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INSULAG



QUIGLEY COMPANY, INC.

Manufacturers of Refractories — Insulations — Paints

235 E. 42nd Street

New York, N.Y. 10017

WATER RESISTANT REFRACTORY LAGGING

Where to use in

STEEL INDUSTRY

to stop heat loss—seal out cold air infiltration

OPEN HEARTH

Charging Floor Side Walls
Wing Walls Pitside Bulkhead
End Walls Fan Tails
Port Ends Neck Arch
Brick-Lined Doors
Checker Chamber Bulkheads
Slag Pocket Bulkheads



SOAKING PITS

Ducts Walls
Regenerator Chambers



REHEAT FURNACE

Walls Roof
Pipes

COKE OVEN

Ascension Pipes Goose Neck Joints
Door Seals—Wind Box
Standpipe Ball Joints
Expansion Joints at Jamb
Around Gas Gun of Regenerators



ANNEALING OVEN

Insulation and Sealing Interior and Exterior
Doors Walls Roof



BLAST FURNACE

Bosh Stoves
Bustle Pipes

WATER RESISTANT REFRACTORY LAGGING

INSULAG

- A superior refractory lagging with unsurpassed insulating and sealing properties for use on high or low temperature equipment.
- Can be applied on hot or cold metal surfaces.
- Fuel savings, constant temperatures and increased production result from its use.
- Increases in thickness after application and retains this increased volume throughout its entire range of service temperatures.
- Does not collapse after it has set, from contact with water, oil or steam.
- Is non-injurious as contains no mineral wool or fine slag particles which are irritants to the body.
- Develops high mechanical strength upon drying and withstands shock, moderate abrasion and vibration.
- Can be applied by gun in thin coats to effect a perfect seal.
- Block insulation is effectively covered and protected.
- Makes a good expansion jointing.
- Has excellent insulating qualities.
- Weight expanded 36 lbs. to a cubic foot.
- Expands approximately $\frac{1}{2}$ " for each inch applied if installed immediately after mixing.
- Has temperature range of 2200°F. limit for interface temperature.
- 3 lbs. usually covers one square foot 1" thick.
- Sets firmly on cold set in 24 hours.
- Can be applied by gun, grout or trowel.
- Packed in 100 lb. multi-wall, moisture-proof bags.
- Proper instructions for use enclosed in each bag.

SPECIAL APPLICATIONS

- $\frac{1}{4}$ " coating applied by Quigley C. O. Gun on new open hearth silica roofs—increases life by eliminating initial spalling.
- $\frac{1}{2}$ " coating on brick-lined doors when new, prevents spalling.
- Sealing Tuyers when banking Blast Furnaces.
- Insulation and sealing Bustle Pipes.
- Expansion Joints at jamb in Coke Ovens.
- Insulating walls for comfort between furnaces in working areas of Reheat Furnaces.
- When banking Blast Furnace seal Bosh usually by spraying.
- Insulate outside of Reheat Furnace.
- Cover block insulation on outside Stoves.
- Spraying Annealing Oven interiors to seal cracks and spalling.
- Sealing Regenerator chambers in Rolling Mills.

SUMMARY OF PROPERTIES

Temperature Range	2200°F. Interface
Setting Characteristics	Hydraulic Set
Application	By Gun, Grout or Trowel
Thermal Conductivity K factor in B.t.u./ sq. ft./inch thk./ hr./°F.	@ 500°F. .56 @ 1000°F. .70 @ 1500°F. .84
Spalling	Negligible
Weight	36# to a cubic foot
Coverage	3# covers 1 sq. ft. 1" thick
Packing	50# bags



QUIGLEY COMPANY, INC.
Manufacturers of Refractories — Insulations — Points
235 E 42nd Street New York, N.Y. 10017

INSULAG



WIGLEY COMPANY, INC.

Manufacturers of Refractories — Insulations — Paints

235 E. 42nd Street

New York, N.Y. 10017

**THE IDEAL INDUSTRIAL INSULATION
WATER RESISTANT REFRACTORY LAGGING**

WHERE to USE	HIGHLY EFFICIENT INSULATING LAGGING <i>With Air-setting Properties for a wide Range of Temperature Applications</i>			
BOILER PLANTS	Buildings Foundries Hospitals Hotels Laundries	Lumber Mills Plywood Plants Steel Plants Textile Plants Marine Units	Compressor Plants Mines Collieries Gas Plants Auto Assembly Plants	Boiler Mfg. Furnace Mfg. Incinerator Mfg. Kiln Mfg.
CANNERIES	Boilers Breeching Cookers	Evaporators Driers Retorts	Hot Water Tanks Baffles Dehydrators	Fuel Tanks Fireproofing Stacks
CHEMICAL PLANTS	Acid Plants Ammonia Tanks Boilers Baffles Breechings	Dehydrators Still Molasses Tanks Fireproofing Convertors	Sulphur Burners Fertilizer Units Coke Ovens Carbon Furnaces Vulcanizers	Potash Kilns Lime Kilns Cement Kilns
GLASS PLANTS	Crowns Breast Walls Port Necks Regenerators Melter Sidewalls	Melter Bottoms Breechings Flue Wall Checkers Stack	Lehrs Ducts Throat Silica Brick Caps Recuperators	Refiner Uptakes Port Side Walls Annealing Furnace Glass Tank
OIL REFINERIES	Fireproofing Fuel Tanks Heaters Still Crackers	Vessel Skirts Super Heaters Baffles Breechings Dampers	Ducts Boilers Stacks Fractionators Reactors	Regenerators Tube Sheet Kilns Inspection Doors
PAPER MILLS	Boilers-Baffles Breechings Dehydrators Digesters Dryers	Dust Collectors Fittings-Piping Furnaces-Recovery Heat Recovery Lime Calciners	Lime Kilns Precipitators Roasters Super Heaters Tanks	Towers-Acid Towers-Absorption Vats Waste Heat Recovery Stacks-Steel-Concrete
POWER PLANTS	Boilers Baffles Breechings Stacks Super Heaters	Heat Recovery Fitting-Pipe Valves Tanks-Fuel Hot Water Tank	Feed Water Heaters Drums Flanges Tile Backup	Casings Turbines Fireproofing Smoke Flues
SMELTERS	Converter Waste Heat Boiler Reveratory Doors Drossing Furnace Breechings	Dampers Anode Furnace Zinc Furnace Shields Blast Furnace	Stacks Cottrell Acid Plant Tanks Piping-Valves	Boilers Baffles Ducts Kilns
SUGAR MILLS	Accumulators Air Heaters Bagasse Driers Boilers-Baffles Breechings-Ducts	Clarifier Diffuser Economizers Evaporators Fittings	Feed Water Heaters Juice Heaters Preheaters Super Heaters Heat Exchangers	Tanks Turbines Vacuum Pans Valves-Piping



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WATER RESISTANT REFRACTORY LAGGING

**GREAT STRENGTH — QUICK SETTING — LIGHTWEIGHT — HIGH TEMPERATURE
EXPANDS — DOES NOT SHRINK — WATER & OIL RESISTANT — FIREPROOFING**

INSULAG

A superior refractory lagging with unsurpassed insulating and sealing properties for use on high or low temperature equipment.

Can be applied on hot or cold metal surfaces.

Fuel savings, constant temperatures and increased production result from its use.

Increases in thickness after application and retains this increased volume throughout its entire range of service temperatures.

Does not collapse after it has set, from contact with water, oil or steam.

Is non-injurious as contains no mineral wool or fine slag particles which are irritants to the body.

Develops high mechanical strength upon drying and withstands shock, moderate abrasion and vibration.

Can be applied by gun in thin coats to effect a perfect seal. Block insulation is effectively covered and protected.

Makes a good expansion jointing.

Has excellent insulating qualities.

Weight expanded 36 lbs. to a cubic foot.

Expands approximately $\frac{1}{4}$ " for each inch applied if installed immediately after mixing.

Has temperature range of 2200° F. limit for interface temperature; 2000° F. direct flame.

3 lbs. usually covers one square foot 1" thick.

Sets firmly on cold set in 24 hours.

Can be applied by gun, grout or trowel.

Packed in 50 lb. multiwall, moisture-proof bags.

Proper instructions printed on each bag.

HOW TO MIX and APPLY INSULAG

Mix INSULAG and water (50# bag Insulag to $3\frac{1}{2}$ gal. water — approx. 60% Insulag to 40% water) — to consistency of heavy plaster. Mixed INSULAG must be applied in 30 min. DO NOT MIX MORE than can be applied in 30 min. After INSULAG has been applied, do not trowel out air pockets that honeycomb INSULAG during bloating period. Use wet trowel about an hour later to smooth out. INSULAG trowels out smooth, hard and white. For reinforcing use 2x2 — 16 Ga. square mesh or metal lathe on 16" centers, well secured. Can be applied with Trowel-Gun or grout. No weather proofing is necessary. INSULAG can be painted — no sizing is necessary. Quigley AAA Paints in aluminum and colors are available.

SUMMARY OF PROPERTIES

Temperature Range	2200° F. Interface
Setting Characteristics	Hydraulic Set
Application	By Gun, Grout or Trowel
Thermal Conductivity K factor in B.t.u./ sq. ft./inch thk./ hr./°F.	@ 500° F. .56 @ 1000° F. .70 @ 1500° F. .84
Spalling	Negligible
Weight	36# to a cubic foot
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INSULAG

REG. U. S. PAT. OFF.

FIREPROOFING CEMENT



INSULAG is a fire retardant, lightweight formulation, having a fire and water resistant smooth white surface.

INSULAG weighs only 40 pounds per cubic foot; $\frac{1}{3}$ rd the weight of concrete, common brick or other such fire proofing materials. Therefore, excessive loads are not added to existing structures, or those under design.

INSULAG was subjected to exhaustive fire-proofing tests by a nationally recognized research laboratory and large oil refinery. Their reports proved **INSULAG** is capable of withstanding **THERMAL SHOCK** without spalling or destruction when 100 lb. per square inch water pressure was played on it by hose, with nozzle, at all distances, and at all temperatures up to 2000°F.

INSULAG is the ideal fireproof protection for Structural Columns, Beams, Channels and Angles, LP Gas Tanks, Oil Tanks, Tower Skirts, Pipe Line Supports and All Exposed Steel in Oil Refineries, Steel and Chemical Plants.

INSULAG is regularly used as a Refractory Insulation by all types of industries, inside and outside of furnaces and boiler settings, for temperatures up to 2200°F. It is also used for many types of insulations inside and outside of buildings, regardless of climate and without weather proofing.

INSULAG is the only material required for a fire-proofing and water resistant insulating job.

BE ASSURED OF YOUR FIREPROOFING BY USING INSULAG

PROPERTIES OF INSULAG A FIREPROOFING CEMENT

LOW THERMAL CONDUCTIVITY—1" has insulating value of 9" Firebrick

HIGH MECHANICAL STRENGTH—Withstands vibration—Moderate Abrasion

HIGH TEMPERATURE LIMITS—2200°F.

LIGHT WEIGHT—Trowelled: 40 lbs. per cu. ft.

Gunned: Approx. 45 lbs. per cu. ft.

QUICK SETTING—(2-24 hours) Depending upon temperature and atmospheric conditions

NON-INJURIOUS—Contains no mineral wool.

WATER RESISTANT—After setting does not dissolve or collapse in contact with water, steam or oil.
Does not require water-proofing.

ADAPTABILITY—Roughed or scratched, Coat and Finish Coat with one product **INSULAG**. Trowels to a hard smooth, white finished surface.



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Where to Use

ACID PLANTS —

Structural Steel for Absorption—Glover—Lussac
Towers and Tanks

CHEMICAL PLANTS —

Structural Steel for Heaters—Chemical Units—
Still and Tanks

COAL COLLIERIES AND MINES —

COPPER—LEAD—ZINC MINES —

Structural Steel—Bins—Underground Timber
Supports

GLASS PLANTS —

Structural Steel—Melt Room

LUMBER MILLS —

Structural Steel—Fuel Bin—Burner—Dry Kilns

OIL REFINERIES—NATURAL GASOLINE PLANTS—

CARBON PLANTS—ASPHALT PLANTS —

Structural Steel—Vessel Skirts—Pipe Stanchions—
Supporting Steel of Towers—Heaters—Crackers—
Tanks—Gas Absorbers—Evaporators—Decar-
bonizing Units

PAINT MANUFACTURERS —

Structural Steel—Storage Tanks—Warehouse—
Varnish Plants

PAPER MILLS —

Structural Steel—Recovery Furnace Room—Stock
Rooms

STEEL MILLS —

Structural Steel Supports—
Blast Furnace—Conveyors—Scrubbers—Stoves
By-Products Plant—Distillation Unit
Coke Oven Plant—Pusher—Quenching Equip-
ment
Stock Piles—Conveyors—Coke—Coal

SMELTERS —

Structural Steel Supports
Anode Furnace Room
Converter—Platform Struts
Refinery—Pouring Platform
Reveratory

WAREHOUSES—Inflammables—
Structural Steel

How to Use

INSULAG A FIREPROOFING CEMENT

REINFORCEMENT or SUPPORT for STRUCTURAL STEEL

Use flat expanded diamond mesh, with metal spacers or

Use high rib lath or other suitable reinforcements, all to have corner beads.

On larger Surfaces, weld on studs, to which attach square mesh welded fabric with opening of not less than
2"x2".

INSTALLATION

Can be Cast—Trowelled or Gunned by using above conventional methods of reinforcements.

MIXING

For Cast or Trowelled installations, add sufficient water to make a smooth easy-working mixture. Use clean,
fresh water at 60-65°F. An average mixture takes about ten and one-half (10½) gallons of water to a one
hundred (100) pound bag. Mix only quantity that can be applied within twenty (20) minutes.

For Gun Applications use minimum air pressure and maximum quantity of clean fresh water at 60°F., but no
higher than 90°F., that permits placement without slump.

APPLICATION

A one and three quarters (1¾) inch thickness is required for a three (3) hour fire resisting rating. Apply by
either Cast—Trowel or Gun method.

A one and one eighth (1⅛) to one and one quarter (1¼) inch thickness of mixed INSULAG which will bloat
to one and five eighth (1⅝) to one and three quarters (1¾) inch. Allow to set. If a smooth finish is required,
SCRATCH or ROUGHEN this surface before applying the one eighth (⅛) inch finishing coat.

If the original application has dried, same should be moistened prior to applying the finished coat. For the
finish coat, INSULAG should be mixed with water, allowed to bloat and remixed. This finished coat should
be trowelled smooth.

Additional Fire Resistance Rating can be secured by increasing thickness of INSULAG.