturing Location

★ Sales Office/Agency

SHINAGAWA

GLOBAL PROVIDER OF THERMAL SOLUTIONS

SHINAGAWA

REFRACTORIES
FOR THE
ALUMINIUM INDUSTRY

SHINAGAWA REFRACTORIES AUSTRALASIA PTY LTD
SHINAGAWA REFRACTORIES AUSTRALASIA NZ LTD
SHINAGAWA PT. SHINAGAWA REFRACTORIES INDONESIA

Shinagawa supply a range of products for secondary and primary aluminium producers. The specific requirements depends upon the application within the aluminium production process.

Carbon Baking Furnace

Shinagawa supplies a range of brick, monolithic and precast shapes to this part of the smelting operation. **SHIRAL® 50AD** brick, toll manufactured by our partner company, has been formulated to provide the superior high temperature properties that are required for this application. This product, used in both the headwall and fluewall construction has excellent dimensional tolerances for ease of construction. Shinagawa can also supply insulating firebrick (IFB) from Isolite, the **LBK** series of IFB have been used on a number of greenfield carbon bake rebuilds.

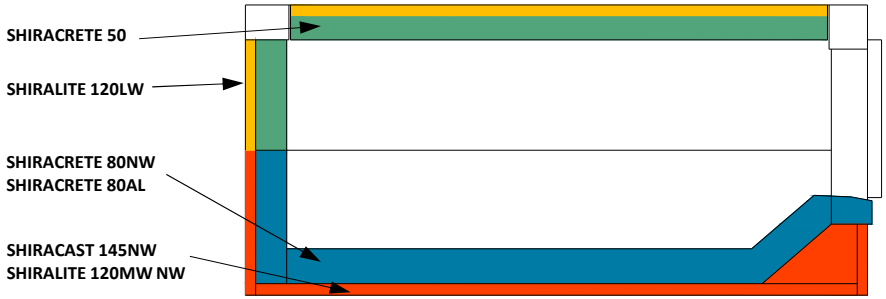
Shinagawa produce a range of monolithic materials for maintenance in the carbon bake furnace. **SHIRASET® 50** heat set mortar is used during construction of flue and headwalls. During ongoing maintenance in the flue sidewalls, insulation castables such as **SHIRALITE® 125LW**, are often used to maintain the integrity of the furnace. Precast shapes are used as flue and headwall caps, the castable used in the construction can be either **SHIRACAST®** or **SHIRALITE** depending upon the design criteria.

Aluminium Melting and Holding Furnaces

Shinagawa provide a range of refractory solutions to meet specific customer requirements. In the section of the furnace above the level of molten aluminium ie the upper sidewalls and roof, key technical criteria include mechanical strength, thermal shock resistance and alkali resistance. A low cement castable, **SHIRACRETE® 50**, is recommended as the hot face castable and this is used in combination with a suitable **SHIRALITE** back up insulation product to meet the design requirements of the furnace.
Areas around furnace openings require extreme thermal shock and mechanical abrasion resistance. Selected low cement castable products from the **SHIRACRETE** range can provide these properties which will improve the performance of the furnace and reduce maintenance requirements.

Below the melt line there is a different set of requirements for the refractory lining. In this area of the furnace it is critical that the installed refractory is resistant to mechanical erosion, chemical attack and corundum formation. The latter involves the reaction of the molten aluminium with silica present in the refractory product. Corundum can have a significant effect on the performance of the furnace.

Shinagawa products recommended for use in aluminium contact have been formulated to resist corundum formation through the selection of the correct raw materials and the addition of a non-wetting additive. Both the **SHIRACRETE 80AL** and **SHIRACRETE 80NW** are recommended for the ramp, lower sidewalls and hearth. A range of non- wetting **SHIRACAST** and **SHIRALITE** products are available as suitable sub hearth linings.



Reduction Cells

Shinagawa supplies a range of alumina silicate castable and brick products that are used in reduction cells.

Metal Transport Ladles

Shinagawa supply a range of alumina silicate castable products that are designed for use in metal transport ladles. Selected low cement castables from the **SHIRACRETE** range can provide improved ladle lives. These castable products have high strengths to resist the effect of mechanical cleaning providing resistance to alkali corrosion from various fluxing processes.

Shinagawa has the capability to assist with:

- Thermal Analysis evaluation of proposed linings to determine the optimum refractory configuration.
- Detailed engineering design drawings.
- Experienced technical supervision.

The correct refractory configuration and design of construction joints is critical in ensuring that the lining resists the ingress of molten aluminium.

A full range of product installation recommendations and dry out curves are available for the Shinagawa range of products.