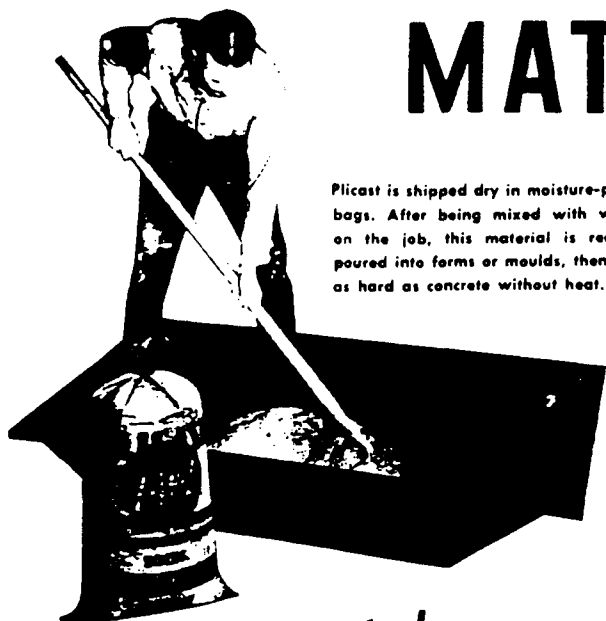


PUBLICAST CASTABLE REFRACTORY MATERIAL



Plicast is shipped dry in moisture-proof bags. After being mixed with water on the job, this material is readily poured into forms or moulds, then sets as hard as concrete without heat.

Plicast is a self-hardening or "castable" refractory material. Packed in dry form, it is mixed with water and poured into forms or moulds, setting to concrete-like hardness without the application of heat.

Plicast is easily and quickly installed. It is poured into place in less time than is required to build up other types of refractory construction. Plicast forms a monolithic refractory lining that withstands moisture and abrasion as well as temperature.

An important use for Plicast is the casting of special refractory shapes such as burner blocks, gate tile, door liners, etc. By making simple moulds, any tile shape can be readily cast of Plicast.

This bulletin contains brief factual descriptions of thirteen grades of castable refractory material. Each grade has specific characteristics that are valuable in particular applications. The uses suggested for each grade merely indicate the wide range of services for which each is suitable.

The Plibrico organization will be pleased to give you further information or advice on the selection and application of the most suitable grade of Plicast for any purpose.

*Readily Installed
Saves Installation Labor
Withstands Moisture &
Abrasion*

13 GRADES
with many
valuable uses

DISTRIBUTED AND INSTALLED BY

011601

Plibrico Company

1800 North Kingsbury Street

Chicago 14, Illinois

REFRACTORY PRODUCTS • ENGINEERING • CONSTRUCTION

THREE LIGHT-WEIGHT INSULATING GRADES

PLICAST L-W-I

P.C.E. Cone 15-16 (2640° F.)
Service Limit: 2450° F.
Chemical Composition:
Al₂O₃—39%; SiO₂—39%
Weight: 75 lbs. per cu. ft.
Packed in 100-lb. bags



Boiler breeching lined with L-W-I

PLICAST L-W-I is a dual-purpose castable material that combines high insulating efficiency with refractoriness adequate for numerous industrial applications. L-W-I is 45% lighter than fire brick with only one-third its heat conductivity. A 3-in. lining of Plicast L-W-I has approximately the same insulating value as 9 in. of fire brick or 12 in. of concrete.

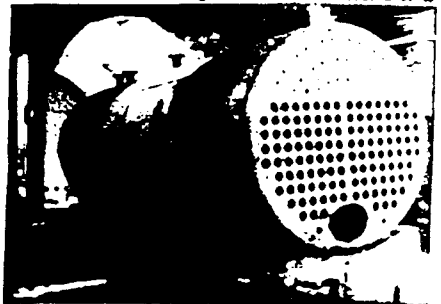
Plicast L-W-I has low heat storage capacity so heats up rapidly and cools off quickly. For this reason, L-W-I is particularly effective for lining furnaces in intermittent operation such as heat-treating furnaces, industrial ovens, space heaters, oil and gas burners, etc. In these services, L-W-I saves the fuel wasted and time lost with ordinary refractory materials in heating up the lining to necessary operating temperature.

The light weight of Plicast L-W-I is a big advantage in many applications such as lining large doors for industrial furnaces and incinerators, dampers, ducts and breechings, marine applications, etc. An important application is the construction of the tube deck over the circulating tubes of water tube boilers.

Within its temperature range, Plicast L-W-I is the ideal refractory for lining portable furnaces of any kind which are completely assembled at the factory, as its light weight saves shipping cost. Plicast L-W-I may be subjected to heat 24 hours after being poured into place.



Above: Oven for annealing large steel castings, with lining of Plicast L-W-I, including removable cover. Below: Stress-relieving furnace for boilers and pressure vessels, with lining and arch of Plicast L-W-I.

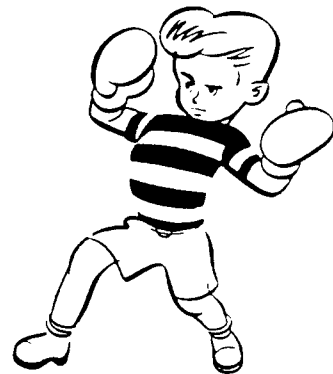


PLICAST TUFF-LITE

P.C.E. Cone 15 (2615° F.)
Service Limit: 2450° F.
Chemical Composition:
Al₂O₃—31%; SiO₂—46%
Weight: 82 lbs. per cu. ft.
Packed in 100-lb. bags

PLICAST Tuff-Lite is a light-weight, insulating castable refractory especially formulated to maintain an exceptionally high strength throughout its entire temperature range. Tuff-Lite is ideal for furnace linings where both strength and insulating quality are requisites, such as in heat-treating furnaces subjected to rough handling and mechanical shock, also for car tops, hearths, door linings, etc., especially if operating in the temperature range of 1400-2200 deg. F.

Tuff-Lite finds application for any purpose requiring the fuel-saving properties of an insulating castable with exceptionally high strength for resistance to shock and abrasion. It is unequalled for lining numerous furnaces in the industrial heating field. May be fired 24 hours after pouring.



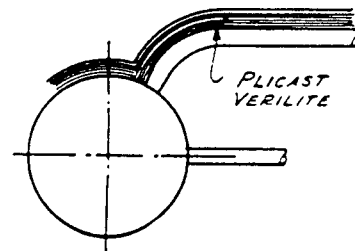
PLICAST VERILITE

Service Limit: 1500° F.
Mineral Base
Weight: 40 lbs. per cu. ft.
Packed in 50-lb. bags

VERILITE is an insulating castable of extremely light weight made with an insulating mineral base. Due to its insulating efficiency and structural economy, it offers important savings for tube decks (shown at right), duct and breeching linings, backing up tangent-tube water walls, lining low-temperature furnaces, covering H.R.T. boiler shells, or other applications where insulating qualities are needed but temperatures do not exceed 1500 deg. and abrasion is not present.

The insulating value of Verilite is approximately twice that of lightweight fire brick and four to five times that of standard fire brick. Its strength is exceptional for a material weighing only 40 lbs. per cu. ft., and entirely adequate for any of the applications recommended.

Verilite is available in two grinds: one for pneumatic application, the other for pouring or trowelling. May be fired after 48 hours.



Verilite forms a lightweight, leakproof deck over circulating tubes of the water tube boiler.

011005

PLICAST HYDRO-MIX

P.C.E. Cone 17 (2685° F.)

Service Limit: 2500° F.

Chemical Composition:

Al₂O₃—41%; SiO₂—43%

Weight: 115 lbs. per cu. ft.

Packed in 100-lb. bags

PLICAST Hydro-Mix has the general characteristics of Plicast No. 27 with the added quality of higher resistance to moisture. This material is especially manufactured for lining hydraulic ashpits, where high refractoriness must be combined with maximum moisture resistance. It is widely used for large stoker and pulverized coal burner ashpits in central stations and big industrial plants.

The construction of hydraulic ashpits ordinarily calls for irregular refractory contours, and Hydro-Mix is easy to cast into any contour required. Hydro-Mix has excellent resistance to abrasion and provides a smooth, even surface for clean sluicing. It sets hard and may be put into service 24 hours after installation.



Lining of hydraulic ashpit with Plicast Hydro-Mix for high refractoriness and good resistance to moisture.

PLICAST TUFF-MIX

P.C.E. Cone 17 (2685° F.)

Service Limit: 2500° F.

Chemical Composition:

Al₂O₃—38%; SiO₂—43%

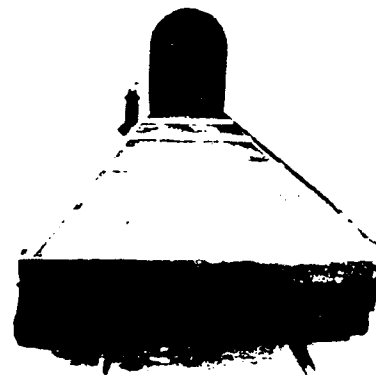
Weight: 115 lbs. per cu. ft.

Packed in 100-lb. bags

PLICAST Tuff-Mix is a castable refractory material manufactured for exceptionally high strength. This property is particularly valuable in the temperature range of 1400-2200 deg. F., where the other grades of Plicast are somewhat inferior to Tuff-Mix in strength due to their bonding characteristics.

The high strength of Tuff-Mix makes it ideal for annealing, hardening, and other types of heat-treating furnaces in which the lining is subjected to severe abrasion in charging the work. Tuff-Mix also finds application in the ashpits of water gas generators, furnace hearths, and other uses where maximum strength must be combined with good refractoriness at intermediate temperatures.

Tuff-Mix may be subjected to service 24 hours after being poured into place.



Annealing furnace car top covered with Plicast Tuff-Mix, for strength in the middle temperature range.

PLICAST HEARTH CEMENT

Has the same characteristics as Plicast No. 27, but finer grind. Packed in 100-lb. bags.

BURNER-SET

Has the same characteristics as Plicast No. 15, but finer grind. Packed in 50 and 100-lb. bags.

PLICAST Hearth Cement is first-quality castable refractory material similar to Plicast No. 27 but of finer grind. It is especially prepared for setting stokers and constructing combustion chambers for domestic and commercial oil and gas burners where a finer grind is desirable. This grade is also used for making pre-cast combustion chambers for oil burners and baffle plates for warm-air furnaces. In domestic service, Hearth Cement may be fired after 12 to 24 hours.

BURNER-SET is an economical grade of castable refractory similar to Plicast No. 15 but of finer grind for use with domestic stokers and oil and gas burners. This grade should stand for 24 hours before being fired.



Stoker hearth in connection with warm-air furnace. Can be cast out of Plicast Hearth Cement or Burner-Set.

BECO-TURNER BAFFLE-MIX

Weight 113 lbs. per cu. ft.

Packed in 100-lb. bags

This material is especially formulated for patching and repairing monolithic baffles. It is a blend of the refractories most suitable for good service and convenient installation.

We are builders of the famous Beco-Turner Baffle, shown opposite, which is distinguished by its patented expansion joints. We shall be pleased to quote on Beco-Turner Baffles for baffle re-



011605

CASTKOTE SERVICING MATERIAL

Service Limit: 2500° F.

Packed in 100-lb. bags

This material is especially compounded for servicing and coating castable refractory linings. When the forms are removed from a castable refractory installation, Castkote may be used to fill in any voids or irregularities, giving a perfectly smooth surface. Castkote is also used to service any cracks that may develop in a castable lining or as a coating over a castable lining, in which case it should not be applied more than 1/2 in. thick. Also

PLICAST

No. 27

P.C.E. Cone 17-18 (2700° F.)

Service Limit: 2500° F.

Chemical Composition:

Al_2O_3 —40%; SiO_2 —43%

Weight: 115 lbs. per cu. ft.

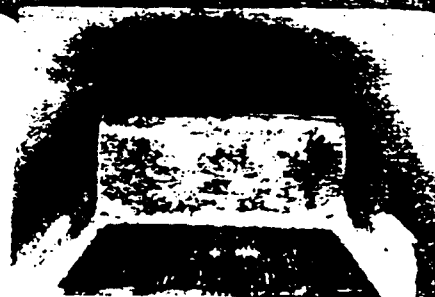
Packed in 100-lb. bags

PLICAST No. 27 is first-quality castable refractory material that has distinguished itself in numerous applications in its temperature range. It is ideally suited for lining the hotter passes in connection with water tube boilers, rear combustion chambers in Scotch marine boilers, rear doors in two-pass boilers, and other severe services. It is used for lining garbage incinerators and rubbish burners.

PLICAST No. 27 is the grade normally recommended for making special refractory shapes. With a bag of No. 27 on hand, you can readily cast any refractory shape required right on the job.

No. 27 finds wide application in industrial furnaces. It is often used to line portable furnaces assembled at the factory, since it is not damaged or displaced in shipment. PLICAST No. 27 may be subjected to heat 24 hours after pouring.

For pneumatic applications, use PLICAST Hearth Cement, a finer grind with the same characteristics.



Interior view of Plibrico boiler combustion chamber lined with PLICAST No. 27, showing rear wall and arch.

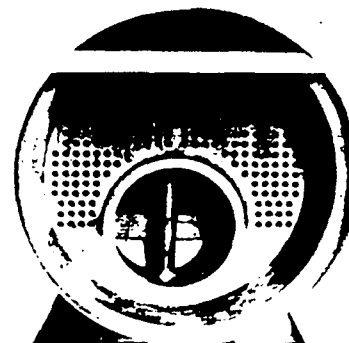
PLICAST

TROWL-MIX

Has the same characteristics as PLICAST No. 27 except that it is especially compounded for trowelling, and weighs 110 lbs. per cu. ft.

PLICAST Trowl-Mix has the same physical and refractory characteristics as PLICAST No. 27 plus the special quality of being readily trowelled into place. When mixed with water, it is semi-plastic in consistency, will support its own weight and hold a desired shape to a height of about 1 ft. without a form or mould. In a few minutes, it hardens to a point where an equal height may be installed above it.

Trowl-Mix has many uses where a castable refractory material is indicated but where forms would be unwieldy or costly. It is convenient for making special shapes without the necessity of first making moulds. May be fired after 24 hours.



Illustrating use of PLICAST No. 27 for lining the rear combustion chamber and arch of Scotch marine boiler.

PLICAST

No. 15

Service Limit: 1500° F.

Chemical Composition:

Al_2O_3 —29½%; SiO_2 —46½%

Weight: 115 lbs. per cu. ft.

Packed in 100-lb. bags

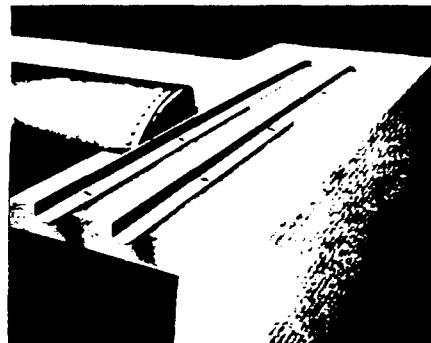
PLICAST No. 15 is intermediate-quality castable refractory material suitable for service temperatures up to 1500 deg. F., with an outstanding reputation for durability and economy.

With water tube boilers, an important application of No. 15 is lining the convection section beyond the firebox (boiler passes, soot chamber, etc.). With H.R.T. boilers, No. 15 is widely used for the rear arch as shown at the right; also for the upper section of side and rear walls and for corbels.

No. 15 has been widely adopted for constructing stoker supporting piers and lining dry ashpits in connection with dumping-grate stokers; also for supporting piers for oil burner checker hearths.

No. 15 may be subjected to heat 48 hours after pouring. The P.C.E. is not given because it has no practical relationship to the actual service limit.

For pneumatic applications, use Burner-Set, a finer grind with the same characteristics.



Flat suspended rear arch of PLICAST No. 15. The white covering is insulation, and the rear wall is Plibrico.

PLICAST

No. 31

P.C.E. Cone 31 (3055° F.)

Service Limit: 2900° F.

Chemical Composition:

Al_2O_3 —45%; SiO_2 —42%

Weight: 120 lbs. per cu. ft.

Packed in 100 lb. bags

PLICAST No. 31 is a super-duty castable refractory material suitable for extreme temperatures and severe service. Its P.C.E. of Cone 31 and service limit of 2900 deg. F. are unusually high, permitting use of a castable in the higher temperature range.

The uses of PLICAST No. 31 parallel those of No. 27, but No. 31 is specified where higher temperatures over 2500 deg. F. are encountered or other service conditions are more severe. PLICAST No. 31 is recommended for incinerators operating under severe conditions, etc. Where super-quality castable refractory is required, the higher refractoriness of PLICAST No. 31 gives the extra margin of safety that results in the greatest degree of service. May be subjected to heat 24-hours after pouring.

Available in two grinds: one for pouring, the other for trowelling.



Incinerator lining and arch constructed of PLICAST No. 31 after two years of continuous service.

011607

P L I C A S T



Plicast is shipped dry in moisture-proof bags. After being mixed with water on the job, this material is readily poured into forms or moulds, then sets as hard as concrete without heat.

*Readily Installed
Saves Installation Labor
Resists Moisture &
Abrasion*

PLICAST is a self-hardening or "castable" refractory material. Packed in dry form, it is mixed with water and poured into forms or moulds, setting to concrete-like hardness without the application of heat.

Plicast is easily and quickly installed. It is poured into place in less time than is required to build up other types of refractory construction. Plicast forms a monolithic refractory lining that withstands moisture and abrasion as well as temperature.

An important use for Plicast is the casting of special refractory shapes such as burner blocks, gate tile, door liners, etc. By making simple moulds, any tile shape can be readily cast of Plicast.

This bulletin contains brief factual descriptions of thirteen grades of castable refractory material. Each grade has specific characteristics that are valuable in particular applications. The uses suggested for each grade merely indicate the wide range of services for which each is suitable.

The Plibrico organization will be pleased to give you further information or advice on the selection and application of the most suitable grade of Plicast for any purpose.

13 GRADES
with many
valuable uses

DISTRIBUTED AND INSTALLED BY

011532

PLICAST L-W-I

P.C.E. Cone 15-16 (2640° F.)
Service Limitation: 2500° F.
Chemical Composition:
 Al_2O_3 —39%; SiO_2 —35%
Weight: 75 lbs. per cu. ft.
Packed in 100-lb. bags



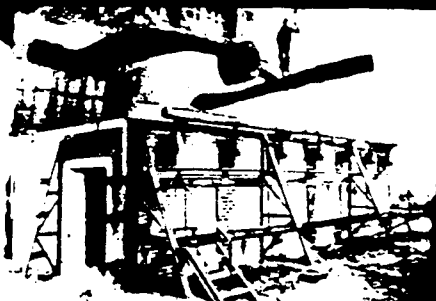
Boiler breeching lined with L-W-I

Plicast L-W-I is a dual-purpose castable material that combines high insulating efficiency with refractoriness adequate for numerous industrial applications. L-W-I is 45% lighter than fire brick with only one-third its heat conductivity. A 3-in. lining of Plicast L-W-I has approximately the same insulating value as 1 in. of fire brick or 12 in. of concrete.

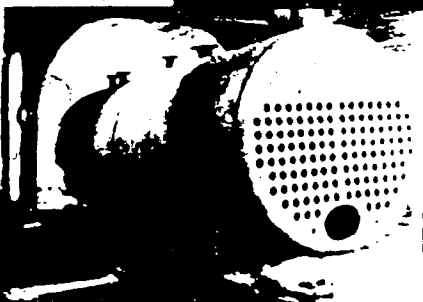
Plicast L-W-I has low heat storage capacity, so heats up rapidly and cools off quickly. For this reason, L-W-I is particularly effective for lining furnaces in intermittent operation such as heat-treating furnaces, industrial ovens, space heaters, oil and gas burners, etc. In these services, L-W-I saves the fuel wasted and time lost with ordinary refractory materials in heating up the lining to necessary operating temperature.

The light weight of Plicast L-W-I is a big advantage in many applications, such as lining large floors for industrial furnaces and incinerators, dampers, ducts and breechings, marine applications, etc. An important application is the construction of the tube deck over the circulating tubes of water tube boilers.

Within its temperature range, Plicast L-W-I is the ideal refractory for lining portable furnaces of any kind which are completely assembled at the factory, as its light weight saves shipping cost. Plicast L-W-I may be subjected to heat 24 hours after being poured into place.



Above: Oven for annealing of Plicast L-W-I
Below: Stress-relieving of vessels, with



PLICAST TUFF-LITE

P.C.E. Cone 14 (2550° F.)
Service Limitation: 2400° F.
Chemical Composition:
 Al_2O_3 —36%; SiO_2 —37%
Weight: 82 lbs. per cu. ft.
Packed in 100-lb. bags

Plicast Tuff-Lite is a light-weight, insulating castable refractory especially formulated to maintain an exceptionally high strength throughout its entire temperature range. Tuff-Lite is ideal for furnace linings where both strength and insulating quality are requisites, such as in heat-treating furnaces subjected to rough handling and mechanical shock, also for car tops, hearths, door linings, etc., especially if operating in the temperature range of 1400-2200 deg. F.

Tuff-Lite finds application for any purpose requiring the fuel-saving properties of an insulating castable with exceptionally high strength for resistance to shock and abrasion. It is unequalled for lining numerous furnaces in the industrial heating field. May be fired 24 hours after pouring.



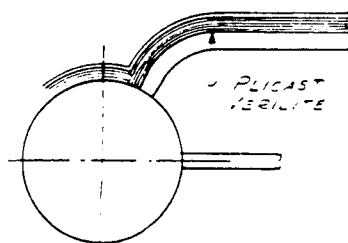
PLICAST VERILITE

Service Limit: 1500° F.
Vermiculite Base
Weight: 40 lbs. per cu. ft.
Packed in 50-lb. bags

Verilite is an insulating castable of extremely light weight made with a vermiculite base. Due to its insulating efficiency and structural economy, it offers important savings for tube decks (shown at right), duct and breeching linings, backing up tangent-tube water walls, lining low-temperature furnaces, covering H.R.T. boiler shells, or other applications where insulating qualities are needed but temperatures do not exceed 1500 deg. and abrasion is not present.

The insulating value of Verilite is approximately twice that of lightweight fire brick and four to five times that of standard fire brick. Its strength is exceptional for a material weighing only 40 lbs. per cu. ft., and entirely adequate for any of the applications recommended.

Verilite may be applied by troweling, gunning, or pouring, and may be fired after 24 hours.



Verilite applied over tube deck

021563

PLICAST HYDRO-MIX

P.C.E. Cone 17 (2685° F.)
Service Limit: 2500° F.
Chemical Composition:
 Al_2O_3 —41%; SiO_2 —43%
Weight: 115 lbs. per cu. ft.
Packed in 100-lb. bags

Plicast Hydro-Mix has the general characteristics of Plicast No. 27 with the added quality of higher resistance to moisture. This material is especially manufactured for lining hydraulic ashpits, where non-reticriness must be combined with maximum moisture resistance. It is widely used for large stoker and pulverized coal burner ashpits in central stations and big industrial plants.

The construction of hydraulic ashpits, particularly for irregular refractory linings, and Hydro-Mix is cast into any contour required. Hydro-Mix has excellent resistance to abrasion and provides a smooth even surface for clean slushing. It sets hard and may be put into service 24 hours after installation.



Lining of hydraulic
for high refractory

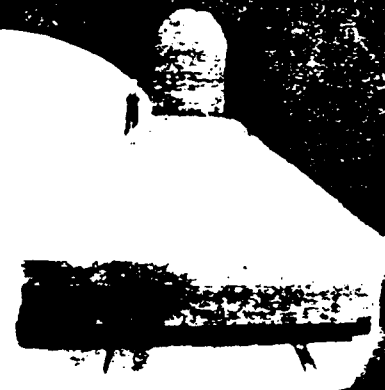
PLICAST TUFF-MIX

P.C.E. Cone 17 (2685° F.)
Service Limit: 2500° F.
Chemical Composition:
 Al_2O_3 —41%; SiO_2 —43%
Weight: 115 lbs. per cu. ft.
Packed in 100-lb. bags

Plicast Tuff-Mix is a castable refractory material manufactured for exceptionally high strength. This property is particularly valuable in the temperature range of 1400-2200 deg. F. where the other grades of Plicast are somewhat inferior to Tuff-Mix in strength, in account of their particular bonding characteristics.

The high strength of Tuff-Mix makes it ideal for annealing, hardening, and other types of heat-treating furnaces in which the lining is subjected to severe tension in charging the work. Tuff-Mix also finds application in the ashpits of water gas generators, furnace hearths, and other uses where maximum strength must be combined with good reticriness at intermediate temperatures.

Tuff-Mix may be subjected to service 24 hours after being poured into place.



Annealing furnace
Mix, for strength

PLICAST HEARTH CEMENT

Has the same characteristics as Plicast No. 27, but finer grind. Packed in 50 and 100-lb. bags.

BURNER-SET

Has the same characteristics as Plicast No. 15, but finer grind. Packed in 50 and 100-lb. bags.

Plicast Hearth Cement is first-quality castable refractory material similar to Plicast No. 27, but of finer grind. It is especially prepared for setting stokers and constructing combustion chambers for domestic and commercial oil and gas burners where a finer grind is desirable. This grade is also used for making pre-cast combustion chambers for oil burners and baffle plates for warm-air furnaces. In domestic service, Hearth Cement may be fired after 12 to 24 hours.

BURNER-SET is an economical grade of castable refractory similar to Plicast No. 15 but of finer grind for use with domestic stokers and oil and gas burners. This grade should stand for 24 hours before being fired.



Stoker hearth in con-
be cast out of place

BECO-TURNER BAFFLE-MIX

Weight 113 lbs. per cu. ft.
Packed in 100-lb. bags

This material is especially formulated for patching and repairing monolithic baffles. It is a blend of the refractories most suitable for good service and convenient installation.

We are builders of the famous Beco-Turner Baffle, shown opposite, which is distinguished by its patented expansion joints. We shall be pleased to quote on Beco-Turner Baffles for baffle replacements on new boilers.



011531

CASTKOTE SERVICING MATERIAL

Service Limit: 2500° F.
Packed in 100-lb. bags

This material is especially compounded for servicing and coating castable refractory linings. When the forms are removed from a castable refractory installation, Castkote may be used to fill in any voids or irregularities, giving a perfectly smooth surface. Castkote is also used to service any cracks that may develop in a castable lining or as a coating over a castable lining, in which case it should not be applied more than 1/2 in. thick. May be fired 24 hours after application.

PLICAST

No. 27

P.C.E. Cone 17-18 (2700° F.)

Service Limit: 2500° F.

Chemical Composition:

Al_2O_3 —42%; SiO_2 —42%

Weight: 115 lbs. per cu. ft.

Packed in 100-lb. bags

Plicast No. 27 is a high-quality castable refractory material that has distinguished itself in numerous applications in its temperature range. This grade is ideally suited to such uses as lining the water passes in connection with water tube boilers, rear combustion chambers in Scotch marine boilers, rear doors in two-pass boilers, and other severe services. It is widely used for lining garbage incinerators and rubbish burners.

Plicast No. 27 is the grade normally recommended for making special refractory shapes. With a bag of No. 27 on hand, you can readily cast the refractory shape required right on the job.

No. 27 finds wide application in industrial furnaces. It is often used to line portable furnaces assembled at the factory, since it is not damaged or displaced in shipment. Plicast No. 27 may be subjected to heat 24 hours after pouring.



Interior view of Plicastro boiler lined with Plicast No. 27

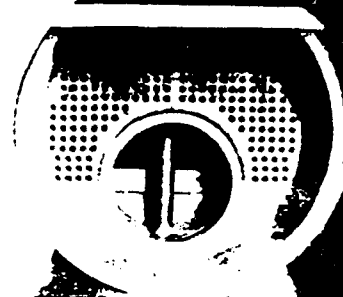
PLICAST

TROWL-MIX

Has the same characteristics as Plicast No. 27 except that it is especially compounded for trowelling.

Plicast Trowl-Mix has the same physical and refractory characteristics as Plicast No. 27 plus the special quality of being readily trowelled into place. When mixed with water, this grade is semi-plastic in consistency and will support its own weight and hold a desired shape to a height of about 1 ft. without a form or mould. In a few minutes, it hardens to a point where an equal height may be installed above it.

Trowl-Mix has many uses where a castable refractory material is indicated but where forms would be unwieldy or costly. It is convenient for making special shapes without the necessity of first making moulds. May be fired after 24 hours.



III

PLICAST

No. 15

Service Limit: 1500° F.

Chemical Composition:

Al_2O_3 —29½%; SiO_2 —46½%

Weight: 115 lbs. per cu. ft.

Packed in 100-lb. bags

Plicast No. 15 is intermediate-quality castable refractory material suitable for service temperatures up to 1500 deg. F. Within its temperature range, this grade has built up an outstanding reputation for durability and economy.

With water tube boilers, an important application of No. 15 is lining the convection section beyond the firebox (boiler passes, soot chamber, etc.). With H.R.T. boilers, No. 15 is widely used for the rear arch as shown at the right; also for the upper section of side and rear walls and for corbels.

No. 15 has been widely adopted for constructing stoker supporting piers and lining dry ashpits in connection with dumping-grate stokers; also for supporting piers for oil burner checker hearths.

No. 15 may be subjected to heat 48 hours after pouring. The P.C.E. is not given in the tabulation at the left because it has no practical relationship to the actual service limit of the material.



Flat suspended rear arch covering is insulating

PLICAST

No. 31

P.C.E. Cone 32 (3090° F.)

Service Limit: 2900° F.

Chemical Composition:

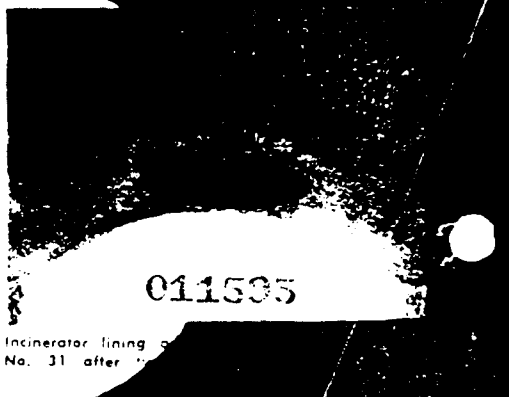
Al_2O_3 —45%; SiO_2 —42%

Weight: 120 lbs. per cu. ft.

Packed in 100-lb. bags

Plicast No. 31 is a super-duty castable refractory material with a kyanite and flint clay base suitable for extreme temperatures and severe service. Its P.C.E. of Cone 32 and service limit of 2900 deg. F. are unusually high, permitting the use of castable refractory in the higher temperature range.

The uses of Plicast No. 31 parallel those of No. 27, but No. 31 is specified where higher temperatures are encountered or other service conditions are more severe. Plicast No. 31 is recommended for incinerators operating under severe conditions, soaking pit covers, etc. Where super-quality castable refractory is required, the higher refractoriness of Plicast No. 31 gives the extra margin of safety that results in the greatest degree of service. May be subjected to heat 24 hours after pouring.



Incinerator lining of Plicast No. 31 after 24 hours

011535

NOTE: In fourth line above, "Cone 27" should read "Cone 32"

