

**TOUGHMET APPLICATION:
SURFACE MINING
PROFILE: BUCYRUS INTERNATIONAL, INC.**



Bucyrus International, Inc. is a world leader in the design and manufacture of high productivity mining equipment for the surface and underground mining industries. Bucyrus equipment is used for mining coal, copper, iron ore, oil sands and other minerals.

CHALLENGE:

To gain competitive advantages for its customers, Bucyrus looked to extend the bushing life in the take-up idlers on their electric mining shovels. The idler, a non-powered roller at the end of the crawlers, sees ground reaction, as well as steering loads. It takes up slack in the track to prevent slipping. Under demanding conditions, the idler's bushings are subject to abrasive wear, contamination, deformation under severe loads and galling.



ToughMet is used in the take-up idler bushing.

SOLUTION:

Bucyrus sought a high-performance material to replace the manganese bronze used in their take-up idler bushings. They chose Materion Performance Alloys' ToughMet because of its high tensile strength and low friction. ToughMet[®] also offers a significantly higher yield strength and hardness than manganese bronze. A typical manganese bronze take-up idler bushing can be expected to yield a service life of about 7,000 hours, or approximately one year. ToughMet[®] bushings, on the other hand, can often last two to three times longer, depending upon the service environment.



ToughMet[®] was used initially on a Bucyrus 495HF shovel in a demanding tar sands application in northern Alberta. After 10,000 hours of service, the ToughMet[®] take-up idler bushing was removed for inspection. It showed only about 50 percent wear – far exceeding the performance of manganese bronze. As a result, ToughMet[®] is now standard in the take-up idler bushings for all large shovels manufactured by Bucyrus.



**TECHNICAL
INQUIRIES**
P: 800.375.4205
F: 216.383.4005

PERFORMANCE ALLOYS
6070 Parkland Boulevard
Mayfield Heights, OH 44124 USA
P: 800.321.2076 +216.486.4200
www.materion.com/brushalloys

CS00006 06.15