PLAINTIFF'S EXHIBIT

PLI-137



Plicast L-W-I is a castable refractory material in dry form which sets after being mixed with water. Packed in 50 lb. bags as shown above.

for

INDUSTRIAL FURNACES

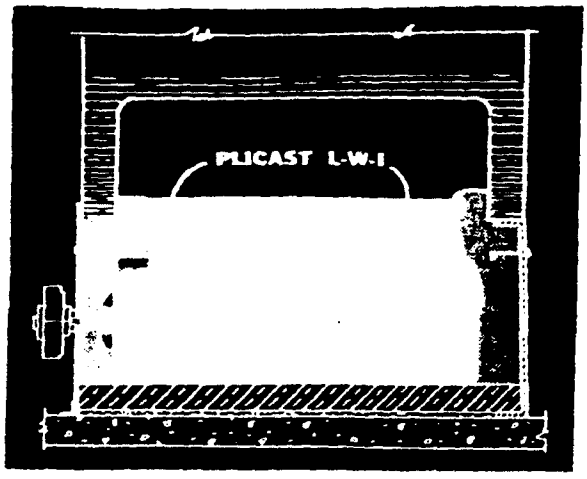
OIL and GAS BURNERS

BOILER APPLICATIONS, Etc.

LIGHT-WEIGHT INSULATING CASTABLE REFRACTORY

011600

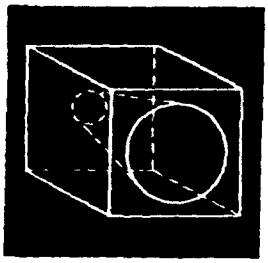
for OIL and GAS BURNER INSTALLATIONS



One of the most important and advantageous applications of Plicast L-W-I is in connection with oil and gas burners for domestic and commercial boilers, where temperatures permit its use.

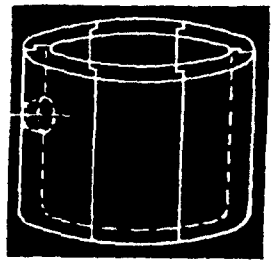
In such installations, the burners are in intermittent operation, often going off for such long periods that ordinary refractory linings cool down below the temperature at which they produce complete combustion. The result is inefficient combustion and excessive carbonization during the interval that the lining is heating up again.

Because Plicast L-W-I heats up instantaneously, the period of low efficiency is eliminated where this material is used. Fuel economy and improved operation of the burner result wherever this insulating refractory is employed in connection with oil burners.



BURNER BLOCKS

Where it is not desirable to line the entire firebox of an oil-fired or gas-fired boiler with Plicast L-W-I, this material may be used to make pre-cast burner blocks, as shown opposite, which minimize carbonization at the burner nozzle.



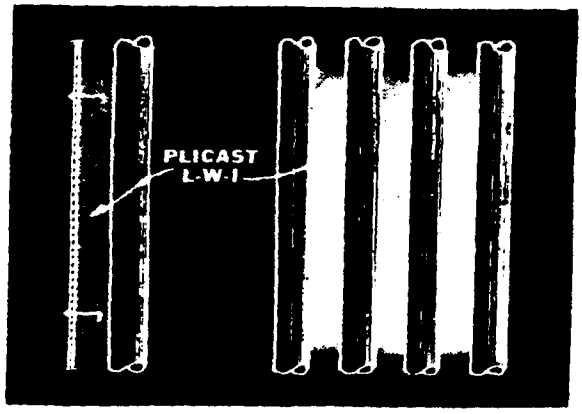
for PRE-CAST
Combustion Chambers

Plicast may be used for the manufacture of pre-cast combustion chambers for domestic oil burners. Using simple forms, the oil burner dealer can readily cast his own combustion chambers to fit his installations.

for WATER WALLS

Plicast L-W-I finds a valuable application for backing certain types of water walls where the tube spacing and temperature to which it will be subjected permit the use of a material of this nature. In this application, Plicast L-W-I takes the place of both refractory and insulation, reducing material and erection costs. It also reduces the weight of the backing which is a definite advantage in any construction where the backing is supported on the water wall tubes.

By employing simple forms, Plicast L-W-I is readily installed in connection with water walls. Detailed information furnished on request.



Your local Plibrico distributor will gladly give you further information on Plicast L-W-I and quote on your requirements for any application of this useful material. Where desired, the Plibrico distributor will furnish competent and experienced labor for installation.

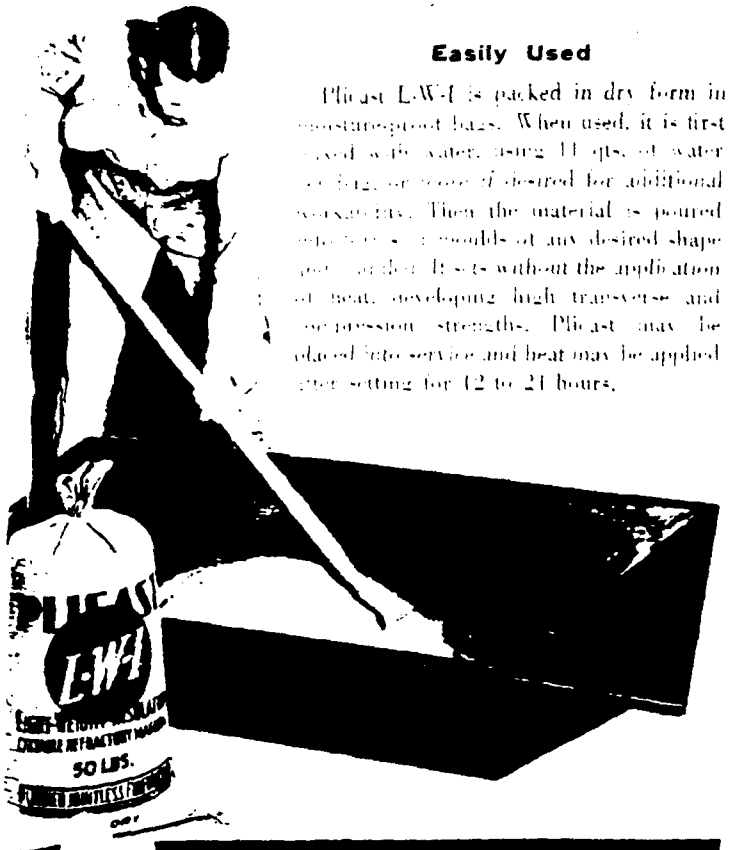
The Plibrico organization maintains a nation-wide boiler setting service for the construction of Plibrico full-monolithic boiler settings and the installation of Plibrico refractory products. Your Plibrico distributor will be pleased to advise you on any type of refractory work at any time.

PLIBRICO JOINTLESS FIREBRICK CO.

Manufacturers of Plibrico Refractory Products

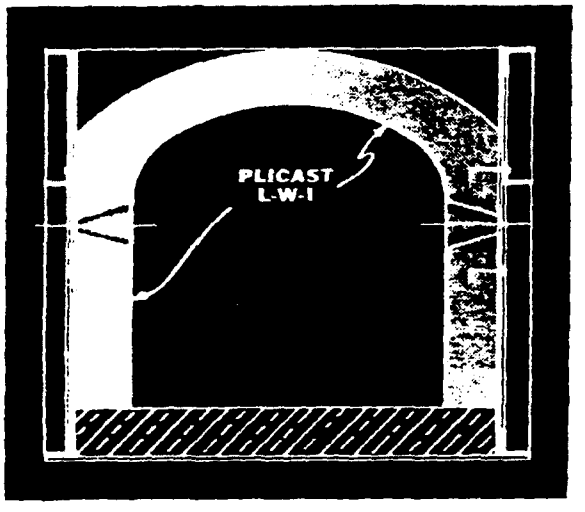
CHICAGO, ILLINOIS TRENTON, NEW JERSEY FIREBRICK, OHIO

PLIBRICO JOINTLESS FIREBRICK, Limited, NEW TORONTO, ONT.



Easily Used

Plicast L-W-I is packed in dry form in moisture-proof bags. When used, it is first mixed with water, using 11 qts. of water to a bag, or more if desired for additional workability. Then the material is poured into forms or moulds of any desired shape and allowed to set without the application of heat, developing high transverse and compression strengths. Plicast may be placed into service and heat may be applied after setting for 12 to 24 hours.



for INDUSTRIAL FURNACES

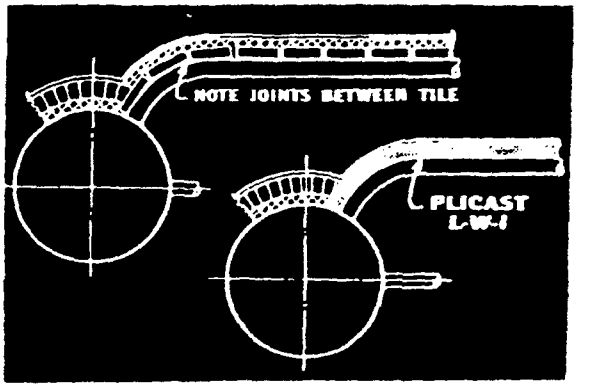
Within its temperature range, Plicast L-W-I is the ideal refractory lining for heat-treating, annealing, stress-relieving, carburizing, and other types of industrial furnaces. The print above shows a typical industrial furnace as lined with Plicast L-W-I.

Because Plicast L-W-I heats up quickly, it greatly reduces fuel cost in this service as compared with ordinary fire brick construction. Where such furnaces are operated only a few hours or a single shift daily, a [illegible] L-W-I saves the fuel loss that would result [illegible] heating up and cooling off the ordinary [illegible].

Plicast L-W-I also brings to this service all the known advantages of monolithic construction. As in the print, the Plicast L-W-I lining can be anchored to the casing, eliminating bulging and maintenance. The architect readily can use the efficient elliptical shape shown, which is [illegible] ordinary construction.

for TUBE DECKS

As shown below, Plicast L-W-I is [illegible] constructing monolithic tube decks covering the [illegible] tubes of water tube boilers. A deck of Plicast L-W-I (right) eliminates the leaky joints of tile [illegible] (left). The light weight of Plicast L-W-I reduces [illegible] carried on the tubes while supplementary [illegible] eliminated.

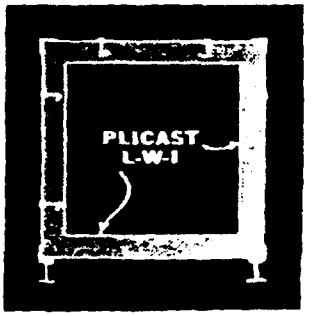


for DOOR LINERS

This light-weight insulating refractory is especially suitable for lining doors in connection with heat-treating furnaces; also for inspection doors of boiler furnaces, rear doors of fire tube boilers, etc., where the light weight of Plicast L-W-I is a great advantage, making it easier to handle the door. Where counterbalances are required their weight may be reduced if the doors are lined with Plicast L-W-I.

for DUCTS and BREECHINGS

Plicast L-W-I is popular for lining ducts and breechings since in this service it is desirable to keep the weight of the lining to a minimum. Where it is desired to line a previously unlined duct or breeching, a light-weight material is essential if to be carried by existing construction.



L-W-I $aves Heat - $aves Fuel

PLICAST L-W-I combines all of the usual advantages of our [illegible] refractory materials with two additional features—high insulating value plus light weight.

As shown in the table opposite, the thermal conductivity of Plicast L-W-I is approximately one-third that of ordinary fire brick. Because of this property, Plicast L-W-I is valuable for any application where refractoriness is required with high insulating efficiency. By reducing conduction losses, Plicast L-W-I saves heat and effects substantial fuel savings.

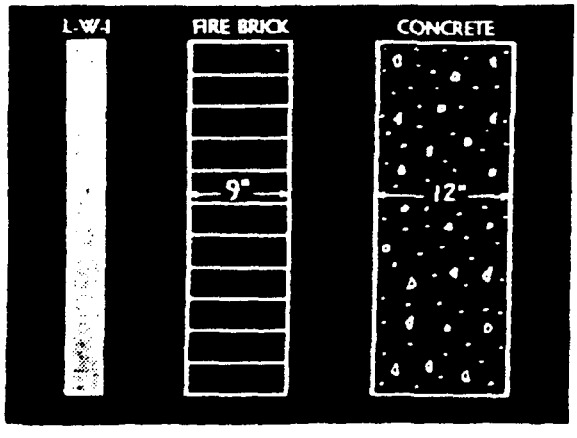
Plicast L-W-I has 45% lower heat storage capacity than fire brick so *heats up rapidly and cools off quickly*. For this reason, this material is particularly effective for lining furnaces in intermittent operation such as heat-treating furnaces, annealing furnaces, industrial ovens, space heaters, oil and gas burners, etc. In these services, Plicast L-W-I saves the fuel wasted with ordinary refractory materials in heating up the furnace to necessary operating temperature and in cooling down after the furnace has come out of operation.

For Service to 2500 deg. F.

The P.C.E. of Plicast light-weight insulating material is Cone 15-16 (2640 deg. F.). This material is recommended for operating temperatures as high as 2500 deg. F. which permits wide application in connection with numerous types of industrial furnaces, boilers, ovens, and kilns.

Light Weight

Plicast L-W-I weighs 75 lbs. per cubic foot dry. As installed, this material weighs approximately [illegible] lbs. per cubic foot after firing. It is 45% lighter than fire brick which weighs about 140 lbs. per cubic foot.



3 in. Plicast L-W-I has same insulating value as 9 in. of fire brick or 12 in. of concrete. Plicast L-W-I saves material cost; saves erection cost; saves weight; saves space; saves supporting steel work.

PROPERTIES

Weight, dry	75 lbs. per cubic foot
Packed	50 lb. bags, dry
P.C.E.	Cone 15-16 2640 deg. F.
Service Temperature	Up to 2500 deg. F.
Setting Time	12 to 24 hours
Transverse Strength	250 lbs. per sq. in.

Thermal Conductivity

In B.T.U. per square foot per inch thickness per degree F. per hour.

Mean Temperature	Plicast L-W-I	Fire Brick
500 deg. F.	2.18 B.T.U.	6.82 B.T.U.
1000 deg. F.	2.60 B.T.U.	7.90 B.T.U.
1500 deg. F.	3.02 B.T.U.	9.00 B.T.U.
2000 deg. F.	3.45 B.T.U.	10.10 B.T.U.

The advantage of Plicast L-W-I over fire brick construction is obvious where weight is an important factor, as in portable furnaces, door liners, ducts and breechings, car tops, dampers, marine applications, etc.

The light weight of Plicast L-W-I is an advantage in various types of furnace construction where it is desirable to reduce the weight and cost of the steel work employed to support the furnace walls. By using Plicast L-W-I in place of standard refractory construction, the weight of the supporting steel work can be greatly reduced. This feature is particularly valuable in connection with industrial furnaces located on upper floors where the floor load is limited.

Occupies Less Space

An important advantage of Plicast L-W-I is the fact that it occupies less space than ordinary construction with equivalent insulating value. 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.

Because Plicast L-W-I may be used as both refractory and insulating material, it permits the adequate insulation of furnaces which otherwise could not be properly insulated on account of space restrictions. With Plicast L-W-I, it is possible to increase the insulation of existing furnaces without reducing furnace volume.

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