

ENGINEERED FOR WEAR RESISTANCE

LOCTITE® PC 7218 WEARING COMPOUND PERFORMANCE REPORT

UP TO 60% LESS MATERIAL LOSS IN ABRASION TESTING

EXECUTIVE SUMMARY

LOCTITE PC 7218 Wearing Compound is a two-part, ceramic-filled epoxy coating formulated to protect metal surfaces exposed to severe wear, abrasion, and corrosion in mining environments. Its performance has been evaluated through three standardised wear resistance tests—ASTM G-76 (Gas Jet Erosion), ASTM G-65 (Dry Sand/Rubber Wheel Abrasion), and ASTM D-4060 (Taber Abrasion)—which simulate typical conditions found in mineral processing and bulk handling operations. The results demonstrate that LOCTITE PC 7218 provides reliable protection in critical wear scenarios, contributing to extended equipment life and reduced maintenance frequency. By minimising the need for frequent reapplication during scheduled shutdowns, it helps reduce total maintenance costs.

SITE CHALLENGES

Mine site operations frequently face sliding abrasion due to the continuous movement of dry particulate materials, particularly in high-friction zones such as chutes, cyclones, transfer points, and other wear prone areas. The tests conducted replicate the harsh conditions commonly experienced in the mine sites. Gas Jet Erosion test simulates **erosion at higher velocity and temperature**, reflecting conditions in cyclones and transfer points. Both Dry Sand/Rubber Wheel and Taber Abrasion tests are indicative of **sliding abrasion** from coarse particles as applicable in chutes.

SOLUTION

LOCTITE PC 7218 demonstrated significantly lower volume loss across various erosion and abrasion tests, attributed to its high hardness of Shore D 90, compact aluminium oxide beads, and epoxy formulation, which enables excellent resistance to dry particle abrasion. This ensures long term durability in harsh mining conditions. Ultimately, Loctite PC 7218 optimises operations with increased reliability on mining equipment, improved safety of application, and reduced maintenance cost.

TESTING METHODOLOGY

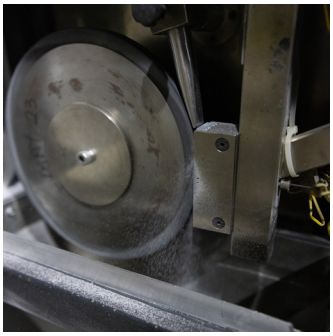
LOCTITE PC 7218 was evaluated through three standardised tests conducted by an ISO/IEC 17025-accredited international lab and by an Australian third-party lab. Testing simulated operational conditions, including elevated temperatures (40°C and 80°C) and impact angles of 15°, 45°, and 90° for the Gas Jet Erosion test. Results were benchmarked against competing wearing compound products to confirm durability and field relevance.

Tests conducted:

ASTM G-76 Gas Jet Erosion	
Erodent discharge: 0.033 g/s	**Nozzle size and material:** Φ 1.5 × 50 mm long, alumina
Erodent Velocity: 70 m/s (0.37 bar)	**Erodent:** Alumina (Al_2O_3), 50 um
Test Temperature: 40°C & 80°C	**Distance from specimen top face to nozzle tip:** 10 mm
Test duration: 15 min	**Specimen size:** 20 × 20 ×5 mm (for 15°) 25×25×5 mm (for 45°, and 90°)
Impingment: 15° 45° 90°	

ASTM G-65 Dry Sand/Rubber Wheel Abrasion	
Procedure: Method B	**Total Wheel Revolutions:** 2000
Force Against Specimen: 130 N	**Wheel Diameter:** 228.6 mm
Rotational Speed: 200 RPM	**Linear Abrasion Distance:** 1,436 m
Test Duration: 10 minutes	

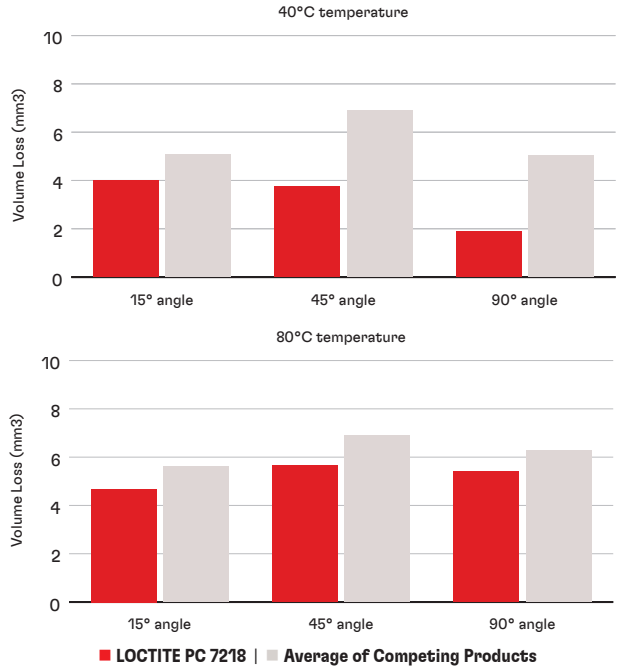
ASTM D-4060 Taber Abrasion	
Type of grinding wheel: H-22	**Number of cycles of abrasion:** 1000
Thickness of grinding wheel: 12.7±0.3 mm	**Rotation rate:** 60r/min
External diameter of grind wheel: 44.4 mm-51.9 mm	**The auxiliary mass:** 750g (per wheel)
The arm mass: 250g	



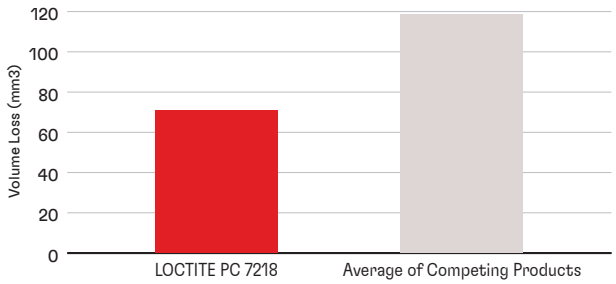
LOCTITE PC 7218 under the Dry Sand/ Rubber Wheel Abrasion Test

PERFORMANCE RESULTS

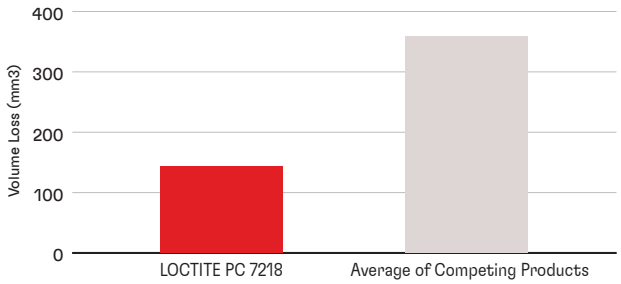
ASTM G-76 - Gas Jet Erosion



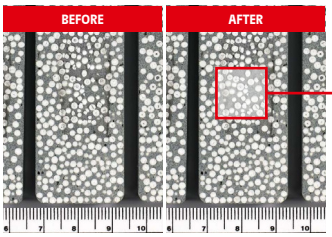
ASTM G-65 - Dry Sand/Rubber Wheel Abrasion



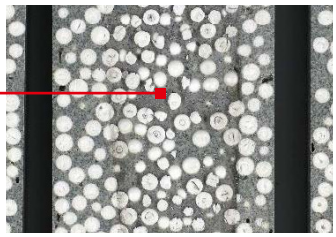
ASTM D-4060 - Taber Abrasion



LOCTITE PC 7218 consistently demonstrated lower volume loss across three standardised wear tests: **29% lower** in ASTM G-76 (Gas Jet Erosion) averaging all angles and temperature, **40% lower** in ASTM G-65 (Rubber Wheel Abrasion), and **60% lower** in ASTM D-4060 (Taber Abrasion), compared to competing products. Lower volume loss indicates **less wearing compound degradation** over time, which translates to strong wear resistance under abrasive conditions, supporting longer service life and more predictable maintenance in mining applications.



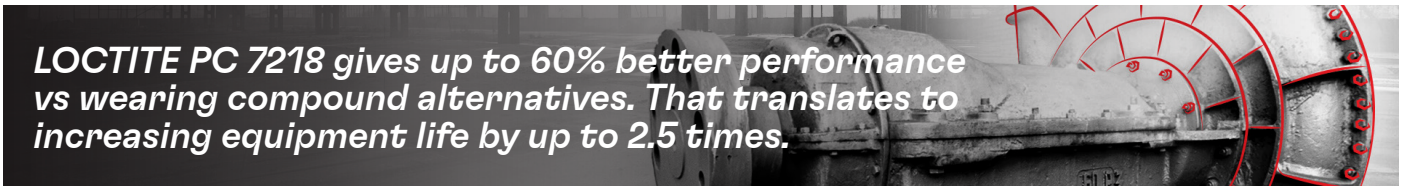
LOCTITE PC 7218 specimen under the ASTM G-65 Dry Sand/Rubber Wheel Abrasion Test (scale in cm).



ASTM G-65 specimen wear scars after testing

WHY THIS MATTERS?

Selecting an appropriate wear prevention solution is a **proactive measure** that supports operational reliability and long-term asset performance. LOCTITE PC 7218 achieved up to 60% less material loss in abrasion testing, outperforming the average wearing compound alternatives in standardised wear assessments. This indicates significantly reduced wearing compound degradation under abrasive conditions, contributing to **increased Mean Time Between Failures (MTBF)** and **reduced unplanned downtime**. Early adoption of a high performance protective coating enables more predictable maintenance planning, extended equipment life, and improved cost efficiency over time.



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