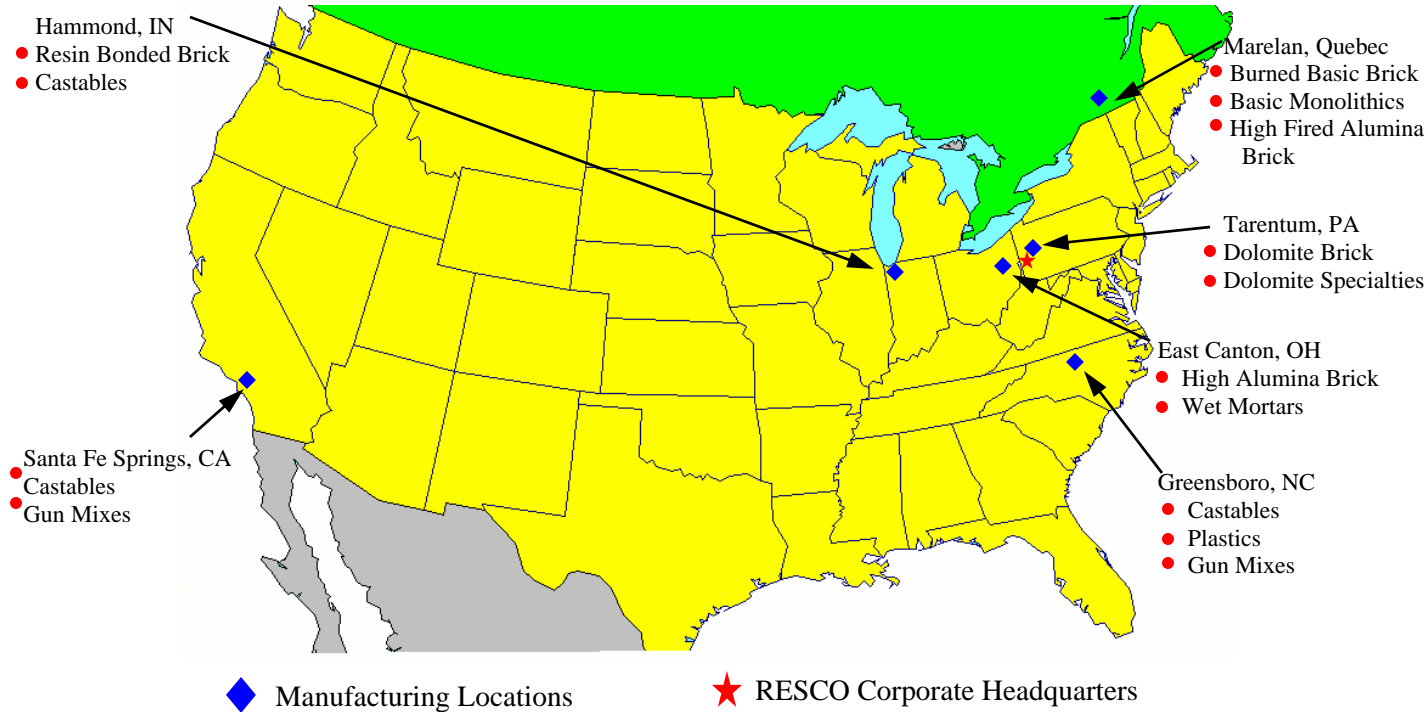


Resco Manufacturing Locations



Regional Sales Offices

Pittsburgh, PA Phone: 888.283.5505 Fax: 412.494.4571	Tampa, FL Phone: 813.645.4060 Fax: 813.354.3555	Canada Customer Service Phone: 450.691.2933 Fax: 450.691.2966	Tarentum: WRI Phone: 724.224.8800 Fax: 724.224.3353
Norristown, PA Phone: 610.292.3500 Fax: 610.279.6070	Gary, IN Phone: 219.886.9767 Fax: 219.886.9821	Greensboro (Cartop/Minerals) Phone: 336.299.1441 Fax: 336.855.8375	Santa Fe Springs, CA Phone: 562.802.2463 Fax: 562.802.0315

Founded in 1946, Resco has served its markets with specialized products ever since, initially, with the refining industry and later in the steel industry. Innovations have been key to Resco's long success, including AA-22 and the original patent on semi-universal ladle brick.

Recent acquisitions have diversified Resco into many new refractory markets. The addition of National's product lines allows Resco to offer a comprehensive range of products, and dolomite products are available since the Worldwide acquisition was completed.



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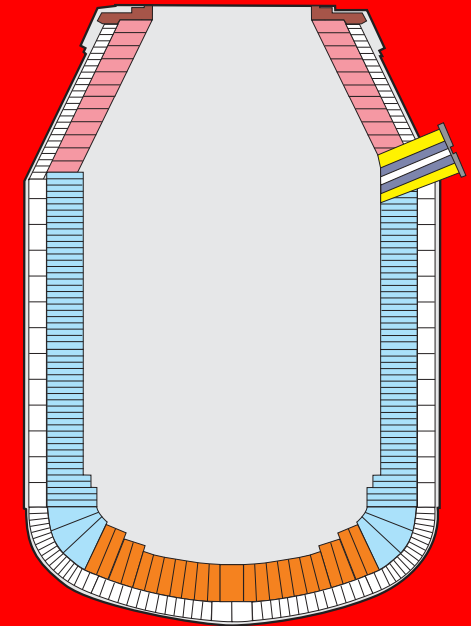


March 2006

- NULINE 50-87
- NULINE 15-96
- NULINE 26-92
- NULINE 3-99
- NULINE 12 XF
- NULINE R 20 A
- NULINE 43-89
- OXILINE B
- OXILINE H
- OXILINE R
- PERECON
- RESCOSET M-98
- NULINE 50-87
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- OXILINE B



Refractory
Products
for the
BOF/Q-BOP
Applications



Resco Products for

BOF (BOP) / Q-BOP Applications

SAFETY / TANK LINING REQUIREMENTS

The safety or tank lining in the BOF / Q-BOP is tasked to perform for many campaigns, or a single campaign should it take many years to complete. Most shops utilize a single 9" safety bottom concept using special skewers in the knuckle or radial transition area of the bottom to the shell. The barrel lining is usually 9" in total thickness with some smaller vessels using 6". Cone safety linings can be 6-9" in total thickness using standard shapes or special parallelogram shapes to provide better fit. Mortar is generally used in laying the bottom tank lining and skewers, but bricks are usually laid dry in all other areas.

SAFETY LINING		
SECTION	BRICK	MORTAR
<i>BOTTOM</i>	Perecon	RESCOSET M-98
<i>KNUCKLE</i>	Oxiline H	
<i>CONE</i>	Oxiline B P-95 B	
<i>BARREL</i>	Oxiline B	

WORKING LINING

The working lining must be designed to provide exceptional integrity for the life of the vessel ranging from many months to many years. This design must also be balanced so that uniform wear can be achieved and gunning maintenance kept to a minimum. Overall cost per ton is kept in mind in putting an entire package together. Bottom construction can range from a simple combination of keys, to a single key-wedge concept, to the currently popular concentric ring design. Knuckle construction can run from simple keys laid horizontally, to precut wedge shapes, to key-arch-wedge shapes called radial knuckle skewers that make the transition from the bottom to the barrel using single shapes in consecutive courses. Barrels usually consist of standard keys in lengths from 21"-33". Cone shapes can be standard keys to special parallelogram shapes. Tapholes can consist of special shapes or the concept of core drilling can be used to create an opening capable of having an isopressed taphole sleeve inserted and gunned around.

BRAND DESCRIPTION

OXILINE B: a burned, tar-impregnated high purity/high strength composition that offers very high strength as well as complete freedom from concerns for oxidation.

OXILINE R: a non-graphitic resin - bonded composition that can be used in shops that typically build bottom or large cone skulls and rarely expose this area of the vessel.

OXILINE H: a non-graphitic resin - bonded composition that can be used in shops that typically build bottom or large cone skulls and rarely expose this area of the vessel.

NULINE 50-87: a mid-level magnesite carbon product containing high purity sintered magnesite and a single metal addition for strength and oxidation resistance.

NULINE 15-96: a mid-level magnesite carbon product containing high purity sintered MgO and graphite and a dual metals addition.

NULINE 26-92: a mid-level magnesite carbon composition containing very high purity sintered MgO and graphite and a dual metals addition for exceptional oxidation resistance and strength enhancement.

NULINE R 20 A: a mid-level magnesite carbon composition containing a metal addition for oxidation resistance and strength enhancement.

RESCORAM 85S: an 85% alumina, phos-bonded plastic material.

NULINE 12 XF: a mid-level magnesite carbon composition containing very high purity fused MgO and graphite and a dual metals addition for exceptional oxidation resistance and strength enhancement.

NULINE 3-99: a mid-level magnesite carbon product containing very high purity fused MgO and graphite and having significant dual metals additions providing the ultimate oxidation and strength enhancement.

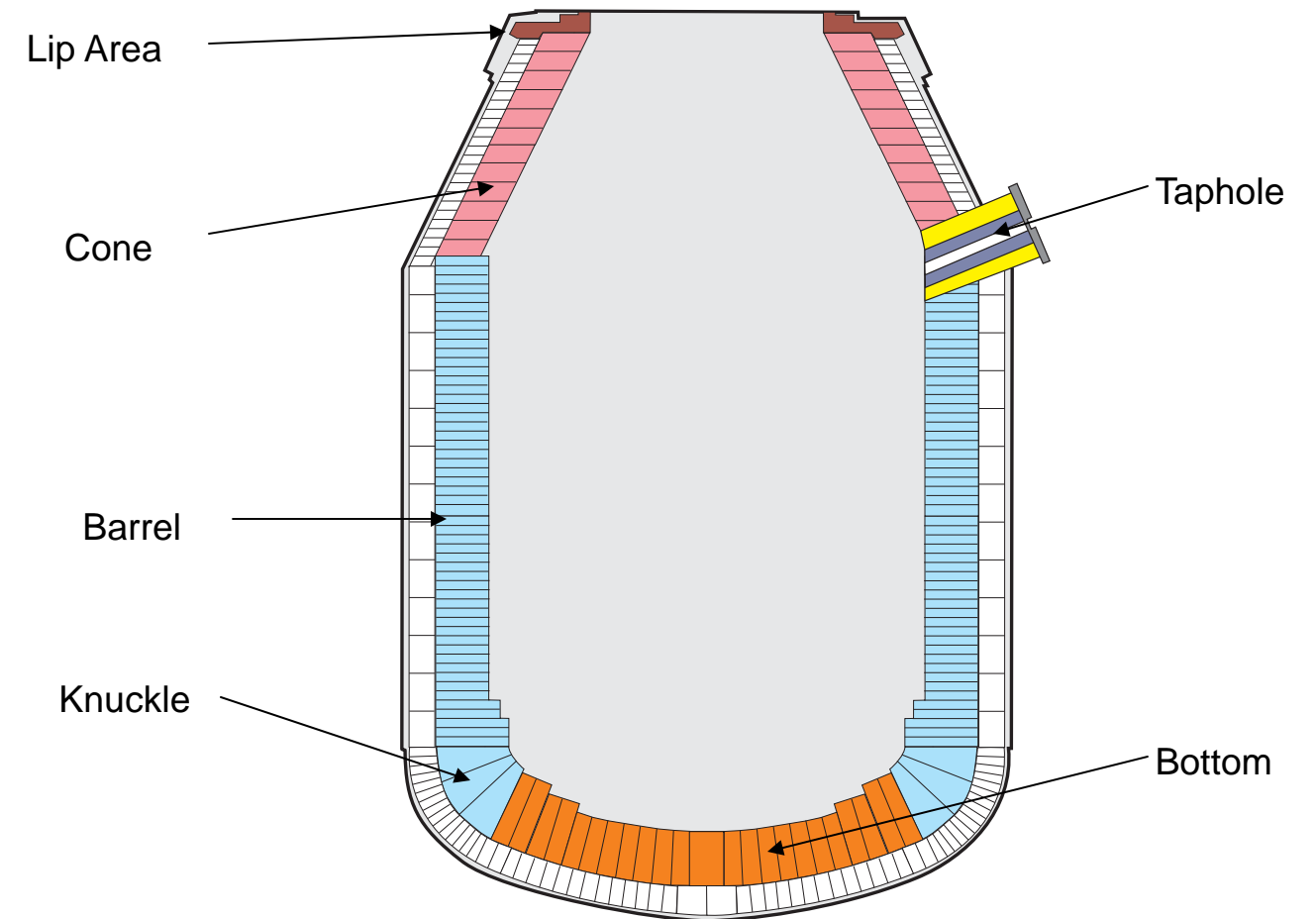
PERECON: a burned 95% magnesia class brick that contains a special additive to achieve improved hydration resistance.

P-95 B: a burned 95% magnesia class brick that contains a special additive to achieve improved hydration resistance.

METALKASED FEATURE: This feature consists of wrapping the brick in a 22 gauge steel jacket on four sides. This provides enhanced brick-to-brick bonding as well as providing thermal expansion relief to the entire lining. This feature coupled with our OXILINE B brand has brought stability and longevity to many cones in many shops.

RESCOSET M-98: a high magnesite, dry, air setting mortar.

PERMA-STAR 95: a high magnesite, general purpose furnace maintenance material. It can be cast rammed, or gunned.



WORKING LINING		
SECTION	BRICK	RAM/GUN
BOTTOM Non-Severe Moderately Severe Most Severe	OXILINE R NULINE 50-87 NULINE 12 XF	NULINE 26-92
KNUCKLE AND BARREL Non-Severe Moderately Severe Most Severe	NULINE R 20 A NULINE 12 XF NULINE 3-99	NULINE 15-96
CONE Non-Severe Moderately Severe Most Severe	OXILINE R* OXILINE B* NULINE 12 XF*	NULINE 43-89* NULINE 15-96* NULINE 3-99*
LIP AREA		Rescoram 85S Perma-Star 95

* For Metalkase see Brand Description

TAPHOLE

RESCO promotes the concept of epoxied/ core drilled tapholes. Placement of an isopressed taphole (also available from RESCO) in this drilled opening results in excellent long-term integrity and freedom from steel penetration. This concept also speeds up the relining process by 4 hours or more and eliminates the need to handle large, heavy pieces and placing them in the proper alignment.

LIP CASTING

This area of the vessel can be either rammed or gunned once brickwork has been completed. If rammed, RESCO's Rescoram 85S can be used. If gunned, one of the many excellent basic gunning mixes acquired with the National Refractories purchase will provide an excellent finish to the vessel.