

Rev. May 1, 1955

PLIBRICO SPECIFICATION C-1
FOR
PETROMENT-HIGH ABRASION RESISTANT-REFRACTORY CEMENT

PLAINTIFF'S EXHIBIT

PLI-114

Petroment is a factory mixed, super duty, dense refractory cement of ramming consistency, having air setting and heat setting qualities and hardening to a very smooth abrasion and chemical-resistant surface.

Petroment is shipped in a completely mixed form and is immediately ready to apply as it comes from the shipping container.

Petroment is packed in standard containers of 100# and 200# steel drums.

Petroment has a density of 135# per cubic foot.

Petroment has excellent acid resistant properties but is not 100% acid proof - withstanding normal process acids brought about by moisture induction into various processes.

Petroment is recommended for use in all high velocity Catalyst Transfer Lines, Regenerator Plenum Chamber, Reactor Cone Section, Feed Inlet Piping, Flue gas stacks, conductor pipes, and all other steel vessel or pipe surfaces requiring high abrasion and chemical-resistant linings.

In keeping with our technical services, we take pleasure in outlining general specifications for installing Petroment Refinery Cement.

P E T R O M E N T

for Abrasion-Resistant Catalyst Piping Lining

A. Details (General)

1. Refractory lining material will be Plibrico Petroment Refractory Cement reinforced with a protective grid armor of 3/4" - 14 gauge armor grating or 5/8" - 16 gauge Floorsteel grating. Total lining thickness will be 1".
2. Armor grating will be supported by 1/4" or 3/8" thick by 2" long by 1" wide steel bar washers welded to the inside of the shell or piping.
3. The steel bars will be spaced on 12" centers. Armor grating sections are to be welded direct to the steel bars.

B. Application Procedure

1. Clean interior of pipe by sandblasting or clean with accepted and approved solvents.
2. Weld steel bars in place on 12" centers. Bars to be hammer tested to assure quality weld.

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3. *Install armor grating sections. Grating sections are to be rolled so that they fit snug against the steel bar washers. Weld each strand of adjoining grating sheets together. One 1/4" long fillet weld shall be used at each bar washer.*
4. *Use Pretroment just as received from the manufacturer. There are no additional ingredients to add. Ram or trowl Pretroment into the grating grid working from the center to the sides, making sure that all voids are eliminated beneath the grating. A 2½lb. steel blacksmith's hammer or pneumatic bench rammer with a small diameter rubber head should be used to ram the material in place. After the material is thoroughly rammed in place and all voids have been eliminated, trowl off the excess material down to the face of the armor grating. The finished surface will be somewhat rough from the troweling operation and should be smoothed over by brushing it with a stiff brush dipped in a small amount of water. This brushing operation should be performed no later than one hour after the material has been trowled back to the surface.*
5. *Petroment may be allowed to air dry, but must always be baked out before placing in service. To bake out the Pretroment, raise the temperature of the gases in the vessel or pipe no faster than 100 deg. F., per hour until the temperature has reached 600 degrees. After this time, the temperature may be raised to operating conditions in accordance with the requirements of the vessel and other equipment.*

After the Pretroment has been baked out, it will have expanded slightly. This will show up as a bulge in each individual Hex. This bulge should be a maximum of 1/8" in the middle of the Hex and will dwindle down to zero inches around the edges of the Hex. There will also be hairline cracks where the Pretroment joins the Hexteel, these cracks will of course fill up with powdered catalyst as soon as the unit is put in operation. We point out the occurrence of these bulges and hairline cracks, so that operating personnel will not become alarmed at these conditions.

Neither of these conditions will effect the abrasion resistant qualities or length of life of the refractory lining in any way. You may also notice that there is a hollow space between the back surface of the refractory lining and the steel pipe or vessel shell. Tests have shown that this space is about as thick as a heavy piece of paper and will in no way effect the quality of the refractory lining.

6. *If Pretroment becomes frozen in the containers, it should be thawed out before using, so that the workability will not hinder installation. This material need not be protected from freezing after installation even though it has not been baked out.*
7. *Caution - Do not install Pretroment over 1" thick. Pretroment should be used within six months after purchase. Do not store longer than six months.*

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C. Material Consistency

1. Petroment is normally supplied in a ramming consistency. It can be converted to trowelling consistency by mixing in a small amount of water. Do not reduce below a stiff trowelling consistency. Petroment can also be supplied direct from the factory in trowelling consistency if so ordered.

NOTE - For additional specifications covering abrasion resistant linings, please see Plibrico Specifications C-2 and C-3.

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