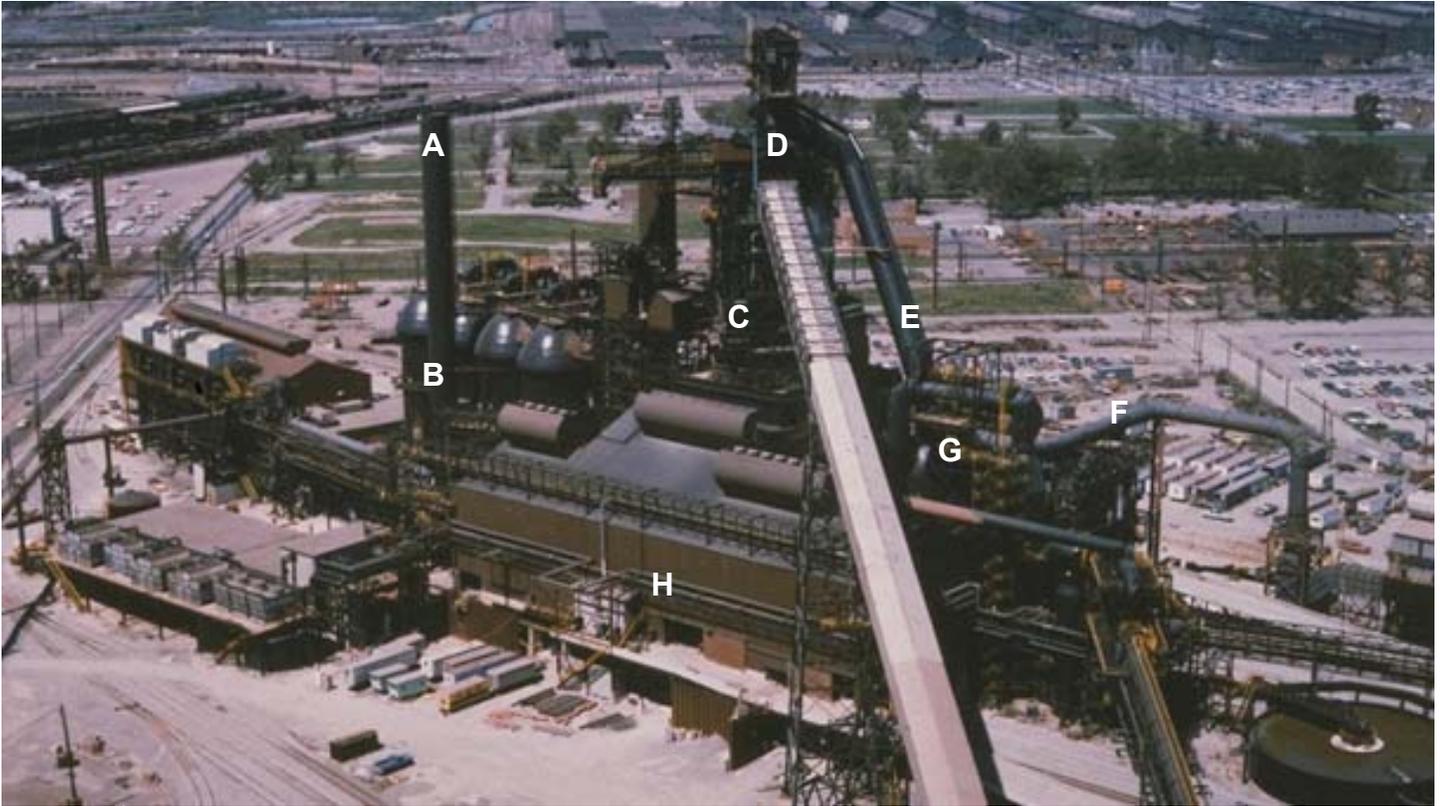




**Dampney Company, Inc.**

# PROTECTIVE COATINGS AT WORK

Product application bulletin no.9



Thurmalox<sup>®</sup> silicone-based coatings were used in critical areas at Bethlehem Steel Corporation's huge "L" Blast Furnace as part of a program to extend periods between shutdowns for maintenance. The coatings protect the hot metal surfaces of (A) the stove stack and (B) breaching,

(C) the hot-blast main and bustle pipe (not visible in photo), (D) the offtakes and uptakes, (E) the downcomer, (F) the raw gas main, (G) the dust catcher, and (H) the fume exhaust hoods and runner covers (not visible).

## HEAT-RESISTANT COATINGS HELP EXTEND PERIODS BETWEEN SHUTDOWNS AT BETHLEHEM STEEL'S HUGE BLAST FURNACE

A variety of Thurmalox<sup>®</sup> heat-resistant coatings from the Dampney Company are helping to protect heated surfaces throughout an extended operating period at Bethlehem Steel Corporation's newest and largest blast furnace.

The new facility, designated "L" furnace, is located at Bethlehem's Sparrows Point, Maryland, plant. It replaced four older furnaces, and was "blown in" in November, 1978.

### "L" FURNACE SET FOR LONG CAMPAIGN

"L" furnace was designed for increased efficiency and productivity. Two ways to increase blast furnace productivity are to extend the campaign – the period between scheduled shutdowns for furnace relining – as long as possible, and to minimize unscheduled maintenance.

With an anticipated increase in the operating period between shutdowns, coating selection was

important to assure proper protection of metal surfaces throughout the operating period.

Much of the external surface of the process equipment at "L" Furnace is hot during operation. Moreover, most of the equipment is exposed to the weather, and is subject to sudden changes in temperature during rain, sleet and snow. It is not practical to attempt any repainting while the furnace is in operation.

## **THURMALOX COATINGS CHOSEN**

Coatings for "L" Furnace were Deliberately selected to maximize useful life and to anticipate changing conditions which could develop after the furnace had operated for an extended period.

Thurmalox coatings manufactured by the Dampney Company were chosen for painting high temperature equipment at "L" Furnace which handles superheated air and hot gases. The hot-air equipment includes the hot-blast main and the bustle pipe. The equipment for handling hot exhaust gases includes the offtakes, uptakes, downcomer, raw gas main, and dust catcher. The stove breeching and stack are also coated with Thurmalox coatings.

Thurmalox coatings are based on heat-resistant silicone resins and thermally stable inorganic pigments. They have been used by Bethlehem for many years on structures subject to high temperatures in steel plant operations.

## **TOPCOATS SELECTED BY TEMPERATURE RANGE**

For operating temperatures in the 200°F to 500°F (93°C to 260°C) range, metal surfaces at "L" Furnace were coated with Thurmalox 202 (black) or 204 (aluminum). In addition to being heat-resistant, these coatings have excellent resistance to weather and to thermal shock.

In the cast house, where the toughest challenge at "L" Furnace was found, Thurmalox 280(aluminum) was specified. This coating provides resistance to thermal shock and corrosion at continuous operating temperatures as high as 1000°F (537°C) with peaks to 1200°F (649°C).

Thurmalox 280 was applied to the fume exhaust hoods and to covers over the runners (troughs for molten iron). The hoods and covers are subject to intense heat from the molten iron flowing into hot-metal cars for delivery to the steelmaking furnaces.

Thurmalox 210 or 245 silicone-zinc primers were used as base coats in all high-temperature areas.

**FOR FURTHER INFORMATION**  
Additional information about Thurmalox coatings may be obtained from the Dampney Company at the address below.



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