

CRODON[®] Wear Plate Challenges AR Plate and High Alumina Ceramic Tile

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Chromium Corporation's **CRODON** Wear Plate

CC's Heritage of Hard Chrome Plating

Elk Technology Center, Ennis, TX

CRODON Wear Plate, originally trademarked in 1930, signifies superior quality in abrasion resistant coatings for the coal, manufacturing, roofing, locomotive and power-generating industries. Other companies attempt to imitate, and have pirated the name, but **CRODON** Wear Plate is exclusively available from Chromium Corporation.

CRODON Wear Plate *exceeds the impact, adhesive, and abrasive wear of a variety of AR plate and high alumina ceramics by performing over longer periods and exhibiting less dimensional change.*

Chromium Corporation was approached by the Armed Services for technical leadership during World War II and has been of service world wide in surface finishing of pistons, valves, liners, and engine components since 1920. Always eager to bring solutions to benefit industry, Chromium Corporation expanded to create a new line of wear plate with extended durability compared to conventional AR plates and other wear materials.

Chromium Corporation has its own proprietary processes and chemistries, has remained strong for over eight decades, and has its own research support facilities.▣

CRODON Wear Plate in Automated Manufacturing

The Standardized Test versus Real World Use

Elk Technology Center, Ennis, TX

Last year an asphalt shingle plant using a variety of high alumina wear tiles and AR plate approached Chromium Corporation to reduce downtime. Using **CRODON** Wear Plate, fife paddles lasted 9 times longer; conveyor stops and impact plates lasted more than 12 times longer; and looper rollers are turned once per year rather than once a month.

Before commercialization, **CRODON** Wear Plate was subjected to ASTM test methods to confirm the ranking and potentially expose other areas of use. In early results at Climax Research Services, ASTM G65 "Dry Sand/Rubber Wheel" showed little improvement in life cycle. ASTM G99 "Pin-on-Disk" completed at Falex Corporation's Tribology Test Laboratory, showed about two times better performance for **CRODON** Wear Plate over alumina (silicon nitride pin, 750g); however, Falex Corporation considered the performance of the **CRODON** Wear Plate to be "understated" due to limitations in measuring the surface.

The realization that wear testing can be complex, misleading, and expensive has most likely limited the consumer from proper choices in selecting wear resistant material.

Since standardized test methods do not simulate actual performance, especially when the wear mechanism is complex or poorly identified, the Elk Technology Center was approached by Chromium Corporation to evaluate **CRODON** wear plate. The objective was to verify plant performance, and seek the best test method for comparative ranking. The back page provides detail of the methods, data, and results.▣

Test Results on Reverse

An Example of Limitations of Standardized Tests

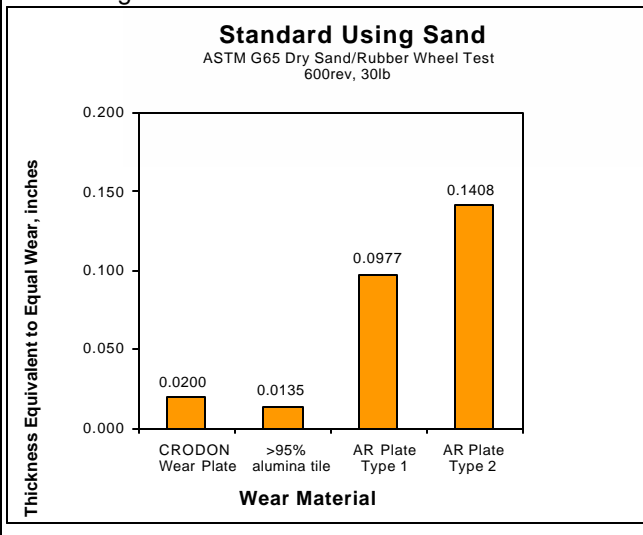
Results from Climax Research Services, Wixom, MI

Elk Technology Center, Ennis, TX

Utilizing the ASTM G65 "Dry Sand/Rubber Wheel" test method for abrasive wear as indicated in the method (600 rev, 30lb) the following rankings were obtained for different materials. Note that **CRODON** Wear Plate is superior to AR plate using this test method.

Guide to reading the graphs: The height of each bar represents the thickness of AR Plate equivalent to equal wear when compared to the others under similar conditions.

For example, for **CRODON** Wear Plate performance to be considered equal to 0.25" thick alumina plate, **CRODON** wear surface needs to be at least 12.5X better in height on the graph than alumina assuming complete use of materials. In many standard wear plate applications ceramic tiles and AR plates are routinely discarded before full wear due to dimensional needs, irregular wear, cracking, or preventive maintenance. The asphalt roofing shingle plant studied showed **nine** times better wear for **CRODON** Wear Plate over alumina where 25-75% of the ceramic tile weight was consumed compared to the **CRODON** Wear Plate finish where most all thickness was utilized. For sake of comparison, a test method indicating performance greater than 12.5X was sought.☐

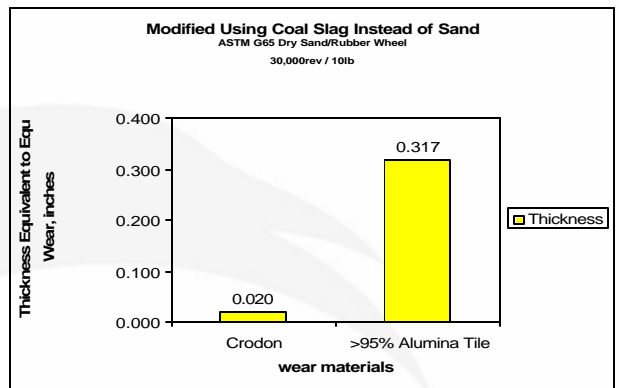


Coal Slag Modified ASTM G65 Instead of Sand

Results from Climax Research Services, Wixom MI

Elk Technology Center, Ennis, TX

The ASTM G65 "Dry Sand/Rubber Wheel" test method for abrasive wear was used substituting coal slag for sand. Under these conditions a **CRODON** Wear Plate showed performance **16** times better than high alumina tile. The modified test confirms the ranking seen in the asphalt shingle plant better than any other test to date. Interestingly, each of the shingle plant production areas outfitted with **CRODON** Wear Plate were subjected to different types of wear, but all fared at least nine times better than alumina tile.☐



CRODON Wear Plate Summary

CRODON Wear Plate has established a new standard for abrasive wear applications defying conventional testing with real world performance.

CRODON Wear Plate can improve life cycle compared to conventional AR plate and high performance ceramic. For more information, please contact Chromium Corporation, 14911 Quorum Drive, Suite 600, Dallas, Texas, 75254.☐

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